



MISSOURI'S ORAL HEALTH: UNDERSTANDING AND OVERCOMING BARRIERS TO ORAL HEALTH ACCESS

A Report Prepared for:

Health Care Foundation of Greater Kansas City
Missouri Foundation for Health
REACH Healthcare Foundation

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Executive Summary

In January of 2012, three Missouri foundations launched an initiative to assess the impediments to improving oral health for the state's population. The REACH Health Care Foundation, the Missouri Foundation for Health and the Health Care Foundation of Greater Kansas City undertook an in-depth examination of the state of the state's oral health. Their intent was to develop a deeper understanding of what inhibits Missourians from achieving optimal oral health, and to use that understanding to inform and guide future funding decisions.

The State of Oral Health in Missouri

According to the US Census Bureau, in 2010 the state of Missouri had a population of 5,988,927, 19% of whom lives in poverty. The Surgeon General's report, *Oral Health in America* indicates that individuals in families living below the poverty level experience more dental decay than those who are economically better off.¹ While Missouri's children have access to dental care through Medicaid, in 2005, Missouri legislation eliminated comprehensive dental benefits for most adults in the state. Only pregnant women, the blind, and residents in nursing facilities retained comprehensive benefits.

Unfortunately, reliable, comprehensive data documenting the oral health status of the Missouri population are difficult to obtain. The state has no all-inclusive surveillance system that routinely collects, analyzes and reports data on either the incidence of oral disease, or the utilization of services for prevention and/or restorative treatment, so we look to other sources for an assessment of the state's oral health.

- The Pew Charitable Trust's Center on the States graded all 50 states based on benchmarks that they consider important steps to improve and expand access to dental health. While 27 states merited grades of B or above, the state of Missouri received a grade of C, having met or exceeded only half of those benchmarks.
- The Centers for Disease Control's Behavioral Risk Factor Surveillance System found that 64.3% of Missouri adults reported having a dental visit within the last 12 months, less than the national average of 69.7%. Of that same group, 19.5% have had all of their natural teeth extracted, slightly higher than the national average rate of 17%.
- A Missouri Department of Health and Senior Services (DHSS) survey of the oral health status of the adult population showed only 24% of older adults residing in skilled nursing facilities reported having seen a dentist in the past year, 44% were assessed as having untreated decay, and 22% having severe periodontal disease.²
- In FY 2010, less than 30% of Missouri's Medicaid children received any dental service and only 4.5% received a sealant on a permanent molar tooth.³
- The rate of Head Start children receiving needed dental treatment lags behind regional and national averages.
- In 2011, Missouri's Preventive Services Program reported that 18.1% of school children had "unsatisfactory oral hygiene" and 27.1% had untreated decay. Among third graders, only 28.3% had sealants.
- Disparities in oral health are evidenced by the fact that non-Hispanic blacks, Hispanics, American Indians, and Alaska Natives generally have the poorest oral health of any racial and ethnic groups in the country.
- Approximately 10.8% of all dentists licensed in Missouri participate in Medicaid, which reportedly reimburses 46.7% of dentists' median retail fees, well below dentists' overhead costs.
- The Missouri DHSS reports that approximately 80% of Missouri residents are receiving fluoridated water through community water systems.⁴

Missouri's Oral Health Workforce

Workforce statistics are also difficult to pinpoint with accuracy.

- The Missouri Dental Board reports there are 2,471 licensed dentists with Missouri addresses, 86.8% of whom practice full-time.
- An analysis conducted for the DHSS showed that in 28 of Missouri's counties, over half of the practicing dentists plan to retire within 10 years.⁵

1 US Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. 2000. <http://www.nidcr.nih.gov/DataStatistics/SurgeonGeneral/sgr/chap4.htm>. Accessed April, 2012.

2 MO Department of Health and Senior Services. Office of Primary Care and Rural Health. *Oral Health Program. Adult Oral Health Assessment: Executive Summary*. http://health.mo.gov/living/families/oralhealth/pdf/Adult_Oral_Health_Assessment_Executive_Summary.pdf. Accessed April, 2012

3 Medicaid.gov. <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Downloads/2010-State-Data.pdf>. Accessed April, 2012.

4 Personal communication from Ken Tomlin, MO DWR to Wendy Frosh. May, 2012.

5 Missouri Department of Health and Senior Services. *Update of Area-Wide Need-Based Planning Model for Oral Health Services*. 2009. <http://health.mo.gov/living/fami->

- According to the Dental Board, there are 2,622 licensed dental hygienists with addresses in Missouri.
- While typically, a hygienist practices under the General Supervision of a dentist, a hygienist who has three years of practice may provide fluoride treatments, cleanings and sealants to Medicaid eligible children in certain settings, without the supervision of a dentist.
- It is estimated that there are approximately 6,000 dental assistants working in the state, who perform basic supportive dental procedures under the direct supervision of a dentist.⁶ Certified assistants who have met specific requirements may perform expanded functions, although their utilization is not universal across the state.

The US Department of Health and Human Service's Health Resources and Services Administration (HRSA) reports that 101 of Missouri's 114 counties are designated as dental health provider shortage areas (DHPSAs), affecting 21.6% of the population.⁷ According to the Kaiser Foundation, a total of 218 dentists would be required to remove Missouri's DHPSA designations.⁸ The distribution of dentists across the state, the actual number of hours they work, and their availability to individuals who do not have adequate resources to pay for care serve as barriers to access.

Results from Interviews with Key Stakeholders

Over the course of this project, a series of interviews was conducted to gain a richer understanding of the barriers to oral health care in Missouri. Among the barriers to care identified were the following: a lack of financial resources; limitations in the Medicaid program; lack of access to providers; Missouri's statutes and regulations; oral health literacy; travel time and transportation; cultural competence; the culture of dentistry; inadequate training to address the needs of children and populations with special needs; practitioners are not consistently used to the full extent of their training; and oral health is not integrated into the health care system.

An overwhelming sentiment expressed by Missouri stakeholders was that care needs to be directed to and delivered in venues frequented by target populations. These individuals suggested a very broad range of solutions, including a variety of workforce initiatives, systems changes and programmatic interventions. Many of these approaches have been used in other states and/or countries with good success. Among them were:

- Utilize dental workforce members to fullest extent of their training;
- Expand the dental hygiene public health scope and site of practice;
- Create licensure for dental therapists and/or advanced dental hygiene practitioners;
- Train and license medical mid-level practitioners to provide restorative care;
- Standardize protocols for dental clinic set-up and care;
- Create a system of care coordination and case management;
- Develop community dental health coordinators;
- Increase Medicaid reimbursement;
- Streamline the administrative systems of Medicaid;
- Implement a comprehensive, statewide oral health literacy program;
- Build a network of mobile dental programs;
- Implement a statewide school-based sealant program; and
- Increase and improve training regarding the provision of care to high risk populations including children, developmentally disabled, elderly and others with special needs.

It is generally accepted that there are barriers to access to appropriate oral health care across the state of Missouri. While there is controversy regarding the most effective way(s) to eliminate those barriers and increase access to care, stakeholders increasingly verbalize the urgency of addressing the issue. The creation of a multi-faceted array of solutions will require creativity, courage, and above all, a commitment to meeting the needs of the public, rather than protecting the status quo.

lies/oralhealth/pdf/Update_Oral_Health_Planning_Model.pdf Accessed May, 2012.

6 Missouri Expanded Function Dental Assistants. <http://moefda.org/programoverview.html>. Accessed, April, 2012

7 US DHHS. HRSA. <http://hpsafind.hrsa.gov/HPSASearch.aspx>. Accessed April, 2012.

8 Kaiser Family Foundation. State Health Facts. <http://www.statehealthfacts.org/profileind.jsp?rep=114&cat=8&rqn=27>. Accessed April, 2012.

Introduction

Since the publication in 2000 of the Surgeon General's Report, *Oral Health in America*, many efforts have been undertaken to address oral health status across the country. Although much has been done to improve access to both preventive and restorative care, caries (dental decay) still affects the majority of Americans. Estimates of the incidence of caries suggest that 60% of children and 85% of adults have been affected by this largely preventable infectious disease.⁹

As science now increasingly demonstrates the links between oral health and overall health, addressing this "silent epidemic" takes on an added imperative. Oral diseases such as caries and periodontal infections have been associated with systemic health problems such as heart disease, respiratory disorders, diabetes and pre-term births.¹⁰ The tragic story of Deamonte Driver, the Maryland twelve year old who died in 2007, when bacteria from an abscessed tooth spread to his brain,¹¹ has permeated both the mainstream media and public health professional literature, but few of us are aware of the other children, adults and elders whose dental infections have led to their illnesses and/or deaths. Most of these stories fly under the public's radar, but their implications are no less profound.

While we do know that we can prevent over 90% of oral infections through the deployment of evidence-based measures like community water fluoridation and school-based sealant programs (where a thin plastic coating is applied to children's molar teeth), these proven preventive measures are still not available to many of the most vulnerable in our communities. The impact of this failure to deploy effective prevention is further complicated by the fact that the services to treat dental disease are frequently inaccessible to many, particularly those who are at highest risk for oral health problems. Despite improvements in oral health status, profound disparities exist within segments of our population. Age, income, race, ethnicity, education and geography may all play a role and often serve as barriers to good oral health.

According to the US Centers for Disease Control and Prevention (CDC), disparities in oral health are evidenced by the following:

- Non-Hispanic blacks, Hispanics, American Indians, and Alaska Natives generally have the poorest oral health of any racial and ethnic groups in the United States.
- Blacks, non-Hispanics, and Mexican Americans aged 35–44 years experience untreated tooth decay nearly twice as much as white, non-Hispanics.
- Adults aged 35–44 years with less than a high school education experience untreated tooth decay nearly three times that of adults with at least some college education.¹²

Just as the barriers to improved oral health status differ from population to population and community to community, so must the solutions we design to overcome these barriers. There is no "one size fits all" approach to addressing the issues that impede individuals from achieving optimal oral health. Instead, it is likely that success in improving oral health will be achieved through the implementation of a variety of inter-locking solutions that address issues as disparate as oral health literacy, transportation, cultural competence, financing and workforce, among others. Each of these plays a role in limiting access, and each will need to be addressed to improve access.

In January of 2012, three foundations that support improvements in oral health in Missouri launched an initiative to assess the impediments to improving oral health for the state's population. The REACH Health Care Foundation, the Missouri Foundation for Health and the Health Care Foundation of Greater Kansas City, having partnered historically on oral health initiatives, undertook an in-depth examination of the state's oral health. Their intent was to develop a deeper understanding of what inhibits Missourians from achieving optimal oral health, and to use that understanding to inform and guide future funding decisions.

The report that follows attempts to document the state of the state's oral health, the distribution of the oral health workforce, barriers to access, historical efforts to address access, and potential solutions to those barriers to care in Missouri. The report examines both national and state data documenting oral health status and availability of providers. It also summarizes information gathered through interviews with representatives of the state's oral health stakeholders – dental professionals, health and human service safety net organizations, health advocates, public health professionals, state government, and others involved in the design, development and delivery of services for the Missouri population.

⁹ US Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. 2000. Pg. 37

¹⁰ US Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. 2000. Pgs.107 – 123.

¹¹ Otto, M. *For Want of a Dentist*. *Washington Post*, February 28, 2007.

¹² http://www.cdc.gov/OralHealth/oral_health_disparities.htm. Accessed April, 2012.

Missouri's Oral Health: The State of the State

According to the US Census Bureau, in 2010 the state of Missouri had a population of 5,988,927. Of that population, 6.5% is under the age of 5; 23.8% is under the age of 18; 62.2% is aged 18 to 64; and 14% is aged 65 and over.

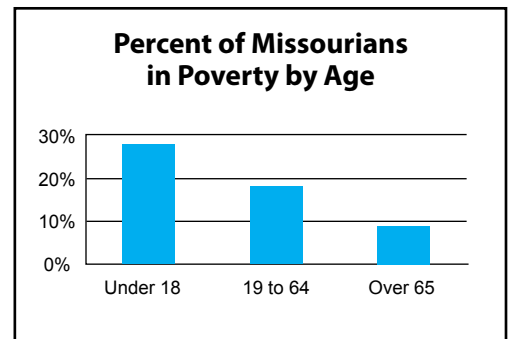
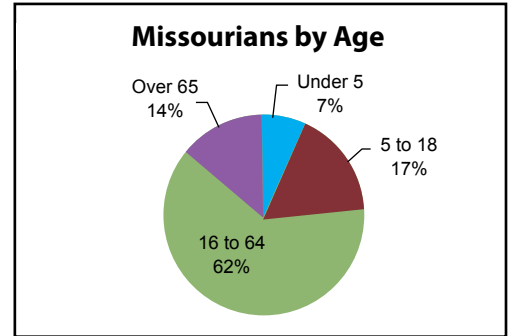
The median annual income in Missouri is \$47,460, compared to the national median of \$50,022. Nineteen percent of the population – 1,156,500 – lives in poverty. Viewed in terms of age, poverty affects 28% of Missouri's children ages 18 and under, 18% of adults ages 19 to 64 years of age, and 9% of adults 65 and over.

Seventy-eight percent of the population is considered to reside in the state's metropolitan areas, and 22% is considered non-metropolitan, with those living in poverty fairly equally distributed (19% and 20% respectively). Caucasians account for 83% percent of the total population and 77% of Missouri children; 11% of the total population and 13% of children are Black; 3% of the total and 5% of children are Hispanic; and 3% of the total and 5% of children are listed as 'other'.¹³

The Government Accountability Office's (GAO) economic research suggests that individuals living in poverty face an increased risk of adverse outcomes such as poor health.¹⁴ Indeed, the impact of economics on access to care is multi-layered, as evidenced by the fact that income, education and health status are highly correlated. The National Bureau of Economic Research argues that the more educated a person is, the better able that individual is to understand and use health information, and better placed to benefit from the healthcare system, thus creating improvements in health status and longer life expectancy.¹⁵ In a study issued by the U.S. Census Bureau in 2002, it was reported that average earnings ranged from \$18,900 for high school dropouts, to \$25,900 for high school graduates, \$45,400 for college graduates, and \$99,300 for workers with professional degrees.¹⁶ According to Missouri's Statewide Oral Health Plan, in over 50% of the state's counties, more than 20% of the population has no high school education.¹⁷

Health insurance status is often a determinant of access to health care. Compared to their insured counterparts, the uninsured are less likely to receive services (both preventive and routine), lack access to important prescription medications, and thus have poorer health outcomes. In Missouri, 51% of the population is covered by an employer-sponsored health plan; 6% are covered by individual health plans; 14% are Medicare beneficiaries; 14% are Medicaid beneficiaries; and 14% are uninsured.¹⁸ Of the Medicaid beneficiaries, 99.1% are enrolled in Medicaid Managed Care.¹⁹

Medicaid eligibility for Missouri children is broken down by age. For children up to 1 year in age, the family income can be no more than 185% of the federal poverty level (FPL). For children 1 to 19 years, the family income level can be no more than 150% of the FPL. The Children's Health Insurance Program (CHIP) nationally provides health coverage to nearly 8 million children in families with incomes too high to qualify for Medicaid, but who can't afford private coverage. Signed into law in 1997, CHIP allocates federal matching funds to states to provide this



	Total Population	Under 18
Caucasian	83%	77%
Black	11%	13%
Hispanic	3%	5%
Other	3%	5%

US Census 2000

13 US Census Bureau. State Quick Facts. <http://quickfacts.census.gov/qfd/states/29000.html>. Accessed April, 2012.

14 Government Accountability Office. Poverty in America. 2007. <http://www.gao.gov/new.items/d07344.pdf> Accessed April, 2012.

15 Deaton, A. Health, Income and Inequality. National Bureau of Economic Research. Reporter: Research Summary Spring 2003. <http://www.nber.org/reporter/spring03/health.html>. Accessed April, 2012.

16 Day, JC and Newberger, EC. The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings. US Census Bureau. 2002. <http://www.census.gov/prod/2002pubs/p23-210.pdf>. Accessed April 2012.

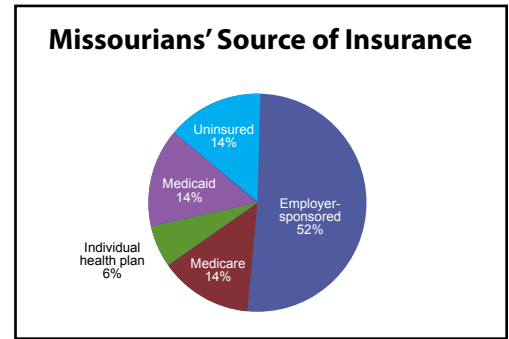
17 Creating a Healthier Missouri: A Statewide Oral Health Plan 2009. MO DHSS. <http://health.mo.gov/living/families/oralhealth/pdf/OralHealthPlan.pdf>. Accessed April, 2012.

18 Kaiser Family Foundation. State Health Facts. <http://www.statehealthfacts.org/profileind.jsp?cat=3&sub=39&rgn=27>. Accessed April, 2012.

19 Kaiser Family Foundation. State Health Facts. <http://www.statehealthfacts.org/profileind.jsp?ind=217&cat=4&rgn=27>. Accessed April, 2012.

coverage. In Missouri, families with income up to 300% of the FPL are able to purchase CHIP insurance for their children. Because of the income eligibility requirements, enrollment numbers vary month to month. The average monthly enrollment in 2010 was 73,228.²⁰ Missouri is one of 17 states with eligibility rates that reach such a broad sector of its population.²¹

For children ages 0-18, the rate of uninsurance is 3.4%; and for adults ages 19-64, the rate is 12.3%. The Missouri Health Care Access and Insurance Survey found that the following groups were more likely to be uninsured: self-employed workers; unemployed or unpaid individuals; part-time, temporary or seasonal workers; employees of firms with 10 or fewer employees; and employees in agriculture and personal service industries.²² With regard to dental insurance, 28% (1,677,245) of Missouri's 5,988,927 residents have coverage. Of these, 15% (879,825) Missouri residents are eligible for dental coverage (full or partial) under the state's Medicaid program. The Missouri Department of Insurance documents that in 2010, private dental insurance was provided to 12% (738,398) of Missouri residents through group plans²³, and 1% (59,022) through individual plans.²⁴



Missouri's Oral Health Status

Reliable, comprehensive data documenting the oral health status of the Missouri population are difficult to obtain. There is no all-inclusive surveillance system that routinely collects, analyzes and reports data on either the incidence of oral disease, or the utilization of services for prevention and/or restorative treatment, so we must look to a variety of other sources for a an assessment of the state's oral health.

The Pew Charitable Trust's Center on the States issued a report card that graded all 50 states based on eight benchmarks that they consider important steps to improve and expand access to dental health. While 27 states merited grades of B or above, the state of Missouri received a grade of C, having met or exceeded only half of those benchmarks. [See Figure 1] Almost 80% of Missouri's residents are on fluoridated community water systems (national=75%); dental hygienists are able to place sealants on children's teeth without a dentist's prior exam; Missouri pays medical providers for early preventive oral health care; and the state tracks data on children's dental health. On the other hand, less than 25% of Missouri schools have a sealant program; only 30.3% of Missouri's Medicaid enrolled children received dental care (national = 38.1%); only 46.7% of dentists' median retail fees are reimbursed by Medicaid (national= 60.5%); and the state does not currently authorize new models of primary dental care providers.²⁵

Figure 1

HOW WELL IS MISSOURI RESPONDING?				2011: C
DATA YEAR	MEASURED AGAINST THE NATIONAL BENCHMARKS FOR EIGHT POLICY APPROACHES	STATE	NATIONAL	MEETS OR EXCEEDS
2010	Share of high-risk schools with sealant programs	0%	25%	
2010	Hygienists can place sealants without dentist's prior exam	YES	YES	✓
2008	Share of residents on fluoridated community water supplies	79.8%	75%	✓
2009	Share of Medicaid-enrolled children getting dental care	30.3%	38.1%	
2010	Share of dentists' median retail fees reimbursed by Medicaid	46.7%	60.5%	
2010	Pays medical providers for early preventive dental health care	YES	YES	✓
2010	Authorizes new primary care dental providers	NO	YES	
2010	Tracks data on children's dental health	YES	YES	✓
Total score				4 of 8

Grading: A = 6-8 points B = 5 points C = 4 points D = 3 points F = 0-2 points

Pew Charitable Trust Report Card

20 Kaiser Family Foundation. State Health Facts. <http://www.statehealthfacts.org/profileglance.jsp?rgn=27#>. Accessed May 2012.

21 Georgetown University Health Policy Institute. Center for Children and Families. <http://ccf.georgetown.edu/index/medicaid-and-schip-programs>. accessed May 2012.

22 Missouri Health Care Insurance and Access Survey. Missouri Department of Health and Senior Services. 2005. http://health.mo.gov/data/pdf/Missouri_Final_Report.pdf. Accessed April, 2012.

23 MO Department of Insurance. 2010 Life, Accident & Health Supplemental Report. <http://insurance.mo.gov/reports/suppdata/index.php?formPost=1&select=A050701&select1=&select2=&year=2010&Submit=Submit>. Accessed April, 2012.

24 MO Department of Insurance. 2010 Life, Accident & Health Supplemental Report. <http://insurance.mo.gov/reports/suppdata/index.php?formPost=1&select=A040701&select1=&select2=&year=2010&Submit=Submit>. Accessed April, 2012.

25 Pew Charitable Trust. Pew Center on the States. <http://www.pewstates.org/research/state-fact-sheets/childrens-dental-health-missouri-85899373250> Accessed April, 2012.

Missouri's Adults

While the Behavioral Risk Factor Surveillance System, a survey administered and maintained by the federal Centers for Disease Control (CDC), is a widely cited source of data, the questions posed regarding oral health offer minimal assistance in ascertaining levels of access to care. Instead, they offer a snapshot of service utilization, as demonstrated by the following.

In the 2010 Behavioral Risk Factor Surveillance System 64.3% of Missouri adults reported having a dental visit within the last 12 months, slightly less than the national average of 69.7%. Of that same group, 19.5% have had all of their natural teeth extracted, compared to 17% across the country. Using the fifty states as the benchmark, Missouri's rankings on several oral health indicators are as follows: 41st on the percentage of the population that has seen a dentist within the past 12 months; 33rd on the percentage who had their teeth cleaned in the past 12 months; and 15th on the number who had not had any teeth removed.²⁶

Comparative Statistics on Adult Oral Health			
	Missouri	U.S. Average	Ranking
% of adults with a dental visit in the past 12 mo.	64.3%	69.7%	41st
% of adults with all natural teeth extracted	19.5%	17.0%	15th

Source: 2010 BRFSS Survey

In 2005, Missouri legislation eliminated comprehensive dental benefits from Medicaid for most adults in the state. Only pregnant women (until six weeks after the birth of the child), the blind, and residents in nursing facilities retained comprehensive benefits, while a variety of waivers piece together care for small numbers of developmentally disabled adults. All other eligible adults are entitled to receive limited services related to trauma to the mouth, jaw or teeth, as a result of injury or a pre-existing medical condition which would be otherwise adversely affected.²⁷

In 2009, the Missouri Department of Health and Senior Services (DHSS) undertook a survey of the oral health status of the adult population, which showed that many of Missouri's older adults were in need of oral health care. Included in the survey were three specific sectors of the adult population: adults living independently and seeking services at a meal site/community center (sometimes referred to as "well elderly"); adults requiring living assistance residing in skilled nursing facilities (SNFs) (sometimes referred to as "ill elderly"), and adults who were considered underinsured and uninsured by virtue of the fact that they sought health and care services through homeless shelters or federally qualified health centers.

A total of 1,904 adults were assessed, 90% of whom were over the age of 60; 1,186 individuals in skilled nursing facilities, 464 from meal sites (senior centers), 124 from homeless shelters, and 130 at federally qualified health centers. Only 24% of those "ill elderly" residing in SNFs reported having seen a dentist in the past year, while 44% were assessed as having untreated decay, and 22% having severe periodontal disease. Of the "well elderly" who were surveyed in community sites, more than 50% reported having seen a dentist in the last year; almost 18% required dental care; 20% had untreated decay; and 14% had severe periodontal disease.²⁸ [Figure 2 shows the number of Missouri Seniors per County Enrolled in MO HealthNet and Figure 3 shows the number of Dental Service Senior Claims Filed with MO HealthNet by County.]

Another resource for investigating access to care and use of resources is the Agency for Healthcare Research and Quality's (AHRQ) Medical Expenditure Panel Survey (MEPS). The MEPS report for 2007 indicated that 47.4% of Missourians had a dental expense in that year, and of those expenditures, 47% were out of pocket.²⁹

26 CDC Behavioral Risk Factor Surveillance System. Prevalence and Trends Data: Oral Health. 2010. <http://apps.nccd.cdc.gov/BRFSS/page.asp?cat=OH&yr=2010&state=MO#OH>. Accessed April, 2012.

27 Personal correspondence. Dr. Ian McCaslin to Diann Bomkamp. February 14, 2012

28 MO Department of Health and Senior Services. Office of Primary Care and Rural Health. Oral Health. Program. Adult Oral Health Assessment: Executive Summary. http://health.mo.gov/living/families/oralhealth/pdf/Adult_Oral_Health_Assessment_Executive_Summary.pdf. Accessed April, 2012

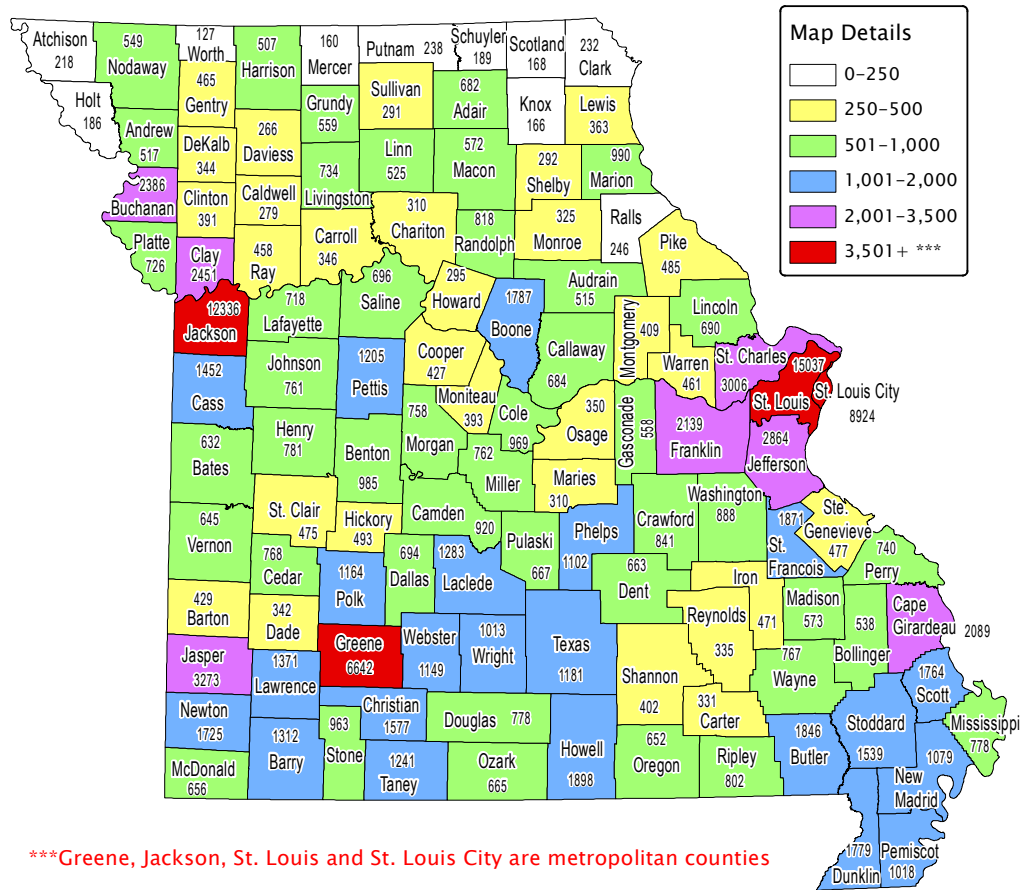
29 Agency for Healthcare Research and Quality. Medical Expenditure Panel Survey. Dental Services - Percent of persons with a dental expense, mean expense per person with an expense, and percent of total paid out of pocket, United States, 2007. http://meps.ahrq.gov/mepsweb/data_stats/summ_tables/hc/state_expend/2007/table2.htm. Accessed April, 2012.

Figure 2



2011 Missouri Seniors per County
Enrolled in MO HealthNet

136,134 Seniors Enrolled in Mo HealthNet



Source: MO HealthNet Feb 2011
Missouri Department of Health and Senior Services

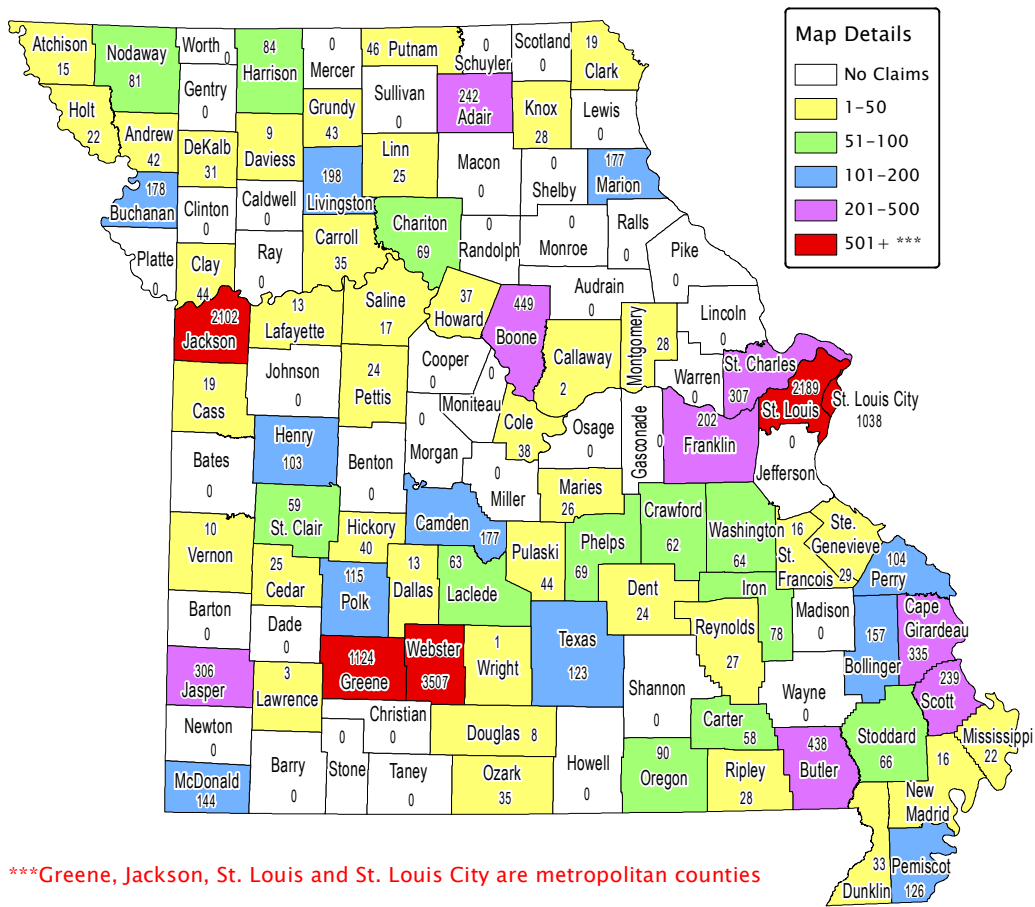
Office of Primary Care and Rural Health
S. Liley
Seniors Per County 2012
March 2012

Figure 3



2011 Dental Service Senior Claims Filed With MO HealthNet per County

15,860 total senior claims



***Greene, Jackson, St. Louis and St. Louis City are metropolitan counties

Source: Mo HealthNet February 2012
Missouri Department of Health and Senior Services

Office of Primary Care and Rural Health
S. Liley
M-Dental Claims 2012
March 2012

Missouri's Children

The Early Periodic Screening, Diagnosis, and Treatment (EPSDT) Program is the child health component of Medicaid. It is required in every state and is designed to improve the health of low-income children by financing appropriate and necessary pediatric services. According to the EPSDT website, "the purpose of the EPSDT program has been to discover, as early as possible, the ills that handicap our children and to provide continuing follow up and treatment so that handicaps do not go neglected."³⁰ The services provided to children under EPSDT are mandated for every child enrolled in Medicaid. Among the data that are tracked are several oral health indicators. Of the 686,693 Missouri children eligible for EPSDT in FY 2010, just under 30% (205,965) received any dental service; 26.7% (183,340) received preventive dental services; 14.5% (99,887) received dental treatment services; and 4.5% (31,271) received a sealant on a permanent molar tooth.³¹

Head Start/Early Head Start is a federal program that promotes the school readiness of children from low-income families, ages birth to five, through a comprehensive set of services, including health and dental care. Program staff are required to determine if each child has an ongoing source of continuous, accessible health care and if not, to assist the parents in accessing a source of care through the Head Start Dental Home Initiative (DHI). DHI is comprised of a network of dentists who work to link Head Start children with dental homes, which offer children access to comprehensive, coordinated, family-centered oral health care. Staff are required to obtain a determination from the health care professional as to whether the child is up-to-date on a schedule of age appropriate preventive and primary health care which includes medical, dental and mental health, including the requirements for a schedule of well child care utilized by the state's EPSDT program.

The total cumulative enrollment for pregnant women and children for Early Head Start and Head Start in Missouri in 2010-2011 was 22,636. While summary data from the 40 programs in the state for that period (summarized in the table that follows) show that overall, Missouri's Head Start programs have achieved significant success in securing dental services for their enrollees, the rates of children receiving needed treatment and those who are up-to-date on their EPSDT requirements lag behind regional and national averages. Additionally, the averages obscure the disparities between the programs. Where overall, the Dental Home Initiative has a success rate of 91%, 8 of the 40 programs in the state have a rate at or below 70%, and the lowest score was 33.7%. The average rate for children in need of treatment was 17%, but 12 programs reported more than 20% of their children in need of treatment, and the highest rate was 46%. On average, close to 81% of children received needed treatment, but 7 programs had scores of less than 70%, with the lowest reported score of 20%. Children up to date on dental EPSDT averaged 73% across all programs, while 6 programs scored less than 70%, and the lowest score was 42%.

2010 - 2011 Head Start Program Information Report (PIR)*							
Dental Services Report - Program Level: Region 07 Missouri							
State Summary							
Dental Home	Preschool Preventive Care	Preschool Completed Dental Exam	Preschool Needed Treatment	Preschool	Received Treatment	0-2 Up-to- Date on Dental EPSDT	Pregnant Women Completed Dental Exam
Missouri	91.10%	89.76%	88.19%	17.03%	80.60%	73.54%	45.50%
National	90.06%	85.34%	88.59%	20.66%	82.80%	77.07%	42.51%
Region 07	90.52%	89.18%	87.67%	17.60%	82.53%	75.98%	39.28%

Head Start Program Information Report. Dental Services Report. [https://hses.ohs.acf.hhs.gov/cognos8/cgi-bin/cognos.cgi?b_action=cognosViewer&ui.action=run&ui.object=storeID\("15D7F3C5D420B4DB69D44CA41D7BA51F3](https://hses.ohs.acf.hhs.gov/cognos8/cgi-bin/cognos.cgi?b_action=cognosViewer&ui.action=run&ui.object=storeID(). Accessed, May 2012

³⁰ US Department of Health and Human Services. Health Resources and Services Administration. Maternal and Child Health. <http://mchb.hrsa.gov/epsdt/overview.html>. Accessed April, 2012.

³¹ Medicaid.gov. <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Downloads/2010-State-Data.pdf>. Accessed April, 2012.

Missouri's Department of Health and Senior Services houses the state's Oral Health Program, which sponsors school-based services under the Preventive Services Program (PSP). PSP is a prevention program, which provides surveillance through an annual screening performed by a dentist or a hygienist; oral health education; fluoride varnish; and referral for children in need of dental care. In the 2010-2011 school year, 64,657 children (pre-school through high school) participated in the program. Of those children, 79.9% (51,682) were categorized as having "satisfactory oral hygiene" and 18.1% (11,763) categorized as having "unsatisfactory oral hygiene". With regard to decay, 64.4% (41,826) had no evidence of treated decay, while 34.3% (22,225) had evidence of treated decay. Slightly over 72.4% (46,821) had no untreated decay, and 27.1% (17,547) had untreated decay. Treatment urgency was also measured, with 73.1% (47,327) having no urgent problems, while 20% (12,994) required early dental care (care within the next several weeks) and 10.1% (6,584) were observed to have the need for urgent intervention (care needed within 24 hours). A history of rampant caries was identified among 10.1% (6,584), while 89% (57,561) had no history of rampant caries. Evidence of early childhood caries was identified in 4.5% (2,946), while 93.5% (60,503) had no evidence of early childhood caries. Among third graders, 28.3% had sealants, while 71.6% did not.³²

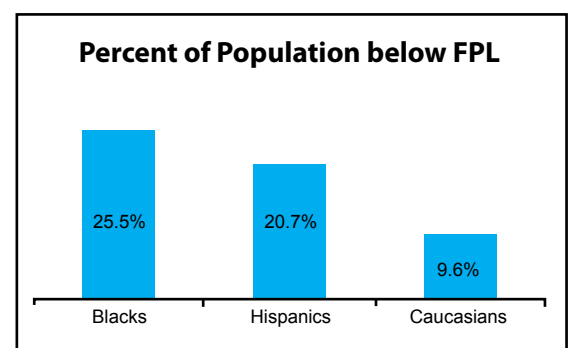
Overall	Satisfactory oral hygiene	79.9%
	Unsatisfactory oral hygiene	18.7%
Treated decay	No evidence of treated decay	64.4%
	Evidence of treated decay	34.3%
Current Decay	No untreated decay	72.4%
	Untreated decay	27.1%
Treatment Urgency	No urgent problems	73.1%
	Early dental care needed	20.0%
	Urgent intervention	10.1%
Rampant Caries	History of rampant caries	10.1%
	No history of rampant caries	89.0%
Caries	Evidence of caries	4.5%
	No evidence of caries	93.5%
Sealants, 3rd Graders	Sealants present	28.3%
	No sealants present	71.6%

An earlier report published by the state's Oral Health Program in 2005, *Show Me Your Smile: The Oral Health of Missouri's Children*, summarized a survey of the oral health of the state's third and sixth grade children, and those in State Schools for the Severely Handicapped (SSSH). At that time, the report documented that 55% of third grade children, 45% of sixth grade children and 46% of SSSH children had a history of tooth decay (at least one tooth that was either decayed or had been filled because of the decay). For third graders, this was *five times higher* than the prevalence of the next most common chronic disease of childhood – asthma. Effectively, more than 1 in 4 third graders, 1 in 5 sixth graders and more than 1 in 5 special health care needs children in Missouri had untreated tooth decay. Because these data were collected through a school-based screening rather than by a complete diagnostic dental examination, the report noted that it could be assumed that this was an underestimation of the proportion of children needing dental care.³³

Disparities in Oral Health

Health disparities are the differences in the presence of disease and the resulting health outcomes, as well as the differences in access to and quality of health and health care, across racial, ethnic, gender, age and socioeconomic groups. The state's Office of Minority Health reported that despite the fact that racial and ethnic groups comprise a small percentage of the total population in the state of Missouri, they suffer disproportionately from chronic illnesses and diseases.³⁴

While data on the oral health of Missouri's racial and ethnic groups are limited at best, the Missouri Foundation for Health published reports on the disparities in the health of African Americans and Hispanics in the state. These reports, published in 2004³⁵



US Census 2000

³² MO Department of Health & Senior Services. Office of Primary Care and Rural Health Center for Health Equity. Preventive Services Program Report; 2010-2011 School Year.

³³ Missouri Department of Health and Senior Services. Office of Primary Care and Rural Health. Oral Health Program. <http://health.mo.gov/living/families/oralhealth/pdf/ShowMeSmile2005.pdf> Accessed April, 2012.

³⁴ Missouri Department of Health and Senior Services. State of Missouri Health Disparities Report: Promoting Health Equity and Reducing Health Disparities in Missouri. 2008. <http://health.mo.gov/living/families/minorityhealth/pdf/DisparityReport.pdf>

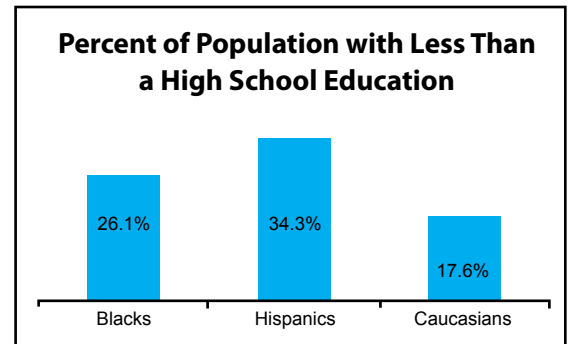
³⁵ Missouri Foundation for Health. Minority Health Disparities in Missouri. Data Book 1: African Americans. 2004.

and 2005³⁶ respectively, document that 25.5% of Blacks and 20.7% of Hispanics fall below the federal poverty line, in comparison to 9.6% of Caucasians.

In addition, 26.1% of Blacks, 34.3% of Hispanics and 17.6% of Caucasians do not have a high school education.

The Surgeon General's report notes that individuals in families living below the poverty level experience more dental decay than those who are economically better off.³⁷ According to the US Centers for Disease Control and Prevention (CDC), disparities in oral health are evidenced by the following:

- Non-Hispanic blacks, Hispanics, American Indians, and Alaska Natives generally have the poorest oral health of any racial and ethnic groups in the United States.
- Blacks, non-Hispanics, and Mexican Americans aged 35–44 years experience untreated tooth decay nearly twice as much as white, non-Hispanics.
- Adults aged 35–44 years with less than a high school education experience untreated tooth decay nearly three times that of adults with at least some college education.³⁸



US Census 2000

Missouri Medicaid: Beneficiaries and Providers

According to the Missouri Department of Social Services, which administers the state's Medicaid program (MO HealthNet), as of December, 2011, 879,825 MO HealthNet beneficiaries were eligible to receive dental benefits. Of these beneficiaries, 530,072 children and 48,738 adults were eligible to receive full dental benefits, while 301,015 adults were eligible to receive limited benefits. Missouri offers dental benefits to its Medicaid-eligible beneficiaries through a traditional fee-for-service model, as well as in 53 counties and the city of St. Louis, through managed care plans. Medicaid beneficiaries are almost evenly split, with 434,924 receiving services through the fee-for-service plan and 444,901 through a managed care plan. In 2011, of these eligible beneficiaries, 103,319 fee-for-service participants and 178,879 managed care participants received dental services.³⁹ [Benefits for Medicaid managed care enrollees are delivered under state contracts through which funding is provided for both clinical and administrative services to managed care companies (MCOs). The MCOs provide medical benefits and subcontract dental services to a separate managed care dental MCO. Again, funding is provided for both clinical and administrative services. The dental MCOs then develop a provider network and reimburse for the procedures performed on their enrollees.]

It is difficult to identify with certainty the exact number of dentists and hygienists practicing in the state. Missouri law requires licensees to keep a current contact address on file with the state Dental Board, but that contact address does not necessarily represent where the person is practicing. Currently, the Dental Board statistics show 3,251 general dentists with active dental licenses, and of those, 2,471 are showing a Missouri contact address. There are 677 dental specialists with active licenses, 98 of whom are pediatric dentists. Of the specialists, 519 have a Missouri contact address.

Of all dentists licensed in Missouri, 359, approximately 10.8%, participate in MO HealthNet. Of the 359 participating in Medicaid, 224 participate in the managed care program. One hundred ninety of these dentists provide at least \$10,000 in claims through the fee-for-service program, and 277 provide at least \$10,000 in claims through the managed care program. [Figure 4 shows the MO HealthNet Managed Care Service Areas, and Figure 5 shows the Number of MO HealthNet Dentists per County Reimbursed for Billed Services.] The Missouri Dental Board 2012 statistics list 3,442 licensed hygienists, 2,622 of whom have Missouri addresses. Nineteen dental hygienists are enrolled as Medicaid providers to offer services in public health settings, but do not receive direct reimbursement from MO HealthNet.⁴⁰ Instead, reimbursement for services provided by those hygienists is provided to the organization that sponsors those services (as will be discussed in more detail later in this report.)

³⁶ Missouri Foundation for Health. *Minority Health Disparities in Missouri. Data Book 2: Hispanics. 2005.*

³⁷ US Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General. 2000.* <http://www.nidcr.nih.gov/DataStatistics/SurgeonGeneral/sgr/chap4.htm>. Accessed April, 2012.

³⁸ http://www.cdc.gov/OralHealth/oral_health_disparities.htm. Accessed April, 2012.

³⁹ Personal correspondence. Dr. Ian McCaslin to Wendy Frosh. April 2, 2012.

⁴⁰ Personal correspondence. Dr. Ian McCaslin to Diann Bomkamp. April 23, 2012.

Figure 4 MO HealthNet Division Managed Care Service Areas

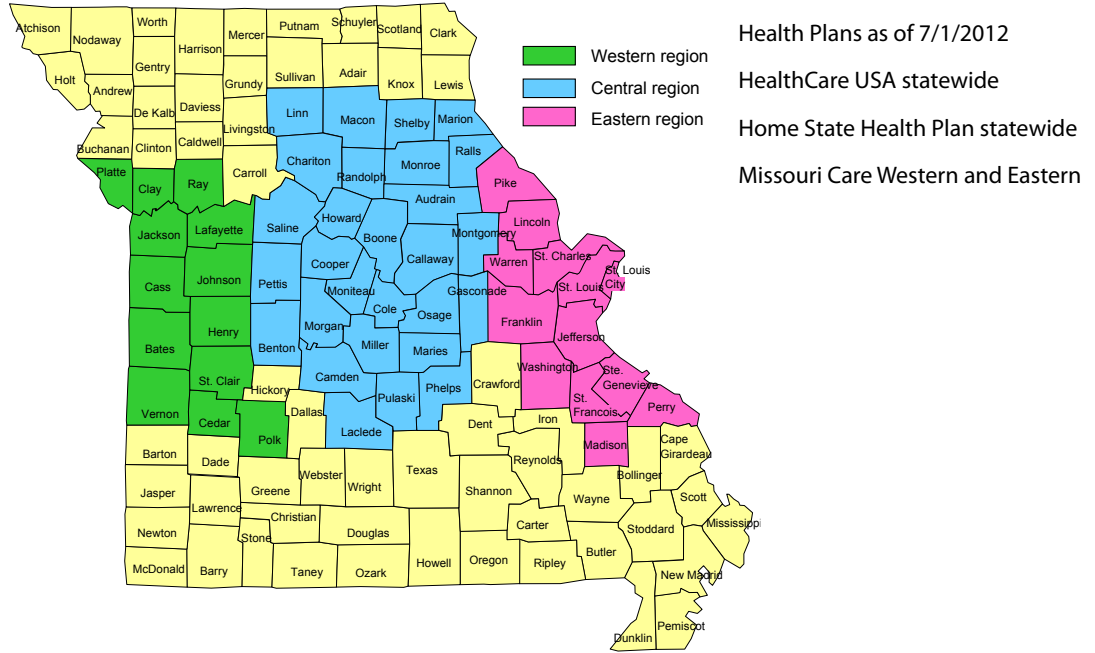
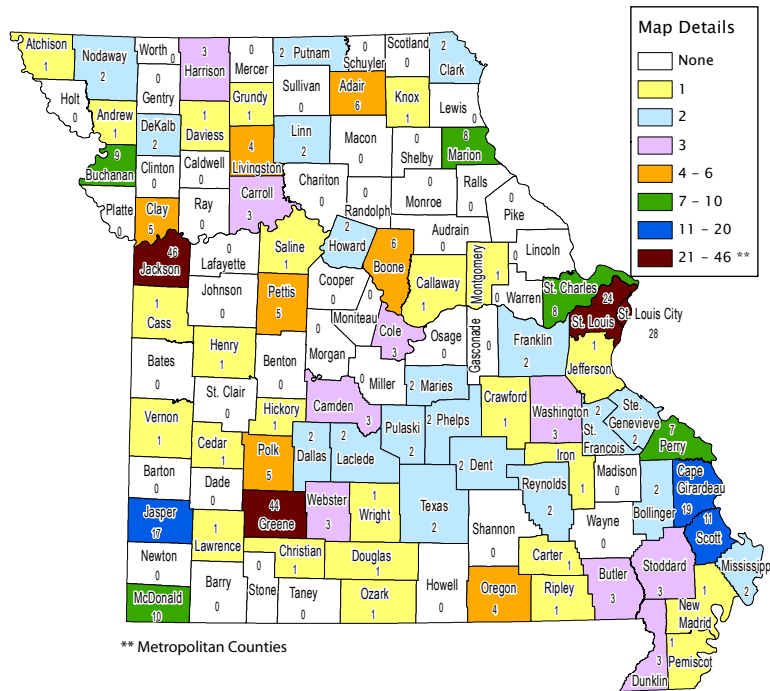


Figure 5 Number of MO HealthNet Dentists per County Reimbursed for Billed Services



Source: MO HealthNet CY 2011
Missouri Department of Health and Senior Services
Office of Primary Care and Rural Health
S. Liley
2010-2011 Medicaid Dentists Per County
March 2012

As noted previously, the Pew Center on the States reports that 46.7% of dentists' median retail fees are reimbursed by Medicaid, compared to the national average of 60.5%. The Missouri Dental Association estimates that this reimbursement is often well below dentists' overhead costs. As a result, many Missouri dentists limit the number of Medicaid enrollees they will accept in their practices, if they are willing to participate at all. (Administrative complexities also serve as a barrier to dentists' participation in MO HealthNet, and will be discussed later in this report.)

Emergency Room Utilization for Dental Care

Hospital emergency department utilization is often seen as a proxy for lack of access to oral health services. Although visits to the emergency department for oral health care are generally not covered by Medicaid, hospitals are required to treat those who come through their doors. By and large, they are able to treat for pain and infection, but cannot typically address the underlying dental condition.

The Pew Center on the States estimates that, in 2009, nationally 830,590 visits were made to hospital emergency departments for preventable dental conditions, representing an increase of 16% increase from 2006, when the estimated cost of this care was almost \$110 million.⁴¹ While in Missouri, no statewide data on emergency room use were available, during the period from 2001 through 2006, residents of Kansas City, Missouri made 19,316 visits to hospital emergency departments for dental complaints, with a cost of approximately \$6.9 million. The visit rate trended upward during that period, from 5.7 visits per 1,000 population to 8.3 visits per 1,000 population. Residents from parts of the city where both health indicators and household incomes were lower were significantly more likely than residents from other parts of the city to visit an emergency department for a dental complaint. Self-pay and Medicaid together constituted 76.8% of the payment sources for dental complaint visits, but only 62.8% for non-dental emergency department visits.⁴²

Community Water Fluoridation

The Missouri Department of Health and Senior Services reports that approximately 133 communities in the state are currently supplementing the natural fluoride level in their water systems to achieve the optimal level for dental decay prevention.⁴³ According to the Missouri Department of Water Resources, 87.8% of Missouri residents receive their water from community water systems. While only 25% of these water systems are fluoridated, they cover the vast majority of the population, as approximately 80% of Missouri residents are receiving fluoridated water.⁴⁴ While these statistics are encouraging, there have been an increasing number of attempts to eliminate fluoridation from Missouri's public water supplies over the past several years. [Figure 6 shows the Distribution of Fluoride in Public Drinking Water Supplies of Missouri]

Measuring Missouri's oral health is difficult and complex. We know that the state is a rich blend – urban and rural, wealth and poverty, racial and ethnic diversity. We also know that overall, the population is aging. Based on the patchwork of data available to measure oral health status, it is clear that a significant proportion of the state's population suffers from dental diseases and lacks access to adequate care. The availability of dental professionals to serve some of Missouri's most vulnerable – young children, low income, racial and ethnic minorities, elderly, and those with special needs – is limited, and financial resources to pay for that care inadequate. These factors combine to create significant barriers to access to these essential health services.

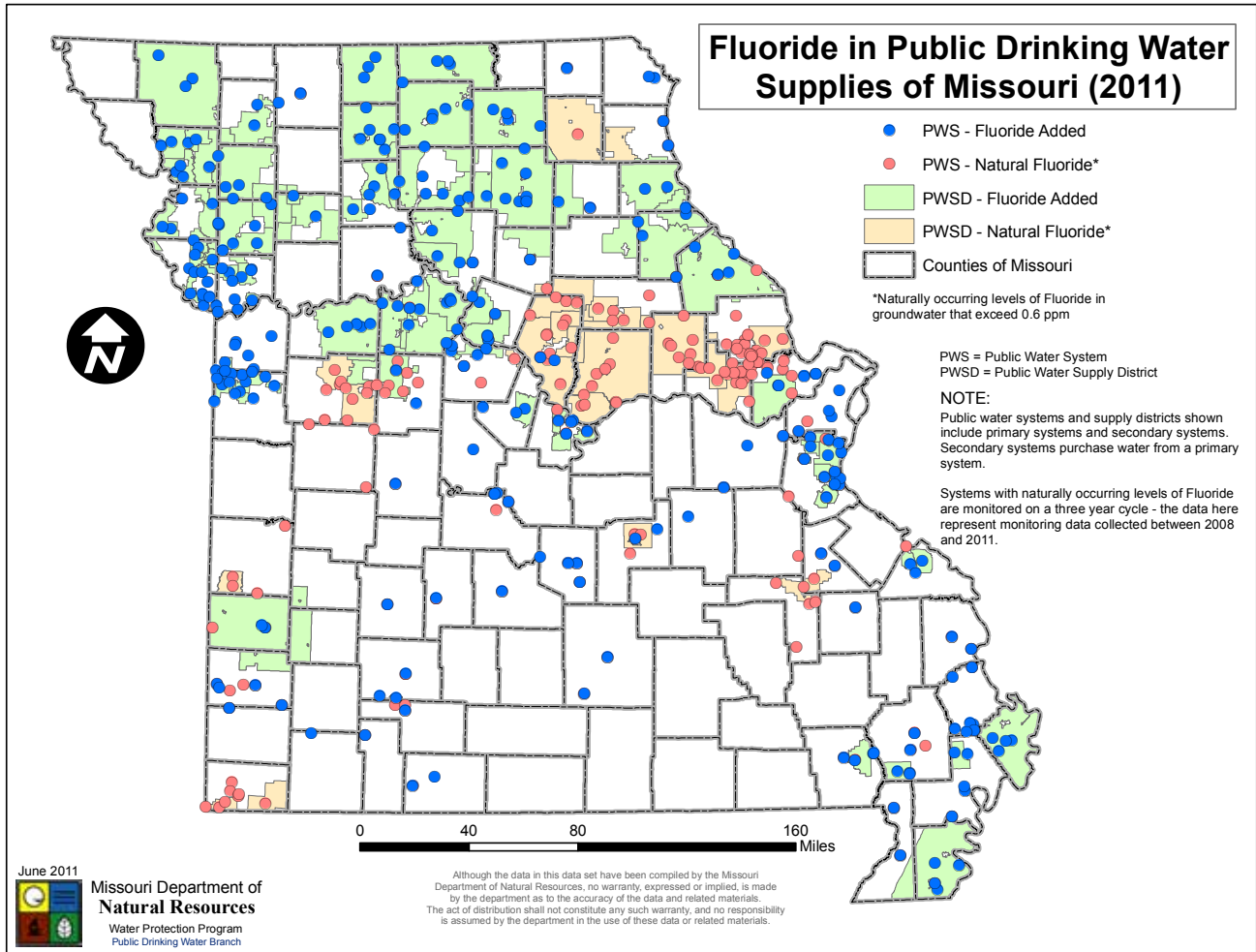
41 Pew Charitable Trusts. *A Costly Dental Destination: Hospital Care Means States Pay Dearly*. http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/State_policy/Pew_Report_A_Costly_Dental_Destination.pdf. Accessed April, 2012

42 Hong, L.; Ahmed, A.; McCunniff, M.; Liu, Y.; Cai, J.; and Hoff, G. *Secular Trends in Hospital Emergency Department Visits for Dental Care in Kansas City, Missouri, 2001-2006*. *Public Health Reports*. March-April, 2011.

43 MO Department of Health and Senior Services. <http://health.mo.gov/living/families/oralhealth/waterfluoridation.php>. Accessed April, 2012

44 Personal communication from Ken Tomlin, MO DWR to Wendy Frosh. May, 2012.

Figure 6



Missouri's Oral Health Delivery System

The oral health delivery system is made up of individual providers of clinical care – the workforce – as well as settings and structures for the delivery of that care.

Workforce

The dental workforce has historically been considered to include the dentist, dental hygienist, dental assistant and the dental laboratory technician. Because the dental lab technician does not provide direct patient care, for the purposes of this report, the discussion of the oral health workforce will refer to dentists, dental hygienists, dental assistants and expanded function dental assistants/auxiliaries (EFDAs), as well as to some newer and proposed practitioner models.

One of the important characteristics of the dental workforce model is that the delivery of oral health services is most effectively and efficiently delivered by individuals working as a team. The dentist is licensed to provide the broadest scope of services, and can, if necessary, perform all of the functions that might otherwise be delegated to the dental hygienist, dental assistant and/or EFDA. In addition to his/her direct patient care functions, a dentist also supervises the other members of the team. The levels of supervision required vary state to state, and define the parameters within which other members of the team can perform their duties.

Guiding how most states address supervision, the American Dental Association (ADA) Comprehensive Policy Statement on Allied Dental Personnel has categorized the levels of supervision in the following manner:

- **Supervision:** The authorization, direction, oversight and evaluation by a dentist of the activities performed by allied dental personnel.
- **Personal supervision:** A type of supervision in which the dentist is personally operating on a patient and authorizes the allied dental personnel to aid treatment by concurrently performing a supportive procedure.
- **Direct supervision:** A type of supervision in which a dentist is in the dental office or treatment facility, personally diagnoses and treatment plans the condition to be treated, personally authorizes the procedures and remains in the dental office or treatment facility while the procedures are being performed by the allied dental personnel, and evaluates their performance before dismissal of the patient.
- **Indirect supervision:** A type of supervision in which a dentist is in the dental office or treatment facility, has personally diagnosed and treatment planned the condition to be treated, authorizes the procedures and remains in the dental office or treatment facility while the procedures are being performed by the allied dental personnel, and will evaluate the performance of the allied dental personnel.
- **General supervision:** A type of supervision in which a dentist is not required to be in the dental office or treatment facility when procedures are provided, but has personally diagnosed and treatment planned the condition to be treated, has personally authorized the procedures, and will evaluate the performance of the allied dental personnel.
- **Public health supervision:** A type of supervision in which a licensed dental hygienist may provide dental hygiene services, as specified by state law or regulations, when such services are provided as part of an organized community program in various public health settings, as designated by state law, and with general oversight of such programs by a licensed dentist designated by the state.⁴⁵

Dentists

In order to be licensed to practice dentistry in the state of Missouri, an individual must be a graduate of and hold a Doctor of Dental Surgery (DDS) degree or a Doctor of Dental Medicine (DMD) degree from an accredited dental school (which minimally requires four academic years), have passed the National Board Examination, have passed a state or regional entry level competency examination, and have passed a written examination given by the board on the Missouri dental laws and rules with a grade of at least 80%.⁴⁶

Details quantifying the number of Missouri's dentists are available from a variety of sources. According to the state's Dental Board, there are 3,251 general dentists with active dental licenses, but as noted previously, this does not necessarily mean that all of those dentists actually practice in Missouri. Of the 3,251 dentists with active licenses, 2,471 have a Missouri contact address.

⁴⁵ American Dental Association. *Comprehensive Policy Statement on Allied Dental Personnel*. 2010.

⁴⁶ Missouri Dental Board General Rules. <http://www.sos.mo.gov/adrules/csr/current/20csr/20c2110-2.pdf>. Accessed April, 2012.

Another source for 2012 data on Missouri's dentists, the Henry J. Kaiser Family Foundation, cites the number of professionally active dentists in Missouri as 2,894. The Kaiser Foundation estimates that of these dentists, 82.6% (2,390) practice general dentistry, and 2.3% (62) practice pediatric dentistry. This compares to national data that show that across the country, 80.1% of professionally active dentists practice general dentistry and 3.2% practice pediatric dentistry.⁴⁷

The American Dental Association serves as a third source of data. Their Survey Center published data on the distribution of dentists across the country. Data from that 2011 report showed 2,865 actively practicing dentists in Missouri, 79.7% (2,283) of whom were in general practice; 2.7% (78) in pediatric dentistry and 1.0% (31) in public health. That report also showed the mean age of Missouri dentists as 51.3 years, while in the country the mean age was 49.8. Of Missouri dentists in private practice, 86.8% were practicing full-time and 13.2% part-time; nationally, those numbers were 85.8% and 14.3% respectively.

The vast majority (70.1%) of dentists in Missouri were over the age of 45 – 24.3% were 45 to 54 years old, and 45.8% were 55 years of age or older. In the US, the total number over 45 years was 63.6%, with 26.2% between the ages of 45 and 54, and 37.4% 55 years of age or older.⁴⁸ As of 2011, there were 7 counties in Missouri where there was no practicing dentist.

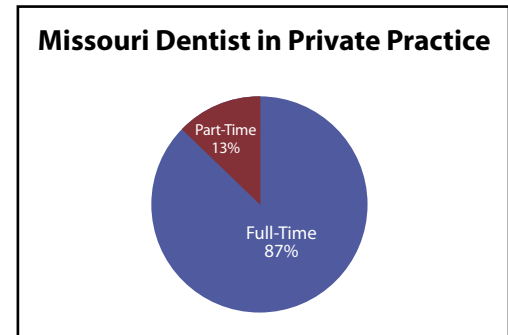
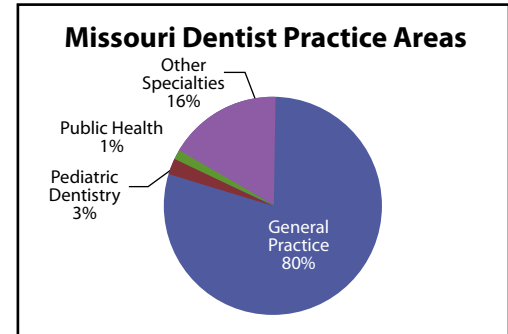
[Figure 7 shows the distribution of dentists across Missouri's counties, and Figure 8 shows the distribution of dentists participating in the DentaQuest managed care network.]

According to an analysis of the Missouri Dental Board's Relicensing Survey conducted for the Department of Health and Senior Services, retirement among dentists may play a significant but varied role in access to care across the state in the future. That report documented the following statistics:

- 30 counties had no dentists indicating intention to retire within 10 years;
- 10 counties with 1% to 25% of dentists indicating intention to retire within ten years;
- 47 counties with 26% to 50% of dentists indicating intention to retire within 10 years;
- 10 counties with 51% to 75% of dentists indicating intention to retire within 10 years;
- 18 counties with 76% to 100% of dentists indicating intention to retire within 10 years.⁴⁹

With so many dentists in private practice anticipating retirement, replacing those dentists becomes an imperative. Economic circumstances are impeding the ability, especially for solo dentists, to recruit younger colleagues to join them and/or purchase their practices. This is particularly true in rural areas where the viability of solo practice is challenging.

General and Pediatric Dentists – Missouri and US		
	Missouri	U.S.
General Dentistry	82.6%	80.1%
Pediatric Dentistry	2.3%	3.2%



Dentists by Age – Missouri and US		
	Missouri	U.S.
Over 45	70.1%	63.6%
45 to 54	24.3%	26.2%
Over 55	45.8%	37.4%

⁴⁷ Kaiser Family Foundation. State Health Facts. <http://www.statehealthfacts.org/profileind.jsp?ind=444&cat=8&rgn=27>. Accessed April, 2012.

⁴⁸ American Dental Association. Distribution of Dentists in the United States by Region and State, 2009. 2011.

⁴⁹ Missouri Department of Health and Senior Services. Update of Area-Wide Need-Based Planning Model for Oral Health Services. 2009. http://health.mo.gov/living/families/oralhealth/pdf/Update_Oral_Health_Planning_Model.pdf Accessed May, 2012.

Figure 7

Missouri Dentists Number Registered in Each County January 2011

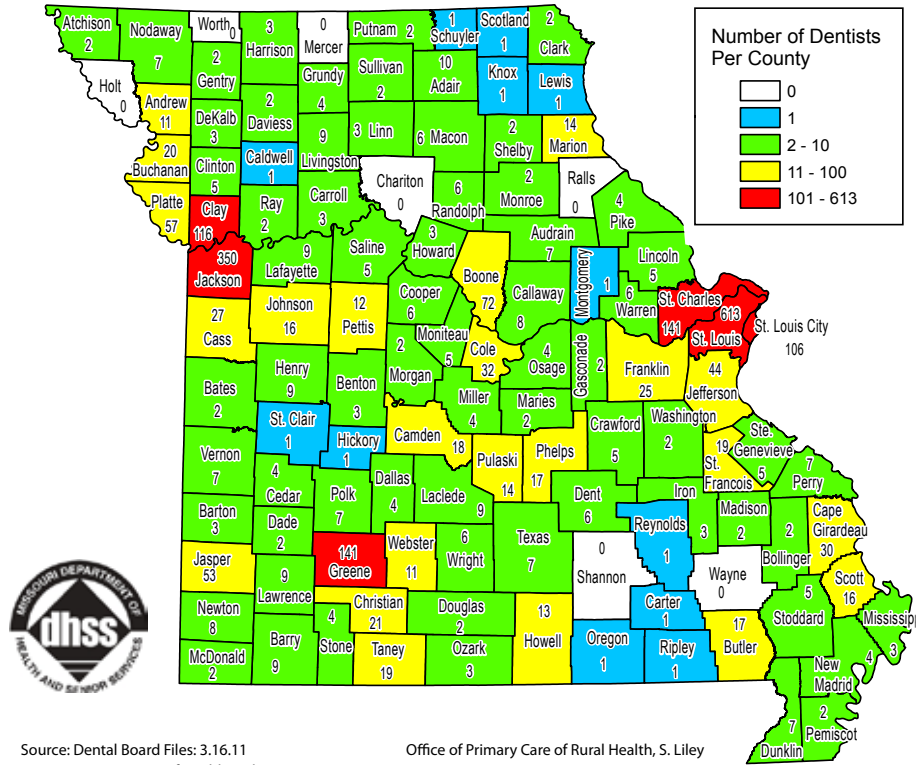


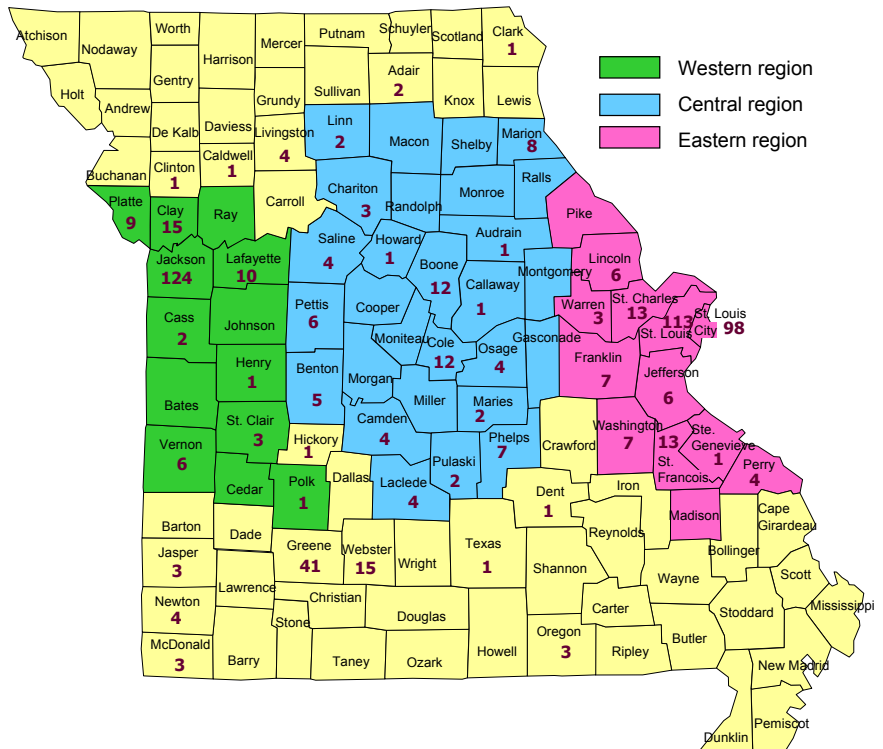
Figure 8

DentaQuest Providers as of February 2012

In addition to the MO providers listed here, there are 75 providers in KS along or near the border.

Number of providers indicated include all access points.

Provider types include general dentists and pediatric dentists.



Registered Dental Hygienists

The dental hygienist is also a licensed professional. According to 2012 statistics from the Missouri Dental Board, there are 3,442 dental hygienists licensed by the state, 2,622 of whom have addresses in Missouri. To receive licensure as a dental hygienist in Missouri, an individual must have satisfactorily completed a course of study in dental hygiene at an accredited dental hygiene school, have passed the National Board Examination, have passed a state or regional entry level competency examination, and have passed a written examination given by the Missouri Dental Board with a grade of at least 80%. The length of a dental hygienist program varies by school, and also by education level. While some certificate or diploma programs can be completed in a year or less, the average is two years. Bachelor's degree programs can be up to four years in length.

The Missouri Dental Board's General Rules specify that a hygienist may be employed by any person or entity so long as the hygienist is working under the supervision of a dentist and works within a defined scope of practice. Most of what a hygienist is trained to do is done under general supervision, and that scope includes:

- Scaling and polishing teeth (prophylaxis);
- Applying dental sealants;
- Periodontal root planing, debridement, and curettage;
- Nonsurgical periodontal procedures;
- All procedures delegable to a dental assistant or certified dental assistant (except expanded functions such as carving amalgam, which require direct supervision).

Additionally, a hygienist may administer nitrous oxide analgesia and local anesthesia under indirect supervision.

A dental hygienist who has been in practice at least three years and who is practicing in a public health setting may provide for the following services: fluoride treatments, teeth cleaning and sealants to children who are eligible for Medicaid, without the supervision of a dentist. Public health settings are defined as those settings where services are sponsored by a governmental entity including the Department of Health and Senior Services (DHSS); county health departments; city health departments; and federally qualified community health centers.⁵⁰ Typically, a hygienist is contracted or employed by that entity, which receives the reimbursement for services. Currently there are 19 dental hygienists enrolled as performing providers in MO HealthNet⁵¹ enabling them to provide some screenings, fluoride varnish and dental sealants (thin plastic coatings applied to molar teeth) in settings such as Head Start centers and schools, reaching some of the state's most vulnerable children.

As of 2007, of the 152,000 licensed dental hygienists in the US, 130,000 were actively practicing, according to a survey by the American Dental Hygienists Association.⁵² Of these, 92% were working in private practice. Only 2.8% were working primarily in public health settings such as school-based clinics, community clinics, and governmental agencies, although 45.2% reported participating in volunteer activity related to their profession. Almost half (47.3%) of dental hygienists reported that between 50% and 100% of their patients were adults aged 19 years to 65 years, while 73.2% reported seeing no infants in their practices. Almost half of dental hygienists (47.3%) reported having a special certification or permit to practice in an expanded or alternative function (as defined in state specific legislation) or to practice under special circumstances or privilege (e.g., unsupervised practice). The number of licensed dental hygienists per 100,000 population varied across the country, and ranged from 91.5 in Vermont to 23.8 in Tennessee. The same survey indicated that there were between 30 and 40 hygienists per 100,000 population in Missouri. There are currently eight dental hygiene training programs in the state. [Figure 9 shows the distribution of dental hygienists by Missouri county as of 2012.]

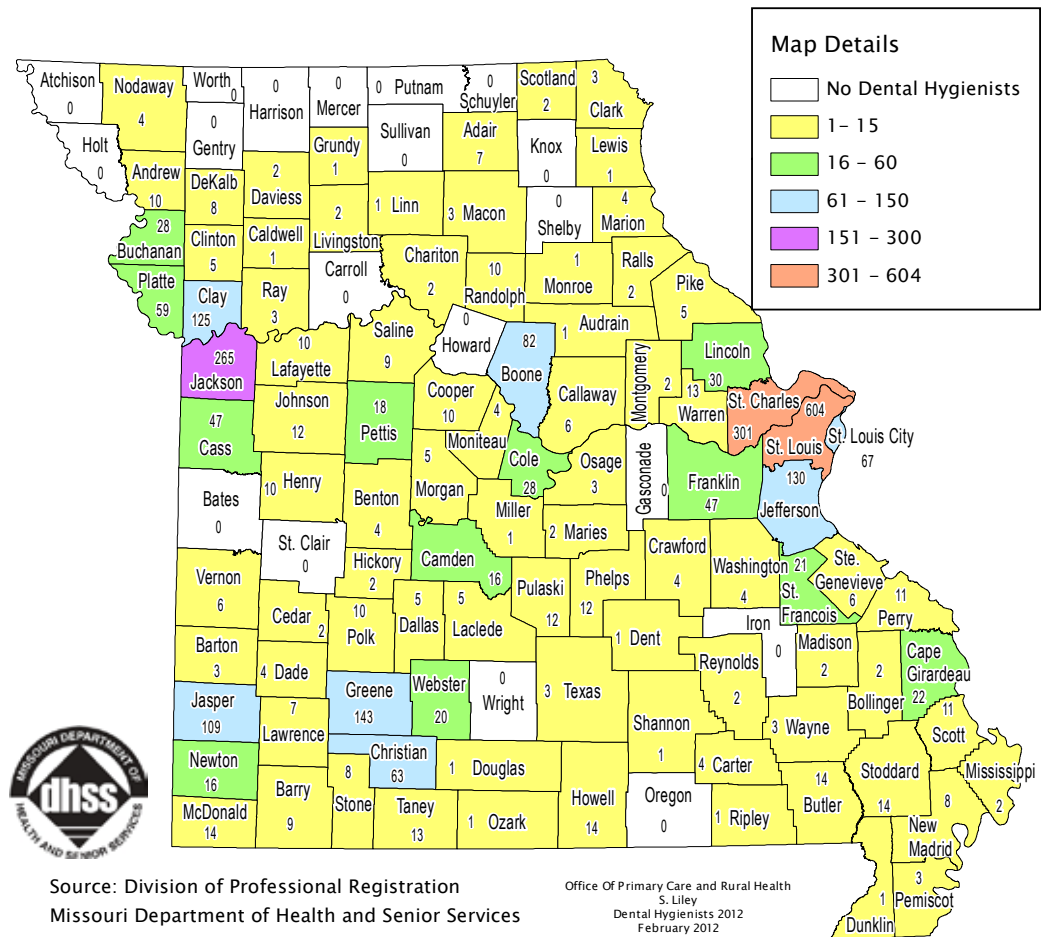
⁵⁰ Missouri Dental Board General Rules. <http://www.sos.mo.gov/adrules/csr/current/20csr/20c2110-2.pdf>. Accessed April, 2012.

⁵¹ Personal correspondence. Dr. Ian McCaslin to Diann Bomkamp. April 23, 2012

⁵² American Dental Hygienists' Association. *Survey of Dental Hygienists in the United States, 2007: Executive Summary*. 2009. http://www.adha.org/downloads/DH_practitioner_Survey_Exec_Summary.pdf. Accessed April, 2012.

Figure 9

Number of Dental Hygienists Licensed per county 2012



Dental Assistants and Expanded Function Dental Assistants/Auxiliaries

There are no reliable data on the number of dental assistants working in Missouri, as currently these individuals are neither registered nor licensed by the Missouri Dental Board, but it is estimated that there are approximately 6,000 dental assistants working in the state.⁵³ A dental assistant in the state of Missouri may perform basic supportive dental procedures specified by the state dental practice act under the direct supervision of a licensed dentist. There are no education or training requirements for this level of dental assisting. Training for dental assistants may be provided in the dental office by the employing dentist (chair-side) or in accredited dental assisting programs.

Certified dental assistants (CDAs) who have graduated from accredited dental assisting programs in Missouri and completed a skills mastery examination approved by the Dental Board may perform expanded functions including:

- Carving amalgam
- Placing and condensing amalgam for Class I, V and VI restorations
- Placing composite for Class I, V and VI restorations
- Monitoring nitrous oxide/oxygen analgesia
- Polishing the coronal surfaces of teeth
- Making impressions for the fabrication of removable prosthesis⁵⁴

⁵³ Missouri Expanded Function Dental Assistants. <http://moefda.org/programoverview.html>. Accessed, April, 2012

⁵⁴ Dental Assisting National Board. <http://www.danb.org/PDFs/Charts/Missouri.pdf>. Accessed April, 2012.

Utilization of these expanded function dental assistants (EFDAs) is not universal across the state. While they have been principally used for decades in two venues – the Indian Health Services (IHS) and the United States Armed Forces – their use in other dental practice settings, including private practice and safety net facilities, has been limited. According to the Missouri Dental Board, EFDAs currently only constitute approximately 25% to 30% of the state's dental assistants. Arguably, the most “significant” of the EFDA's expanded functions may be the ability to place and contour amalgam, composite and other restorative materials prior to the final setting and/or curing of the material. Anecdotal evidence suggests that when used effectively, EFDAs have the potential to significantly increase productivity in dental practices.

Primary Care Medical Practitioners

It should be noted that Missouri is one of 40 states in the nation where the Medicaid program pays medical practitioners for early preventive dental health care. Reimbursement was established in 2007, to encourage a dental visit and preventive care by age 1 for Medicaid eligible children, although there are no current statistics on how many primary care providers are providing this service. Because so many physicians and nurse practitioners participate in the MO HealthNet program, young children are likely to see these providers early on and regularly. This availability of providers has the potential to create greater access to preventive dental care. Services that are reimbursable include oral health screening and education, application of fluoride varnish (a gel that reduces tooth decay) and referring parents to a dental office when their children need additional care. To date, no medical insurers are reimbursing primary care providers for these services.

The medical profession has begun to acknowledge and address the importance of oral health to overall health as exemplified by the policy statement adopted by the American Academy of Pediatrics. That policy statement includes several key recommendations for primary care pediatric providers:

- An oral health risk assessment should be administered periodically to all children.
- Anticipatory guidance for oral health should be an integral part of comprehensive patient counseling.
- The application of fluoride varnish by the medical practitioner is appropriate for patients with significant risk of dental caries who are unable to establish a dental home.
- Every child should have a dental home established by 1 year of age.
- Collaborative relationships with local dentists should be established to optimize the availability of a dental home.⁵⁵

While Missouri is poised to incorporate the skills of its primary care workforce in addressing the oral health needs of children, formal programs to train medical practitioners to provide dental assessment, fluoride varnish, oral health education and referral are few across the state.

Sites and Settings

The Safety Net

For the purposes of this report, the safety net refers to those providers of dental care who deliver care to underserved individuals, including those on Medicaid. While many of these providers offer comprehensive dental services daily in fixed locations, others provide a limited range of services, operate periodically, and/or deliver services through mobile programs. There are approximately 100 programs throughout Missouri that describe themselves as providing oral health care to the underserved, but there are no reliable numbers available regarding the total volume of services provided. Services may be reimbursed by Medicaid, delivered on a sliding fee scale basis, and/or provided for free. They may be delivered by paid staff, students or volunteers; in health centers, hospitals, schools, dental training programs, community clinics and mobile vans.

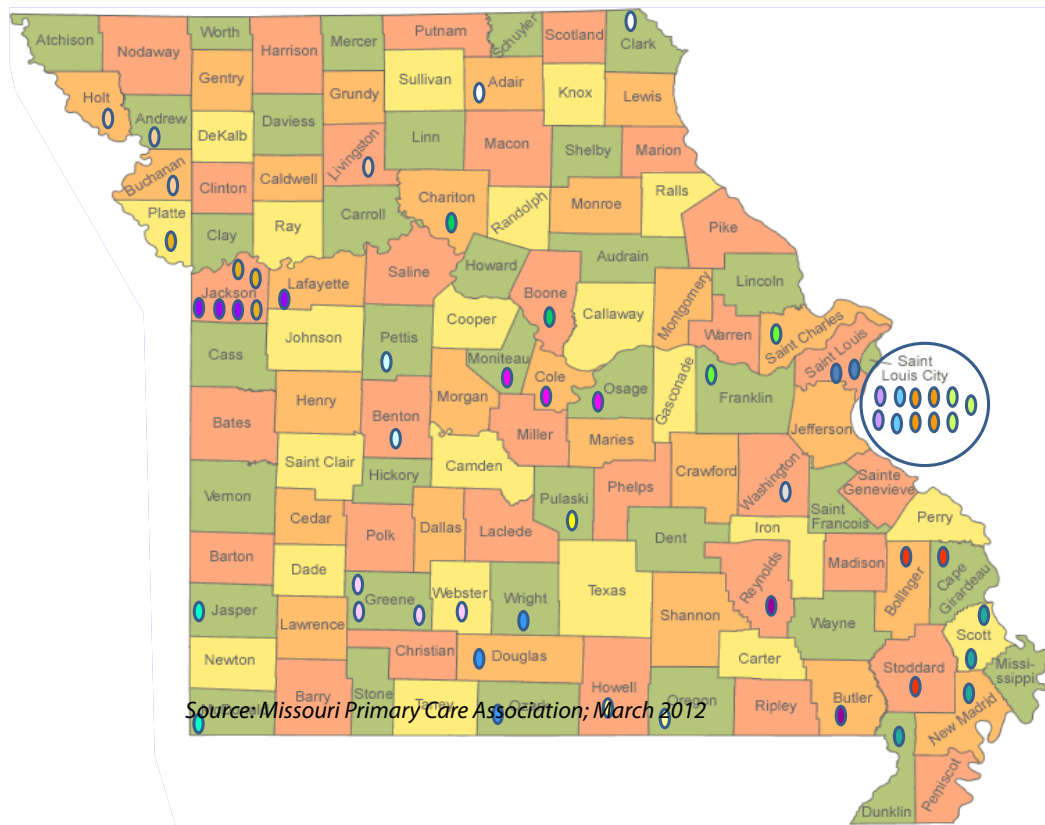
In addition to the dental providers in the safety net, there are other community agencies which work to create access to care. Most of these rely on building networks of “willing providers” who agree to take patients on an individual referral basis, accepting Medicaid, providing sliding fee scales and payment plans, or seeing patients for free. In other settings, safety net programs provide clients with vouchers for dental care utilizing grant funds and donations, sometimes reimbursing care at 100% of billed charges.

⁵⁵ American Academy of Pediatrics. *Preventive Oral Health Interventions for Pediatricians*. *Pediatrics*: Vol. 122 number 6. December, 2008. <http://pediatrics.aappublications.org/content/122/6/1387.full>. Accessed April, 2012.

Federally Qualified Community Health Centers

The largest single component of the dental care safety net is the network of Missouri Federally Qualified Community Health Centers (FQHCs). FQHCs are public and private non-profit organizations that meet certain criteria under the Medicare and Medicaid Programs and receive funds under the Health Center Program (Section 330 of the Public Health Service Act). There are a variety of types of FQHCs including Community Health Centers which serve a variety of underserved populations and areas; Migrant Health Centers, which serve migrant and seasonal agricultural workers; Healthcare for the Homeless Programs that reach out to homeless individuals and families and provide primary care and substance abuse services; and Public Housing Primary Care Programs that serve residents of public housing and are located in or adjacent to the communities they serve. There are also FQHC Look Alikes, which are CMS certified, but don't receive federal grant funding, and programs and facilities operated by tribal organizations under the Indian Self Determination Act. These programs must serve a medically underserved population; must be governed by a community board (51% consumers); provide comprehensive primary care; as well as supportive services (education, translation and transportation, etc.) that promote access to health care; provide services to all and offer a sliding fee scale; and meet other performance and accountability requirements regarding administrative, clinical, and financial operations. There are 21 FQHCs, and 57 delivery sites for dental care under their auspices. [Figure 10 shows the distribution of FQHCs and their dental sites across the state. FQHC dental sites are denoted by colored ovals. Where an FQHC has multiple sites, they are denoted by the same color. Coloration of individual counties is intended for ease of viewing.]

Figure 10 Missouri FQHC Dental Service Delivery Sites



A change in Missouri statute, circa 2004, eliminated certain facets of the prohibition against the corporate practice of dentistry, which restricted ownership of a dental practice to a licensed dentist. This change allowed certain non-profit entities, including FQHCs, governmental health departments, hospitals, and health centers serving migrants or the homeless to employ licensed dentists and dental hygienists to render services to Medicaid recipients, low-income individuals whose income is below 200% of the federal poverty level, and all participants in the Children's Health Insurance Program (CHIP) program. (The Children's Health Insurance Program (CHIP) provides health coverage to children in families with incomes too high to qualify for Medicaid, but who can't afford private coverage. Signed into law in 1997, CHIP provides federal matching funds to states to provide this coverage.)

Until that statutory change, only two Missouri FQHCs – one in St. Louis and one in Kansas City – were providing comprehensive dental services. Most rural FQHCs did not provide comprehensive dental services until about 2002, when some initiated the process of adding comprehensive dental care to address an unmet need in their service areas. It was this expansion of dental services that precipitated the legislative process by which the statute was changed.

Today all of Missouri's FQHCs offer comprehensive dental services. Unlike other dental providers, their federal designation enables them to receive encounter-based reimbursement. Intended to compensate for the wide range of enabling services provided by FQHCs, the encounter-based reimbursement is structured to approximate the cost of service delivered.

Many of the FQHCs and community dental clinics report that they are currently running at capacity, with long waiting lists for new patients. These programs are employing creative means to reserve time in their treatment schedules to accommodate urgent needs and to add high risk patients.

Community Dental Clinics

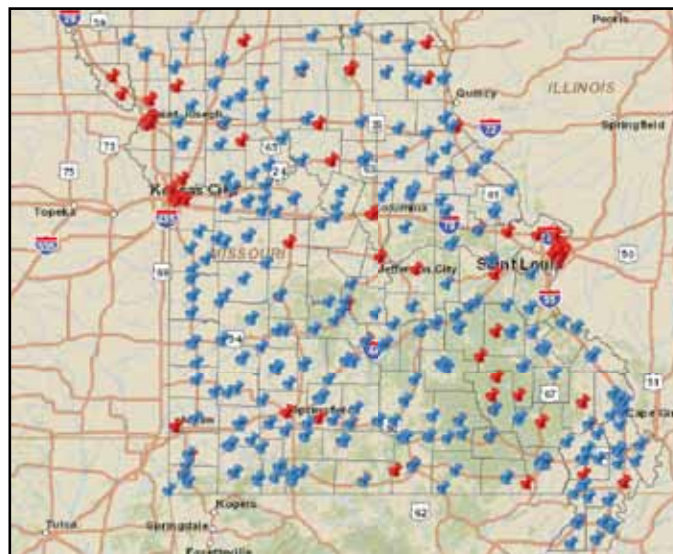
The changes to the regulations regarding the corporate practice of dentistry enabled hospitals and other not-for-profit entities to open dental clinics which address particular community needs. There are a number of these programs spread across the state, whose services are targeted to specific populations. The target populations may be defined by geography, age, income, and/or referral source. The scope of services provided varies from entity to entity, as do the hours of operation.

Rural Health Clinics

Missouri has 361 rural health clinics (RHCS), which are certified by both the Centers for Medicare & Medicaid Services (CMS) and the state to receive special Medicare and Medicaid reimbursement in return for providing medical services in underserved rural areas. RHCs are required to use a team approach of physicians and midlevel practitioners (nurse practitioners, physician assistants, and certified nurse midwives) to provide services. RHCs may also provide other health care services, such as mental health or vision services, but reimbursement for those services may not be based on their allowable costs. Hospitals own 49% of the state's RHCs, while 43% are independently owned. Of these clinics, 53% are for profit while 47% are not for profit.⁵⁶ While these providers play a significant role in providing medical care to the state's rural populations, currently, none of the RHCs provide dental care. [Figure 11 shows the distribution of FQHCs and Rural Health Clinics. Red pins denote FQHCs and blue pins denote rural health clinics.]

Figure 11
Missouri FQHC and Rural Health Clinic Distribution

Source: Rural Assistance Center



⁵⁶ 2011 Missouri Rural Health Clinic Survey Data Summary Report. <http://www.marhc.org/datasummary%20report.pdf>. Accessed April, 2012.

Volunteer Initiatives

There is also a considerable amount of care that is delivered through volunteer programs. According to the Missouri Dental Association,⁵⁷ in 2011, almost \$5 million of care was donated by dentists, dental hygienists, dental labs, and other volunteers, and 7,264 patients were served in organized volunteer efforts. Missouri Mission of Mercy (Springfield) delivered free care over two days; Give Kids a Smile (St. Louis) provided care in bi-annual two-day programs; Dental Lifeline Network, a network of dentists and dental labs provided office-based care; Ronald McDonald Tooth Truck (Springfield) provided mobile care; Elks Mobile Dental Units worked statewide; and Smiles Change Lives delivered orthodontic care. While it is currently not quantifiable, there are also dentists in many communities who provide individuals with care without charge or at a discount. These contributions are significant, but volunteer efforts to meet the needs of the indigent do not substitute for a dental home, that provides routine and/or follow-up care. Indeed, these stop-gap efforts are further evidence of the need for a systemic approach that ensures sustainable access through a combination of private dental offices and public health settings. [Appendix B provides a list of Missouri volunteer initiatives, patients served, dollars of care provided, and practitioners participating.]

Building a Dental Workforce to Address Missouri's Needs

Assessing the Adequacy of the Dental Provider Network

Unfortunately, there is no standard, nor agreed upon methodology for calculating a ratio for the optimal number of dentists, hygienists or other members of the dental team per 100,000 population. Neither are there standards regarding the optimal patient panel size of a general dentist.

Determining the actual ratio of dental professionals to a population is a difficult task. Data regarding licensure is generally available from the state dental board, but often, licensing data provide an incomplete picture of the landscape. While they may show the number of dentists and dental hygienists with active state licenses, they do not always provide accurate information on which of those professionals are actively practicing in the state, whether they practice full or part-time, what specialty(s) they practice, and how many office locations they have.

In 2007, the average number of dentists to 10,000 population in the US was 6.0, while in Missouri it was 4.8. Outside Missouri's metropolitan areas the ratio falls to 2.9 to 10,000 population. These data compare to the other states in Region VII, with Iowa at 5.4, Kansas at 5.2 and Nebraska at 6.3 dentists to 10,000 population.⁵⁸ It is estimated that 70 dentists will retire each year, but currently only 45 to 50 dentists enter the workforce annually.⁵⁹ While it should be noted that the state's Relicensing Survey generated a lower than expected response rate, which may obscure the results, according to that survey, there were 13 counties in the state where there were no practicing dentists.⁶⁰

The American Dental Association's Geographic Distribution of Dentists in the United States discusses the economic factors that influence the location and distribution of dentists' practices across the country. The author notes that "as applied to the practice of dentistry, location economics helps to explain where the location of a dental practice is likely to be and what are the economic factors that help explain the choices made by dentists about the locations of their practices."⁶¹ Discussing the importance of a region's population and income to the geographic distribution of dental practices, he observes that population density and the income level of the population must be considered if one is looking to offset the substantial costs to entering the dental care market. A dentist must be able to rely on an adequate supply of patients who can purchase his/her services to fill his/her practice. As the author further notes, the location of a practice is chosen to increase the potential that the return on the investment will be sufficient to enable the dentist to remain engaged in the provision of care.

Location economics helps explain why the distribution of dental practices may result in shortage areas, and why certain populations do not have adequate access to care. This would be evidenced in rural areas, where both population density and per capita income work against the potential of creating a successful dental practice. The National Rural Health Association reports that on average, per capita income is \$7,417 lower among rural populations than in urban areas, and rural Americans are more likely to live below the poverty level.⁶² On the other hand, regardless of

57 Missouri Dental Association. *Free Dental Care Provided Statewide – 2011*.

58 Kaiser Family Foundation. *State Health Facts*. <http://www.statehealthfacts.org/profileind.jsp?cat=8&rgn=27>. Accessed April, 2012.

59 A.T. Still University Missouri School of Dentistry and Oral Health. <http://www.atsu.edu/mosdoh/about/index.html>. Accessed April 2012.

60 Missouri Department of Health and Senior Services. *Update of Area-Wide Need-Based Planning Model for Oral Health Services*. 2009. http://health.mo.gov/living/families/oralhealth/pdf/Update_Oral_Health_Planning_Model.pdf Accessed May, 2012.

61 Nash, KD. *Geographic Distribution of Dentists in the United States*. *Dental Health Policy Analysis Series*. American Dental Association. 2011.

62 National Rural Health Association. *What's Different About Rural Health Care? 2007-12*. <http://www.ruralhealthweb.org/go/left/about-rural-health>. Accessed April, 2012.

population density, in urban neighborhoods where per capita income is low, the likelihood that a dentist could build a sustainable private practice may also be compromised. These data suggest that the confluence of poverty and geography would create a significant barrier to oral health care access simply because there is not enough family income and population density to support a practice. Thus, these population segments are often served by non-profit, publicly supported dental programs.

The Kaiser foundation reports that 15.4% of the US population lives in an area classified as a dental health provider shortage area (DHPSA), while in Missouri, 21.6% (1,291,999) reside in DHPSAs, and 994,699 residents are considered underserved. The US Department of Health and Human Service's Health Resources and Services Administration (HRSA) reports that 101 of Missouri's 114 counties are designated as DHPSAs, or have DHPSAs within their borders.⁶³ DHPSA designation offers some advantages in the recruitment of dentists, as the designation creates opportunities for student loan repayment. HRSA health professions loan repayment, scholarship and loan programs help to encourage and enable clinicians to work in underserved areas.

There are three types of DHPSA designation, each with its own requirements. These are: geographic areas, population groups, and facilities.

Geographic Areas must:

- Be rational areas for the delivery of dental services
- Meet one of the following conditions
 - Have a population to full-time-equivalent dentist ratio of at least 5,000:1
 - Have a population to full-time equivalent dentist ratio of less than 5,000:1 but greater than 4,000:1 and unusually high needs for dental services
- Dental professionals in contiguous areas are over-utilized, excessively distant or inaccessible to the population

Population Groups must:

- Reside in a rational service area for the delivery of dental care services
- Have access barriers that prevent the population group from use of the area's dental providers
- Have a ratio of the number of persons in the population group to the number of dentists practicing in the area and serving the population group of at least 4,000:1
- Members of Federally recognized Native American tribes are automatically designated. Other groups may be designated if they meet the basic criteria described above.

Facilities must:

- Be either Federal and/or State correctional institutions or public and/or non-profit medical facilities
- Federal or State Correctional facilities must:
 - Have at least 250 inmates and
 - Have a ratio of the number of internees per year to the number of FTE dentists serving the institution of at least 1,500:1
- Public and/or non-profit private dental facilities must:
 - Provide general dental care services to an area or population group designated as having a dental HPSA and
 - Have insufficient capacity to meet the dental care needs of that area or population group⁶⁴

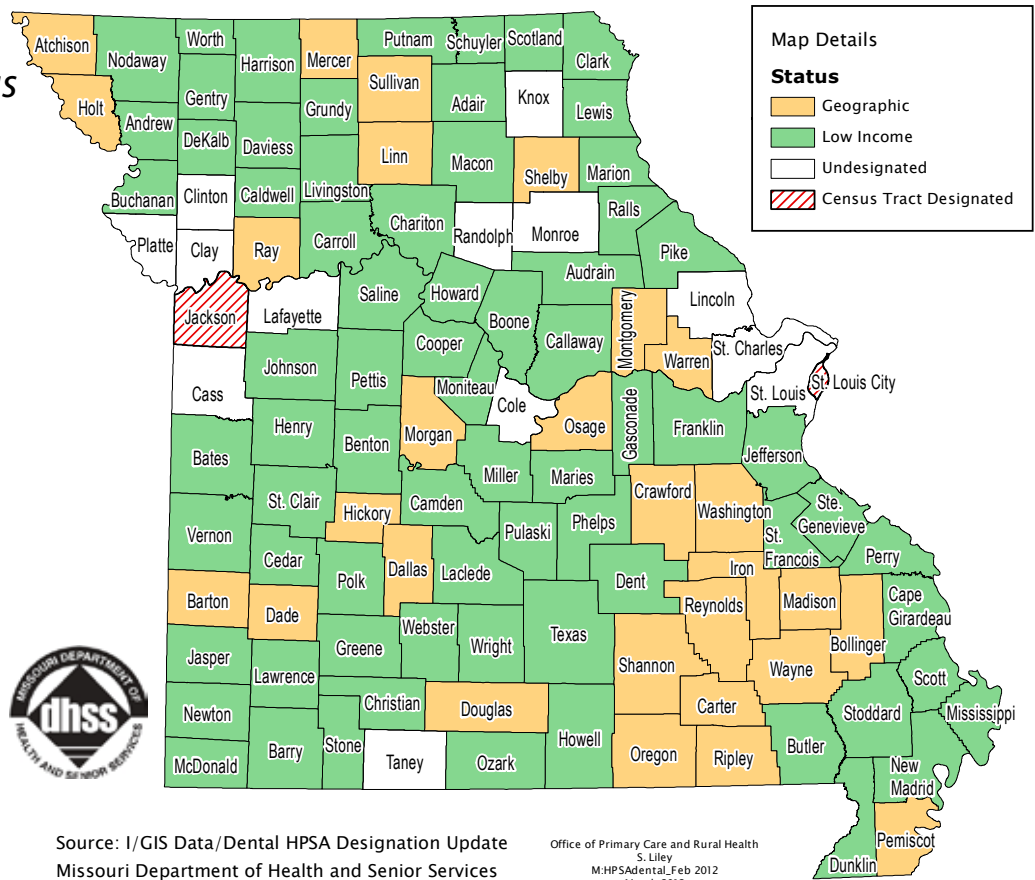
[Figure 12 shows the dental health provider shortage areas in Missouri.]

⁶³ US DHHS. HRSA. <http://hpsafind.hrsa.gov/HPSASearch.aspx> . Accessed April, 2012.

⁶⁴ US DHHS. HRSA. <http://bhpr.hrsa.gov/shortage/hpsas/designationcriteria/dentalhpsacriteria.html> . Accessed April, 2012

Figure 12

Dental Care HPSA Status of Missouri Counties February 2012



The designation as underserved, whether under geographic, population or facility criteria determines where a Federally Qualified Health Center will be located. FQHCs, by definition, must treat the underserved, thus qualifying them for federal grants and encounter-based reimbursement as discussed earlier.

According to the Kaiser Family Foundation, a total of 218 dentists would be required to remove Missouri's DHPHA designations.⁶⁵ Training opportunities are increasing in Missouri, where currently there is a dental school at the University of Missouri, Kansas City. A second dental school, at A.T. Still University in Kirksville, is scheduled to accept its first class of students in 2013. While these programs will undoubtedly contribute to adding members to the dental workforce, if the shortage area designation formulas are a representation of the need statewide, the dental schools will not, in and of themselves, be able to fully address the need for additional providers of care.

Another measure of distribution and access to services, the ratio of dentists to EPSDT population, was suggested by the Need-based Planning Model for Oral Health Services published by the Missouri Department of Health and Senior Services. In that study, it was reported that there were:

- 13 counties without a dentist;
- 3 counties with 5,001 to 8,000 Medicaid children per dentist;
- 16 counties with 2,001 to 5,000 Medicaid children per dentist;
- 30 counties with 1,001 to 2,000 Medicaid children per dentist; and
- 53 counties with less than 1,000 Medicaid children per dentist.⁶⁶

⁶⁵ Kaiser Family Foundation. *State Health Facts*. <http://www.statehealthfacts.org/profileind.jsp?rep=114&cat=8&rqn=27>. Accessed April, 2012.

⁶⁶ Missouri Department of Health and Senior Services. *Update of Area-Wide Need-Based Planning Model for Oral Health Services*. 2009. <http://health.mo.gov/living/fami->

In an unpublished analysis, using data from the January 2009 Medicaid Dentist List and information from the MO Division of Professional Registration, the statewide average of Medicaid dentists to Medicaid children was 1:820. This obscures the fact that there were 24 counties with no Medicaid dentists, and ratios as low as 0:3750.⁶⁷

A relatively sophisticated approach to assessing the adequacy of the Missouri dental workforce, the 2009 Missouri Department of Health and Senior Services' Update of Area-Wide Need-Based Planning Model for Oral Health Services, puts forward a population-based model that projects the need for dental visits based on dental morbidity for a geographically defined population. That study used age and gender specific dental morbidity data, estimated how general dentists and specialists divide the dental workload, and assessed the productivity of the oral health teams led by these generalists and specialists to develop a projection for visits by dental specialty. The study concluded that workforce needs in Missouri vary significantly across different counties.⁶⁸

The study found that there were 13 counties without a practicing dentist; 12 counties with more than 10,000 people per dentist; eight counties with 7,501 to 10,000 people per dentist; and 24 counties with 5,001 to 7,500 people per dentist. Looking county by county, 57 of Missouri's counties fall below the standard used for DHPSA designation – 5,000 people per dentist.

With regard to the dentist to Medicaid population ratio, there were 13 counties without a Medicaid dentist; three counties with 5,001 to 8,000 Medicaid children per dentist; 16 counties with 2,001 to 5,000 Medicaid children per dentist; 30 counties with 1,001 to 2,000 Medicaid children per dentist; and 53 counties with less than 1,000 Medicaid children per dentist.

A simple but unscientific approach for calculating the number of dentists necessary to meet the needs of the population is to create a projected total annual patient visit volume. Simply using one visit per year for every Missouri resident as the target would give us a total volume of 5,988,927 dental visits annually. While we know that not every individual would seek dental care, we also know that others would be seen multiple times. Thus, this figure, 5,988,927, could be used as a reasonable proxy for visit volume.

The next step would be to calculate the average annual number of patient visits generated by a general dentist. A 2009 survey by the American Dental Association, estimated that the average independent general dentist works 47.6 weeks per year, and handles approximately 2,399 patient visits during that period.⁶⁹ At 2,399 visits per dentist, 2,496 general dentists would be needed to handle 5,988,927 visits annually.

Whether one uses the number of general dentists with active licenses and Missouri addresses, 2,471, or the Kaiser Family Foundation's numbers, 2,390 general dentists, one could surmise that the raw number of dentists in the state might be adequate to serve the population. But actual utilization numbers suggest that with the distribution of these dentists, the actual number of hours they work, and their availability to individuals who do not have adequate resources to pay for care serve as barriers to access. While one might suggest that the problem is simply one of maldistribution of resources, maldistribution, in and of itself, results in an oversupply in some areas, and a shortage in others.

It must be recognized that this calculation is not scientific. These numbers are being used solely to give a perspective on workforce capacity, and regardless of what the numbers might say about capacity, it is apparent from the review of the Missouri landscape, that there is a significant proportion of the population that is not receiving necessary dental care.

Missouri Counties: Dentist to Population Ratios	
	# Counties
No practicing dentist	13
>10,000 people per dentist	12
7,501 to 10,000 people per dentist	8
5,001 to 7,500 people per dentist	24
<5,000 people per dentist	57

Missouri Counties: Dentist to Medicaid Children	
	# Counties
No Medicaid dentist	13
5,001 to 8,000 Medicaid children per dentist	3
2,001 to 5,000 Medicaid children per dentist	16
1,001 to 2,000 Medicaid children per dentist	30
<1,000 Medicaid children per dentist	53

lies/oralhealth/pdf/ Update_Oral_Health_Planning_Model.pdf Accessed May, 2012.

⁶⁷ Squillace, J. Saint Louis University doctoral program in Public Policy Studies. Unpublished analysis shared by personal correspondence.

⁶⁸ Missouri Department of Health and Senior Services. Update of Area-Wide Need-Based Planning Model for Oral Health Services. 2009.http://health.mo.gov/living/families/oralhealth/pdf/ Update_Oral_Health_Planning_Model.pdf Accessed May, 2012.

⁶⁹ American Dental Association. 2009 Survey of Dental Practice: Characteristics of Dentists in Private Practice and Their Patients. 2010.

Exploring Alternative Workforce Models

Over the past decade, significant attention has been given to the concept of “new” workforce models and their potential to improve oral health status. Several providers who might be considered “mid-level” have been developed and there are emerging data documenting their effectiveness in expanding access to care in specific regions across the country. Some of these new providers look quite similar to models that have been in use in other countries, while others have been used in the U.S. on Native American reservations and in the military. But in addition to considering the creation of new models, it is also important to consider how existing providers might be better utilized through the use of care coordination, the expansion of the scope of practice, changes to supervision requirements, and/or changes to licensing requirements.

Licensing and Supervision

Internationally trained dentists have been cited as a resource for expanding the workforce. To practice in Missouri, a dentist must be a graduate of an accredited dental school, and have passed both national and state examinations. In 18 states and the District of Columbia, a dentist trained outside of the United States may be licensed by using one of the following paths.

- He/she may be given “advance standing” in an educational program,
- Receive licensure upon completion of at least two years of formal clinical training in an ADA accredited dental school;
- Complete a residency program, and/or complete the National Dental Board Examination;
- In some cases, a dentist who has evidence of graduation from a dental school outside the US, evidence of being licensed or admitted to practice in the country of graduation, and has passed required examinations, may receive licensure.⁷⁰

Frequently, supervision and productivity are issues that surface when discussing access, particularly with regard to the practice of dental hygiene. From the general supervision requirement in Missouri, to independent practice in Colorado, hygienists have dramatically different levels of autonomy. [Appendix C shows permitted functions and supervision levels for dental hygienists by state.] Direct access, where the dental hygienist can initiate treatment based on his/her assessment of a patient’s needs without the specific authorization of a dentist, treat the patient without the presence of a dentist, and can maintain a provider-patient relationship, has several distinct forms. These include independent practice, unsupervised practice and collaborative practice.

The collaborative practice model allows a hygienist with clinical experience to practice after he/she has executed a written agreement with a dentist. The purpose of the collaborative agreement is to clarify and document mutual decisions regarding practice patterns, treatment philosophy, and specific dental hygiene services. Typically, the agreement includes a protocol governing when the hygienist can initiate treatment; a description of the types of services the hygienist can provide; referral procedures and required information; and the responsibilities of the collaborating dentist. Depending on state statute, the agreement may also specify at which locations these services can be provided. Collaborative practice, allowed in a number of states (AK, MN, NM, SD and AR for example), is intended to enhance the availability of dental hygienists to provide preventive services in public health settings, where typically a hygienist sees patients in public or institutional settings rather than in a dental office.

Unsupervised practice differs slightly from collaborative practice, as it allows the hygienist to provide services to a patient without a specific agreement or standing orders from a dentist, but the hygienist maintains a relationship with a dentist who typically reviews charts on an annual basis, and may be the resource for services beyond the hygienist’s scope of practice. Another variation, independent practice, as in Colorado, allows a hygienist the autonomy to own the practice and receive direct reimbursement for services. While no specific affiliation with a dentist is required, the hygienist would still refer patients to a dentist for restorative and other therapeutic services.

⁷⁰ American Dental Association. *Department of State Government Affairs*. August, 2002

Emerging Workforce Models

Beyond the arena of licensure and/or supervision of existing members of the dental workforce, a number of “new” practitioners are emerging. Each of these models has been developed with an emphasis on improving access to care, and several hold promise for increasing productivity, improving oral health literacy, and/or enhancing patient compliance and clinical outcomes. These models include the Community Dental Health Coordinator (CDHC), Dental Health Aide Therapist (DHAT – Alaska model), Dental Therapist/Advanced Dental Therapist (DT/ADT – Minnesota model), and Advanced Dental Hygiene Practitioner (ADHP). These practitioners are members of the dental team, and are typically introduced and integrated into the delivery system, to address a backlog of basic oral health needs. Several of them are designed specifically to address cultural norms and values of the patients to be served. Ultimately, their use is predicated upon each member of the team working to the top of their scope of practice and training.

Community Dental Health Coordinator (CDHC): The concept and protocol for the CDHC were created by the ADA in 2006. They were conceived as members of the dental team, and modeled on the community health worker (CHW).⁷¹ The CHW is a specialist in outreach and education used in many community health settings, whose success has been documented in a number of studies, including an Agency for Healthcare Research and Quality (AHRQ) report which found that the CHW increased access for underserved areas and served as a valuable liaison to individuals in these communities.⁷²

The CDHC is intended to be recruited from and then deployed in a variety of settings located in underserved areas, including Federally Qualified Health Centers (FQHCs), the Indian Health Service (IHS), public health clinics, and private practices. Because the candidates come from the communities where they will be practicing, they have an understanding of the culture, language, and other issues that might otherwise be barriers to care and hinder positive outcomes.

The CDHC curriculum focuses on community health promotion, limited dental skills, and community field experience. The training program is approximately 18 months and builds seven core competencies: development/implementation of community-based oral health prevention and promotion programs; ability to prioritize population/patient groups; provide individual preventive services including fluoride and sealant applications; collection of diagnostic data; administrative procedures; performance of a variety of clinical supportive treatments; and temporization of dental cavities in preparation for restorative care by a dentist.

Training for the new position was launched in three target areas: urban – Philadelphia; rural – Oklahoma; and a Native American reservation – Arizona. With the first CDHCs now practicing in the field, a preliminary evaluation notes: “The dental care coordinator intervention significantly increased dental utilization compared with similar children who received routine Medicaid member services. Public health programs and communities endeavoring to reduce oral health disparities may want to consider incorporating a dental care coordinator along with other initiatives to increase dental utilization by disadvantaged children.”⁷³ Because the program is still considered a pilot program, the ADA will be continuing its evaluation through 2013 to determine if the CDHC contributes to: 1) increased access to oral health care; 2) improved oral health care outcomes; and 3) impact on the financial sustainability of the clinic sites.

Eleven trainees were part of the training program which commenced in March 2009. They began their internships in the spring of 2010 and graduated in the fall of 2010. A second cohort of trainees entered the program in spring 2010 and eight CDHCs graduated in the fall of 2011. The third and final cohort of 19 trainees began their didactic coursework in March 2011, and is expected to complete training in the fall of 2012.

In early 2011, the ADA and the AT Still University Arizona School of Dentistry and Oral Health (ASDOH) opened a CDHC education and training program based at the institution's Mesa, Arizona campus. The ADA has developed a licensing curriculum, which will allow modifications for state adaptation.

New Mexico was the first state to formally authorize the Community Dental Health Coordinator through its dental practice act, which authorizes the state dental board to allow CDHCs to provide educational, preventive and limited palliative care and assessment services. CDHCs will practice under general supervision in settings outside of traditional dental office and dental clinics. The ADA anticipates that CDHCs will be employed in community health clinics, FQHCs, Indian Health Service (IHS), local health departments, schools, Women Infants and Children Program (WIC) and

71 American Dental Association. *Community Dental Health Coordinators*. <http://www.ada.org/cdhc.aspx>. Accessed April, 2012

72 Viswanathan, M.; Kraschewski, J.; et al. *Outcomes of Community Health Worker Interventions*. Agency for Healthcare Research and Quality. 2009.

73 Binkley, Garrett, Knowlton, Johnson. *Increasing dental care utilization by Medicaid eligible children: a dental care coordinator intervention*. *Journal of Public Health Dentistry* – Winter 2010.

Head Start programs, institutional settings, social service agencies and in private practice dental offices in underserved areas.

Dental Health Aide Therapist (DHAT – Alaska Model): The DHAT program was initiated in 2003, to address a severe shortage of care in remote and tribal Alaskan communities, and DHATs were introduced as providers of care two years later. Based on the Alaskan Community Health Aide model, which was started in the 1960s by the Indian Health Service to provide emergency, clinical, and preventive services under general supervision of physicians, the DHAT was envisioned as a member of the dental team recruited from and returning to the community. Similarly to the Community Health Worker and the Community Dental Health Coordinator, this individual would be trained to provide preventive services, basic oral hygiene, and diagnosis and treatment planning. But beyond those capabilities, the DHAT would also be trained and licensed to provide basic restorative care, radiographs, infection control, and uncomplicated extractions. Offering routine and urgent care in places where no dental providers were currently practicing, DHATs would become the community's link to improved oral health.

The DHAT training program requires two years post-high school education. The focus of the curriculum is on basic health sciences, basic dental concepts, extractions, patient and facilities management, community projects and remote site rotations. Once the course work is completed, the DHAT spends 400 hours working with a preceptor. The DHAT operates with standing orders, and under the general supervision of a licensed dentist. Given the geography and logistics associated with the DHAT's place of service, much of this supervision occurs electronically, via email, telephone and tele-dentistry.

The DHAT is often the first provider in a community, and can work to prevent as well as treat oral disease. In the short time since dental therapists have been in practice in Alaska, an additional 35,000 consumers now have access to clinical care. The training program has been designed with considerable efficiencies, and the cost of deploying a DHAT into the community has not been prohibitive, although it should be noted that funding for both the training and the reimbursement for services comes from funds designated for serving the Alaska native populations. The program has provided an additional impact in the community, creating a professional development track for young Alaskans.

The first evaluation of the Alaskan dental health aide therapists, completed in 2010, indicates that the DHAT is technically competent to perform the procedures within this scope of practice and is doing so safely and appropriately.⁷⁴ The dental therapist is consistently working under the general supervision of a dentist, and is able to successfully treat dental caries and help relieve pain for people who often had to wait months or travel hours to seek treatment. Thus far, patient satisfaction with the care provided by the DHATs is very high, and they are well-accepted in tribal villages.

Dental Therapist/Advanced Dental Therapist (DT/ADT – Minnesota model): The Minnesota dental therapist and advanced dental therapist are considered mid-level providers, and were established in that state in 2009, through a legislative initiative. The first dental therapists have begun to graduate from training, and their introduction into practice will be closely watched and evaluated.

Both levels of practitioner are licensed providers. The ADT practices under the general supervision of a dentist, while the DT practices under indirect supervision. (Please see the Oral Health Delivery System section for detailed description of the levels of supervision.) In addition, the Minnesota law requires that a collaborative management agreement be in place, specifically to outline the mutually agreed upon functions that the dental therapist can provide – within the legal scope of practice as provided in statute. This is especially important for the practice of the ADT, who does not need a dentist on-site to provide care. These supervision requirements are particularly interesting, as they, in addition to the practice act, govern what a dentist may delegate. As the dentist holds ultimate responsibility for the care rendered by the DT or the ADT, he/she has the discretion to use his/her own judgment about which procedures are delegated and under what circumstances.

The Minnesota statute provides detail regarding where these new professionals can practice. Dental therapists, both "regular" and advanced, are required to work in underserved areas. These are defined in the enabling statute, and include settings such as: nursing homes, Head Start programs, nonprofit organizations, correctional facilities, and school- and community clinics. Additionally, they may see patients in medical facilities, assisted living facilities, FQHCs, military/VA care settings, a patient's home or residence when the patient is home-bound or eligible to receive home care services, oral health educational institutions, or practices located in a dental health professional shortage area. Lastly, they may see patients in any other clinic or practice setting, in which at least 50% of the therapist's total patient base consists of patients who are enrolled in a state health care program; have a medical disability or chronic condition that creates a significant barrier to receiving dental care; or those who do not have dental health coverage, and whose family gross income is equal to or less than 200% of the federal poverty guidelines. (This last component was created specifically to ensure that a private practice dentist, or group of dentists, who see the underserved but are not defined by the state as "critical access dental providers" can employ a therapist to create additional access for those underserved populations.)

⁷⁴ Wetterhall, S.; Bader, J.; Burrus, B.; Lee, J. & Shugars, D. *Evaluation of the Dental Health Aide Therapist Model in Alaska: Final Report*. RTI International. 2010. <http://www.wkkf.org/knowledge-center/resources/2010/10/Alaska-Dental-Therapist-Program-RTI-Evaluation-Report.aspx>

As a Bachelor's degree trained professional, the dental therapist is trained to provide basic preventive services, limited restorative services, and extractions of primary teeth. Under general supervision, the DT may provide services including: preliminary charting of the oral cavity, radiographs, mechanical polishing, application of topical preventive or prophylactic agents, including fluoride varnishes and pit and fissure sealants, pulp vitality testing, application of desensitizing medication or resin, placement of temporary restorations, tissue conditioning and soft reline, atraumatic restorative therapy, dressing changes, tooth reimplantation, administration of local anesthetic and administration of nitrous oxide.

Under indirect supervision, the scope of services includes: emergency palliative treatment of dental pain, cavity preparation, restoration of primary and permanent teeth, placement of temporary crowns, pulpotomies on primary teeth, indirect and direct pulp capping on primary and permanent teeth, stabilization of reimplanted teeth, and extractions of primary teeth.

The advanced dental therapist is a Master's degree prepared practitioner, who already has licensure as a registered dental hygienist. (The ADT is comparable to the advanced dental hygiene practitioner (ADHP) discussed below.) The training program requires 2,000 hours of supervised clinical practice. This practitioner ultimately has dual licensure – as a dental hygienist and as an ADT. The ADT can administer all the services of a dental therapist without the requirement for onsite supervision. In addition to the services specified for the dental therapist, under general supervision the ADT may perform an oral evaluation and assessment of dental disease, formulation of an individual treatment plan (authorized by a dentist), and non-surgical extractions of permanent teeth.

Advanced Dental Hygiene Practitioner (ADHP): Of the list of “emerging” oral health workforce models, the ADHP has not yet been tested on the ground. This practitioner, envisioned by the American Dental Hygienists' Association, would create a Master's prepared, licensed dental hygienist who is able to provide both preventive and limited restorative services. Like many of the other “new” models, the ADHP is intended to provide care in public health settings such as schools, clinics, hospitals, long-term care facilities, etc.

The scope of practice pictured for this mid-level professional would include the full range of dental hygiene clinical services; diagnostic, preventive, therapeutic and minimally invasive restorative services; limited prescriptive authority; health promotion and disease prevention; and case and practice management.

Obviously, with the model still in the conceptualization stage, it is too early to attempt to determine what type of impact this new provider model might have on improving oral health and increasing access to care.

Evaluating the Potential Impact of Emerging Mid-level Workforce Models

While it is still too early to fully evaluate the impact of the dental health aide therapists, dental therapists and advanced dental therapists in the United States, advocates for these “mid-levels” expect that their introduction into the workforce will increase access in underserved areas and for underserved populations. Anticipation of a positive impact led a number of states in this country to begin the process of enabling these mid-level practitioners. A report released in April, 2012, by the W.K. Kellogg Foundation⁷⁵ reviewed the global literature on the history and practice of dental therapists in 54 countries/territories. This study found that there have been many evaluations of the technical quality of care provided by dental therapists over the past 60 years, which have consistently found that the quality of technical care provided by dental therapists (within their scope of competency) was comparable to that of a dentist, and, in some studies in Australia and Canada, was judged to be superior.

This review of global literature concludes the following:

1. Dental therapists practice in 54 countries and territories, including highly developed, industrialized ones as well as developing countries.
2. There are variable lengths of training for dental therapists, from two to four years, with two years being the tradition.
3. There is a movement in a few countries to integrate the training, and therefore scopes of practice, of the dental therapist and dental hygienist. Typically this is in a three academic year (27 months) program.
4. Dental therapists, in general, are not licensed professionals, but rather practice as registered auxiliaries.
5. Dental therapists practice primarily in public clinics, typically associated with caring for schoolchildren.
6. Dental therapists' scope of practice is primarily in caring for children, although several countries permit caring for adults.

⁷⁵ Nash, D.; Friedman, J; Mathu-Muju, K.; et al. *A Review of the Global Literature on Dental Therapists*. W.K. Kellogg Foundation. 2012.

7. Dental therapists typically practice with general supervision by dentists.
8. Dental therapists provide technically competent care.
9. Dental therapists improve access to care, specifically for children.
10. Dental therapists are effective in providing oral health care within their scope of practice.
11. Dental therapists have a record of providing oral health care safely.
12. The dental profession in a country accepts the care provided by dental therapists as valuable; however, there are some exceptions to this.
13. The public values the role of dental therapists in the oral health workforce.
14. Dental therapists included in the oral health workforce have the potential to decrease the cost of care, specifically for children.

The California Dental Association commissioned a study of the economic viability the dental therapists, dental health aide therapists and advanced dental hygiene practitioners in the provision of care for the underserved.⁷⁶ The cost of training, compensation levels, cost of practice, estimated productivity and potential revenue were evaluated (using the Minnesota advanced dental therapist as the proxy for the ADHP). The analysis concluded that intensive training programs, such as those for dental therapists, could effectively produce quality practitioners in a short period of time, and reduce the cost of providing service. Study authors also concluded that the expense of ADHP training at the master's level would be an impediment to implementation and sustainability in a practice that serves individuals on Medicaid or sliding fee scales.

As discussed previously, both the dental therapist and the advanced dental therapist/advanced dental hygiene practitioner have been compared to medical mid-level practitioners – nurse practitioners (NPs) and physicians' assistants (PAs). The growth and acceptance of the medical mid-level professional has been spurred by the fact that approximately 56 million Americans—almost one in five—lack adequate access to primary health care because of shortages of physicians in their communities.⁷⁷ In a time where the number of physicians practicing in primary care has declined, the supply of medical mid-level practitioners has continued to increase. As medical mid-level practitioners have evolved, they have demonstrated the ability to provide quality, cost-effective primary health care to consumers across the spectrum. A study conducted in California and Washington⁷⁸ showed that a higher proportion of non-physician primary care clinicians than physicians practiced in underserved areas and cared for large numbers of minority patients and patients who are Medicaid beneficiaries or uninsured. The results of this study and others like it show that mid-level medical practitioners are beginning to fill the gap in providing access to primary care for the underserved, and may be evidence that the evolving dental mid-level practitioners will be equally successful.

The subject of quality of care is often raised in the dialog about emerging workforce models. Individuals from the various dental professions express concerns about the quality of care delivered by other existing or potential members of the dental team. While there certainly are legitimate issues to be considered, it should be noted that there is no mechanism by which we accurately measure or regulate quality in the world of dental practice. The Healthcare Effectiveness Data and Information Set (HEDIS) measures may be used as a proxy for quality in FQHCs and managed care plans, but these are at best a measure of access, not the quality of clinical services delivered. We default to the licensure process to ensure that a standard of quality is maintained, but it too, provides only a limited lens on actual quality. Initial licensure requires both educational credentials and an examination, and the relicensure process requires completion of continuing education. There is, however, no ongoing mechanism to evaluate clinical performance. Quality of dental care is often defined by perception – that of colleagues and/or patients – rather than by objective clinical measures. How we will measure and maintain quality across all sectors of the system – private practice, safety net, new workforce models – is a challenge to be confronted.

Whether the focus is on “new” practitioners or expanding the reach of traditional practitioners, each workforce model has the potential to impact the situation in a different way. For example, some practitioners are designed to increase access through outreach, others to provide increased access to prevention, and others to enhance system capacity for restorative care.

⁷⁶ California Dental Association. *Workforce Model Feasibility Study*. 2010.

⁷⁷ National Association of Community Health Centers. *Access Transformed: Building a Primary Care Workforce for the 21st Century*. 2008.

⁷⁸ Grumbach, K.; Hart, L.G.; Mertz, E.; Coffman, J.; & Palazzo, L. *Who is Caring for the Underserved? A Comparison of Primary Care Physicians and Nonphysician Clinicians in California and Washington*. 2003. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1466573/>. Accessed April, 2012.

Workforce Initiatives in Missouri

Missouri has undertaken a number of initiatives to increase access to care and the productivity of the oral health workforce. In 1993, the Dental Board approved a rule change that enabled Expanded Function Dental Assistants/Auxiliaries to perform 19 expanded functions. Among the expanded functions allowed is the carving and placing all classes of amalgams. A later change allowed dental hygienists who had completed required training to perform certain dental assisting expanded functions.

In 1992, general supervision rules were adopted for dental hygienists, whereby a dentist has authorized the hygienist to perform procedures, but need not be present in the treatment facility during the performance of those procedures. In 1995, the statute was further amended to allow dental hygienists to be employed by an entity other than a dentist, as long as the dental hygienist works under the general supervision of a dentist. In 2001, the statute was further revised to allow hygienists to practice in public health settings without general supervision.

In 2011, the Missouri Dental Hygienists' Association and the Greater Springfield Dental Society presented proposals – for a Dental Therapist and an Advanced Practice Dental Hygienist – to the Missouri Dental Board for their consideration as possible legislation in the coming legislative year. Both proposed professionals are designed to work collaboratively with the dentist and extend the reach of dental services to the underserved. Both proposals were accepted by the Board, but to date, no legislative action has transpired. [Appendix D provides a discussion of other workforce initiatives across the country.]

Access to Oral Health Care: Identifying the Barriers

What creates or impedes access to oral health care is a complicated and interlocking set of variables. Access itself can be measured in a number of ways. We can count the numbers of services provided, the number of dental professionals, and the evidence of dental disease, among other indicators, but these are not always a true marker of access to care. For example, Medicaid statistics that show numbers of visits or dollars spent do not necessarily demonstrate whether Medicaid beneficiaries are receiving regular, routine dental care. And while licensure numbers may show that there is an abundance of dentists in a particular state, county or community, we may also see that there are populations within those boundaries who are not receiving necessary care.

Necessary care or need is also complicated to define. The Missouri Department of Health and Senior Services' Update of Area-Wide Need-Based Planning Model for Oral Health Services, provides a cautionary lens through which we may look at need:

"Need should not be confused with demand. Need relates to the clinical requirements and conditions necessitating dental care for a defined population. Demand is a market-based concept dealing with the actual behavior of individuals who have needs seeking care. Because of information deficiencies, financial constraints, transportation problems and scheduling conflicts, the actual number of visits demanded by a defined population will generally be less than what is needed."⁷⁹

Thus we must examine how these elements – information deficiencies, financial constraints, transportation problems and scheduling conflicts, among others – act and interact to impede individuals from accessing and receiving necessary oral health care.

To fill in around the details of what is known through the quantitative analysis of the economics and demographics of Missouri residents, a series of interviews with over 40 individuals was conducted over a four month period, to gain a richer understanding of the barriers to oral health care. These individuals were selected based upon their familiarity with a variety of issues, including oral health access, individual population groups, provider practice characteristics, regional needs, experience with delivering services to the underserved, and alternative workforce models. [Appendix A provides a list of those interviewed for this report.] What follows is a compilation of those qualitative data.

Lack of *financial resources* was the most frequently cited barrier to good oral health and appropriate oral health care. This lack of resources affects both patients' access and providers' ability to provide care. On the patients' side, many adults have no third party coverage for oral health services, regardless of their employment status. Often, employers do not offer dental insurance, and for many that do, the employee contribution to premium and/or copayments may prohibit participation in the employer's plan. With the elimination of benefits for the vast majority of adults from the Medicaid program, many of Missouri's poorest residents are unable to find access to care. For the individual with no third party coverage, the purchase of oral health services may compete with the need to purchase food, shelter, and other necessities. Even if a

⁷⁹ Missouri Department of Health and Senior Services. Update of Area-Wide Need-Based Planning Model for Oral Health Services. 2009. http://health.mo.gov/living/families/oralhealth/pdf/Update_Oral_Health_Planning_Model.pdf Accessed May, 2012.

patient can qualify for a sliding fee scale, the fee, however deeply discounted, may still be prohibitive. Often, this results in an individual seeking oral health care only after the oral health conditions have become critical. It was also suggested that limited access for adults had the secondary effect of limiting access for children, as the importance of oral health was neither prioritized nor reinforced.

On the providers' side, a lack of financial resources also has serious consequences. As more individuals lose benefits and/or suffer a reduction in income, demand on the safety net increases. Providers of care report a growing volume of adults who requested discounts for care and/or payment plans to cover their oral health needs, or were unable to pay for care at all. Capacity to accommodate this demand within the safety net, where many of these patients turn, is challenged, as funding for both preventive and treatment programs has become increasingly more difficult to obtain.

The *Medicaid program* was frequently cited as a barrier to access. Some felt that its location within state government was an indication of the orientation of the program, as it is situated in the Department of Social Services rather than in the Public Health arena. The inability of the state to increase Medicaid reimbursement levels continues to impede participation in the program by many private dentists, as the program's reimbursement rate approximates 46.7% of dentists' median retail fees. The Medicaid program's design was also criticized as a barrier to care. The list of procedures that are covered was determined more than 15 years ago, and does not have a preventive care focus. The state's Medicaid managed care program is perceived to create significant impediments to participation, as dentists must potentially contend with contracting with multiple managed care networks, dealing with a variety of benefit plans and complying with different billing requirements. Additionally, billing and auditing requirements are seen as cumbersome, and timeliness of reimbursement problematic.

Closely tied to the issue of financial resources, the *lack of access to providers* impedes numerous Missouri residents from receiving care. The combination of the absence of dental providers in certain geographies, and the shortage of dentists who accept Medicaid patients has resulted in a situation where individuals often rely on episodic, infrequent opportunities to seek care through voluntary programs, or utilize hospital emergency departments.

Missouri's statutes and regulations are also considered to create barriers to access, as they limit how professionals practice and what types of patients may be treated in the safety net. For example, Missouri Statute 332 limits the corporate ownership of a dental practice to a dentist or a qualified 501(c)(3) not-for-profit entity. But those not-for-profits may only employ dentists and dental hygienists to render dental services to Medicaid recipients, low-income individuals who have available income below two hundred percent of the federal poverty level, and participants in the state Children's Health Insurance Program (CHIP). Additionally, rules that limit scope of practice by location and/or population often impede a practitioner's ability to work to the extent of his/her training. (This is particularly true for dental hygienists.)

Across all sectors of the population, *oral health literacy* is seen as a tremendous barrier to access. The concept of oral health itself lacks salience with a large percentage of the population. Oral health is often seen as cosmetic, and care is not sought until pain becomes a serious issue. Interviewees repeatedly cited examples of parents who recalled toothlessness (edentulousness) among preceding generations, and thus could not prioritize their own children's oral health. "Baby teeth fall out" was frequently mentioned as the reason that parents said they did not take their children for dental care. Providers of care expressed frustration with the lack of follow-through in patient self-care, noting that children returning for routine preventive care after a series of restorative visits had evidence of new caries. "We are filling holes, not changing behavior" was how one dentist characterized the challenge the profession was facing. Oral health programs that provide comprehensive preventive services reported placing strong emphasis on education as a means of reducing the incidence of oral disease among their clients, and stressed the importance of strong care coordination as a mechanism to improve patients' awareness of the importance of oral health to overall health.

Travel time and transportation were often cited as barriers to access. While it was noted that most Missourians live within an hour's drive of a dentist's office, this does not guarantee that those same Missourians have adequate access to care. The majority of private practitioners do not have expanded hours, but see patients only during the regular work week. In rural regions, many individuals are employed in jobs that do not provide paid time off for sick leave or medical/dental visits, so when an individual needs oral health care, the drive time, coupled with time spent in a dentist's office, may require that individual to miss at least half a day's work. For working poor, making the choice between addressing oral health needs for themselves or their family members and earning a half-day's wages can be extremely difficult. Time and travel were also noted as problematic for those in urban areas who did not have access to private transportation, and were reliant on public transportation to reach a dental office. For those who have several workers in a family and only one car, and those whose vehicles are older and less reliable, access to care can also be compromised. The price of gasoline also inhibits travel. And for many in rural areas, poor road conditions resulting from storms and flooding can severely impede access to care.

An understanding of *cultural factors*, commonly referred to as cultural competence, is another issue that influences access to oral health services.

When the system and the providers within it are unaware of the cultural elements that affect the ability of an individual to seek and comply with a regimen of care, or not capable of addressing them, access can be severely inhibited. It is easy to think of culture only in terms of national origin or native language, but cultural competence is not limited to those issues alone. Many suggested that in addition to differences in race, ethnicity, language and country of origin, there is a “culture of poverty” that influences how an individual understands oral health and thus, how care needs to be structured in order to be accessible. Just as there are vast differences in the way a pediatrician’s office is structured compared to that of an internist, a dental clinic designed to care for underserved populations needs to be organized differently from a dental practice situated in an affluent suburban community. Using care managers, hiring staff from the community, ensuring the availability of medical interpretation and translation, offering extended hours, addressing transportation barriers, and providing sliding fee scales and payment plans are all elements of a culturally competent approach to providing oral health care.

The *culture of dentistry* was also cited as a barrier to care. Most dentists in private practice were characterized as unaware of the breadth and depth of the access problem, as the patients whom they see are typically those who receive routine dental care. Dentists were often perceived as not understanding the impediments to access that many of the underserved face, and judgmental about the choices individuals make about seeking care. Volunteer programs like Mission of Mercy and Give Kids a Smile were seen as a good mechanism for exposing dentists to broader population needs, and to the issues that the underserved confront regarding access to care. Additionally, it was noted that general dentists are often not comfortable treating children (particularly young children), so that actual numbers of practicing dentists may not accurately represent access.

Dental training to address the needs of children and populations with special needs was seen as inadequate. The number of dentists willing to treat young children and individuals with developmental disabilities is limited across the state. Frequently, these patients must be taken to hospital operating rooms for treatment.

Practitioners are not consistently used to the full extent of their training. Rules that predominantly affect dental hygienists can limit their ability to be optimally productive. While hygienists can work without the supervision of a dentist in certain public health settings, they may only provide care to children. Given the limitations, access to routine preventive services such as cleanings and fluoride treatments, is not maximized under the current statute for adults and seniors in places like nursing homes, senior centers, senior housing, etc. And while hygienists can provide preventive services to children in certain public health settings, they may do so only under the auspices of “a governmental health entity”. To date, receipt of Medicaid reimbursement for these services has been cumbersome.

Changes to the rules that govern the scope of practice for dental assistants have been drafted for the Dental Board and are anticipated to be approved. This should enable assistants to make an even larger contribution to increasing productivity in practices where expanded functions are delegated to them.

Dentists educated outside of the US are unable to achieve licensure without substantial additional education requirements. In addition to the fact that these dentists were seen as a resource for care in general, they were also considered a potential resource for culturally competent care.

Oral health is not integrated into the health care system. While there is increased recognition of the importance of providing integrated care and a health home, progress remains slow. Particularly for the underserved population, the lack of integration between oral health and overall health creates significant barriers to access to care. Requiring multiple visits to multiple venues decreases the potential for compliance among patients who operate in challenging circumstances. This fragmentation creates lost opportunities to both provide needed services and to reinforce the importance of oral health to overall health. Missouri’s FQHCs have made great strides in connecting the dots between oral health and overall health, but while every health center now offers dental services, not every site provides both medical and dental care. The laudable, but as yet incomplete efforts in the safety net only underscore the difficulty of achieving integration across the spectrum of health care providers, and it must be emphasized that co-location is not the equivalent of integration.

Overcoming Barriers to Access: Does One Size Fit All?

Just as the barriers to access vary among populations and communities, so must the solutions. Missouri and its communities are a patchwork, an amalgam of cultures with strong identities and firm ideas, with needs and resources. In order to break down the barriers that prevent Missouri residents from achieving good oral health, an array of solutions must be deployed. The possibilities are numerous.

Solutions may be broadly categorized as systemic or programmatic, and in some instances, the edges between the two may blur. They also

fall into loose categories that might be viewed as public health or workforce, again with certain overlapping features. The range of solutions presented on the following pages represents a compilation of approaches that have been put forward by Missouri stakeholders, as well as others that have been implemented or suggested in other parts of the country. They are not suggested in any priority order, nor are they evaluated for their feasibility. Instead, they are presented as an array of options that might be considered and further evaluated for implementation.

Systemic Solutions

An overwhelming sentiment expressed by Missouri stakeholders was that care needs to be directed to and delivered in the venues frequented by target populations. Delivering care to children in schools, Head Start and WIC programs, to elders in senior centers and nursing homes, or to the general population in community centers, as well as expanding the hours of operation of these programs, were seen as having the potential to reach more of the underserved, while minimizing the complexities of outreach and the complications associated with transportation.

While technically not a barrier to care, the fact that preventive strategies are not uniformly maximized does increase the burden on the system of care. For example, while almost 80% of Missouri's public water systems are fluoridated, there is not only room for improvement, but there are challenges being launched to remove fluoride for ideological and/or budgetary reasons that will have a serious impact on community health. Supporting the continuation and expansion of community water fluoridation will reduce the incidence of caries, and over time, reduce the need for restorative dental care.

Access to care, particularly for adults, would be significantly improved if the statute governing dental practice (Chapter 332) were amended to enable community hospitals to provide dental services to individuals other than those on Medicaid or who have income levels at or below 200% of poverty.

Oversight of public health programming and service delivery across the state could be enhanced by the creation of regional public health dentists. These dentists could provide supervision and care in public health and mobile programs that traverse the state's rural communities. As public health practitioners, they could foster the development of smaller rural clinics routinely staffed by hygienists delivering preventive services, where the dentist would provide restorative care a day or two a week.

By utilizing dental workforce members to fullest extent of their training, both productivity and access would be enhanced. Expanding the dental hygiene public health scope and site of practice to include additional underserved populations and venues for delivery of care would bring preventive services such as routine prophylaxis, fluoride varnish and sealants to a broader segment of the population, in sites such as rural health centers, nursing homes and senior centers. Including in the hygienist's scope of practice the emerging evidence-based services such as the atraumatic restorative technique should also be considered. Reconsideration of the requirement that a hygienist have three years of experience after licensure was also suggested. Additionally, allowing hygienists to practice under collaborative practice supervision would give them greater range to work in areas where dentists are not currently practicing.

Standardized and accessible training for expanded function dental auxiliaries (EFDAs) was suggested, and the ability to place multi-surface restorations is needed. It does appear that the anticipated rule change governing their scope of practice will enable multi-surface restorations which would allow them to be used more effectively in restorative care. But even with this rule change, many dentists are not using EFDAs to the full extent of their training and certification. Providing dentists with information on how to improve productivity through the use of EFDAs could further their utility in expanding access and reducing cost. Continuing to monitor and appropriately expand the scope of the EFDA's practice would enable hygienists and dentists to maximize productivity.

Creating a pathway for licensure for dentists trained outside of the US would help address the current and anticipated shortage of dentists.

Following the example of Minnesota and Alaska, Missouri could create licensure for dental therapists. Practicing in underserved communities under the general supervision of a dentist, these individuals could provide increased access to simple restorative care for both children and adults. Licensure for advanced dental hygiene practitioners would have a similar impact. To support these mid-level practitioners, the development of a tele-medicine/dentistry system in safety net facilities would be optimal.

Utilizing medical providers to deploy oral health services would improve the integration of oral health into general medical care. This could be accomplished by implementing a standardized process for training primary care providers in the preventive care for infants and training and licensing medical mid-level practitioners to provide simple restorative care.

Because the FQHCs provide a significant amount of care to otherwise underserved populations, it would be important to standardize protocols

for clinic set-up and care and ensure the integration of dental care and medical care. *Integrating the dental record with the electronic health record* could be considered in all sites. Protocols should be implemented to ensure that FQHC primary care providers incorporate oral health into their practices. FQHCs could also explore *contracting with private dentists and community-based dental clinics* using the enhanced encounter rate to further their reach into underserved communities. FQHCs could also *collaborate with rural health clinics* to set up bases of operations in rural communities with no dental services.

In order to maximize the care that is available, the creation of a *system of care coordination and case management* would benefit both the public and private sectors. Working locally and/or regionally, a care coordinator could focus efforts on reducing no-show rates, arranging transportation and child care, and assisting with other issues that might cause an individual to miss a dental appointment. One comprehensive approach to care coordination, cultural competence, and oral health literacy would be the introduction and *certification of community dental health coordinators* (CDHCs).

A comprehensive care coordination program could enable more private practice dentists to work with indigent patients. The care coordinators could help with screening clients for financial eligibility for the *implementation of a sliding fee scale or free care program*.

Many aspects of the Medicaid program were the subject of discussion. These included *increasing Medicaid reimbursement, expanding the number of procedures covered for adults (including dental emergencies) and streamlining the administrative systems of the program*. Many cite the reimbursement levels of MO HealthNet as a deterrent to provider participation, while others note that the requirements for both attaining participation status and billing do not encourage provider enrollment. This applies not only to dentists' participation in the program, but also affects dental hygienists, whose ability to provide services in public health settings is hindered by the difficulty of obtaining Medicaid reimbursement.

Implementing a mandatory dental screening for school entry was also suggested. To do so, however, without the means to provide follow-up care as necessary, would only accomplish the exposition of disease without necessarily improving access.

Programmatic Solutions

The *implementation of a comprehensive, statewide oral health literacy program* would require coordination and collaboration among oral health and general health practitioners, educators, community advocates and communications professionals. The messages delivered would need to address prevention and care over the lifespan.

Two distinct approaches to bringing care to the population were discussed. First, it was suggested that a *transportation system* to ensure that people can reach existing dental providers be created. Others felt that a *network of mobile dental programs* with the protocols for delivering that care in rural areas should be developed. The mobile programs could provide care in settings such as schools, community centers, and nursing homes, and could be supervised by FQHC dental directors and/or a regional public health supervisor.

Develop and deploy a comprehensive, *statewide school-based sealant program*. Currently, sealant programs cover a small minority of Missouri's Title 1 elementary schools. This would require setting program standards and focusing on elementary schools where at least 40% of enrolled children qualify for the federal free and reduced fee lunch program. Expanding access to these programs for any child with parental permission, as opposed to only children on Medicaid, would improve the penetration rate of programs that are currently resisted by school personnel because they single out children with limited means.

Train both professionals and lay workers to improve access to preventive services. Many general dentists are uncomfortable treating young children. Providing them with training to do a "lap exam" for infants and building their comfort level with small children would increase access. Targeting training to medical providers who see infants, young children, pregnant women and new mothers would ensure that education and prevention were deployed. Additionally, utilizing the Points of Light program to encourage medical providers to assist parents in finding dental homes for their children would also be beneficial. Using Parents as Teachers, PTA groups, WIC, Head Start and others, caregivers could be taught to apply fluoride varnish to children on a routine basis.

Increase and improve training regarding the provision of care to high risk populations including children, developmentally disabled, elderly and others with special needs was also suggested for dentists. One approach to doing so would be the creation of a 5th year of training for dentists in a public health residency.

State and federal loan repayment programs have been cited as effective tools in increasing the ability for FQHCs to recruit dentists to

underserved areas. Expanding and/or extending the state's loan repayment program to non-FQHC sites through the Primary Care Resource Initiative for Missouri (PRIMO), and seeking other means of securing support for loan repayment would potentially increase the number of dentists willing to practice in underserved areas of the state.

Engage communities in the dental recruitment and loan repayment process. With the help of local business associations, rural communities have structured their own approaches to the recruitment of a community-based dentist, and financial assistance to get the practice started. This might be replicated in other communities across the state.

Both dental and dental hygiene students provide care to the underserved as part of their clinical training. By expanding community-based service training for students, access to care would be increased, and future professionals' comfort and familiarity with providing care to the underserved enhanced.

Increase the capacity of oral health practitioners to volunteer their services. The willingness of dentists and hygienists to provide services was cited as an under-utilized resource. In order to do so, however, infrastructure for events like Mission of Mercy and care coordination to ensure that individuals are able to access these programs would need to be provided.

In Conclusion

It is generally accepted that there are barriers to access to appropriate oral health care across the state of Missouri. While it may vary from geography to geography and population to population, there is strong evidence that many are not receiving the care necessary to remain in good oral health. The causes are many, often complex, and frequently interwoven. The solutions can be no less. But there is much controversy regarding the most effective way(s) to eliminate barriers and increase access to care.

Because of budget constraints, be they federal, state, local, or organizational, many solutions will take time to implement. Finding ways to improve efficiencies within the systems of care will be essential, and maximizing available resources will require open minds, as open checkbooks may not be plentiful. It is easy to imagine that greater funding for the Medicaid program – in terms of who is covered, what is covered and what is paid – will eliminate many of the barriers to oral health access. But it is hard to imagine that an expanded Medicaid program will be the answer to all that ails the state.

Solutions that focus on workforce raise concerns among some practitioners who feel that there is no shortage of providers, and creating new access points, adding new models and/or increasing the scope of practice for existing providers would further undermine the economic sustainability of dental practice. Others feel that delegating aspects of dental care through new workforce models will create a two-tiered system of quality. And there are still others who believe that the access problem will only be solved when the dentist can function as a 'specialty' provider, delivering the complex care that only he/she is trained to provide, while 'primary' providers deliver prevention and uncomplicated restorative services, creating higher productivity at reduced cost.

But in spite of the differences of opinion, the stakeholders – state officials, dental professionals, medical professionals, advocacy groups, clients, etc. – increasingly verbalize an urgency to addressing the issue of access to care. Many have said that we cannot "drill and fill" our way out of the problem, but must instead focus on a spectrum of solutions from prevention through restoration. The creation of a multi-faceted array of solutions will require creativity, courage, and above all, a commitment to meeting the needs of the public, rather than protecting the status quo.

Appendix A

Interviewees:

Suzanne Alewine, MO Rural Health Association
Betsy Barnes, Director, Pike County Agency for Developmental Disabilities
Ross Bennett, DDS, Private Practice, Cape Girardeau
Diann Bomkamp, RDH, Private Practice, MDHA
Bonnie Branson, RDH, UMKC
Dana Browning, DDS, Director, St. Joseph Heartland Hospital Dental Clinic
Elizabeth Cessor, CEO, Cabot Westside Health Center
Tracey Continelli, SUNY
Donnell Cox, DentaQuest
Barry Daneman, PhD, UMKC and Park University
Karen Dent, MPCA Ben Harvey, DHSS
Jon Dolan, CEO, MO Healthcare Assn
Suzanne Gladney, Managing Attorney, Proyecto Migrantes
David Hacker, DDS, Jordan Valley FQHC
Craig Hollander, DDS, Private Practice, St. Louis
David Jordan, Community Catalyst
Jenny Katlove, Children's Partnership, CA
Melissa Kleffner-Wansing, DHSS
Karen Kliethermes, DHSS
Scott Lakin, Director, Regional Healthcare Initiative, MARC
Margaret Langelier, SUNY
Kecia Leary, DDS, Dental Director, Jordan Valley FQHC, Springfield
Corbin Marchack, DDS, Private Practice, Jefferson City
Rebecca McClannahan, MO HCFA
Michael McCunniff, DDS, UMKC School of Dentistry
Patty Miller, Executive Director, Callaway YMCA
Jennifer Wierwille Norton, Consultant, NH Oral Health Workforce Project
Sharon Oswald, LPaC Halleland Habicht
Toniann Richard, Health Care Collaborative of Rural MO
Helene Ruddy, RDH, DHSS OH consultant
Robin Rust, DMH
Michael Scandrett, JD, Halleland Habicht
Katie Schroeder, RDH, Cass County Dental Clinic
Debra Scott, HRSA Region 7
Mary Signorino, RDH, MO Baptist Hospital
Joe Squillace, PhD, MacMurray College
Julie Stitzel, Pew Children's Dental Campaign
Cheryl Thomas, DHSS
Dennis Thousand, DDS, dental consultant
Beth Vossler, MO Head Start
Kevin Wallace, DMD, MO Dental Board, Private Practice Springfield
Aaron Washburn, MDA
Gene Wilson, DDS, Dental Director, Poplar Bluff

Appendix B - Volunteer Initiatives

Free Dental Care Provided Statewide – 2011



Missouri Mission of Mercy

- » Two-day free dental care clinic
- » 1,856 patients received care
- » 1,046 volunteers
- » **\$1,108,994** donated in free care



Dental Lifeline Network

- » Network of dentists that provide free care
- » 222 people served
- » 376 dentists and 124 laboratories
- » **\$717,474** in donated services



Give Kids a Smile — St. Louis

- » Two day biannual clinic in February and October
- » 2,437 children treated in 2011
- » **\$796,510** in donated dental care in 2011
- » **\$4,642,537** in donated dental care to 10,630 children since 2001



Ronald McDonald Tooth Truck — Springfield

- » Dental treatment and prevention education for at-risk kids
- » Supported by a \$30,000 gift of the Springfield Dental Society
- » 1,644 children seen at 3,339 appointments
- » **\$952,052** in care provided



Elks Mobile Dental Units

- » Three mobile dental clinics serving all areas of the state
- » 893 patients served
- » Provided approximately 7,319 procedures free of charge
- » **\$213,834** in care provided in 2011



Smiles Change Lives

- » Provides orthodontic care for needy children
- » Supported by the Virginia and Maurice Brown Foundation
- » 212 patients seen
- » **\$1,060,000** of care provided

Total Free Care Provided: \$4,848,864

Appendix C - Supervision and Scope of Practice for Registered Dental Hygienists

Dental Hygiene Practice Act Overview: Permitted Functions and Supervision Levels by State

FUNCTION	AL	AK	AZ	AR	CA	CO	CT	DE	DC	FL	GA	HI	ID	IL	IN	IA	KS
Prophylaxis	D	G/A	G/A	G/A ¹	G/A	A	G/A	G	G	G/A	D	D/G	G	G	D/G	G/A	G/A
X-Rays	D	G/A	G/A	G	G/A	A	G/A	G	G	G		D/G	G	G	D/G	G/A	G
Local Anesthesia		G/A	D	D	D	G	D	D	D ¹			D	G	D	D	D	D
Topical Anesthesia	D	G/A	G/A		G/A	A	G/A	G	G	G	D	D/G	G	G	D	G/A	G/A
Fluoride	D	G/A	G/A	G/A ¹	G/A	A	G/A	G	G	G/A ⁴	D	D/G	G	G	D/G	G/A	G/A
PIV/ Fissure Sealants	D	G/A	G/A	G/A ¹	G/A	A	G/A	G	G	G/A	D	D/G	G	G	D	G/A	G
Root Planing	D	G/A	G	D	G/A	G	G/A	G	G	D	D	D/G	G	G	D	G/A	G
Soft Tissue Curettage	D	G	G	D	D	G		G	G	D	D	D/G		G			G
Administer N2O		D	D	D	D	D		D	D				D	D		D	G
Study Cast Impressions	D	G	G	G	G/A	A	G/A	G	G	D	D	D/G	D	G	D	G	G
Place Perio Dressings	D	G	D		G/A	G	G/A	G	D	G	D	D/G			D	G	G
Remove Perio Dressings	D	G	D		G/A	G	G/A	G	D	G	D	D/G	G	G	D	G	G
Place Sutures			D									D/G					
Remove Sutures	D	G	G		G/A	G	G/A	G	D	G	D	D/G	G	G	D	G	G
DH Diagnosis/ Assessment				G/A ¹	G/A	A	G						G	G	D	G/A	G/A
Treatment Planning					G/A	A	G									G	G/A

Key:
 D Direct Supervision Levels; dentist needs to be present
 G General Supervision Levels; dentist needs to authorize prior to services, but need not be present
 A Direct Access Supervision Levels; hygienist can provide services as she determines appropriate without specific authorization
 Two letters denote separate supervision levels depending on setting Private/Public
 1. Rules pending
 2. Upon direct order
 3. On patients 18 years or older
 4. Public health supervision applies to fluoride varnish only.
 5. Participating in remote supervision pilot program
 Footnotes apply to both settings if applicable
 Disclaimer: Information based on staff research. This document should not be considered a legal document.



April, 2012

Dental Hygiene Practice Act Overview: Permitted Functions and Supervision Levels by State

FUNCTION	KY	LA	ME	MD	MA	MI	MN	MS	MO	MT	NE	NV	NH	NJ	NM	NY	NC
Prophylaxis	G	D/G	G/A	G	G/A	G/A	G/A	D	G/A	G/A	G/A	G/A	G/A	D/G	G/A	G	D/G
X-Rays	G	D/G	G	G	G/A	G/A	G/A	D	G	G/A	G	G/A	G	D/G	G/A	G	D/G
Local Anesthesia	D	D	D	D	D	D	G	D	D	D	D	D/G	D	D	D/G	D	
Topical Anesthesia	D	D/G	G/A	G	G/A	G/A	G		G	G/A	G	G/A	G	D	D	G	D/G
Fluoride	G/A	D/G	G/A	G	G/A	G/A	G/A	D/G ⁴	G/A	G/A	G/A	G/A	G/A	D/G	G/A	G	D/G
PIV/ Fissure Sealants	G/A	D/G	G/A	G	G/A	G/A	G/A	D	G/A	G/A	G/A	G/A	G/A	D/G	G	G	
Root Planning	G	D	G/A	G	G/A	G/A	G/A	D	G	G/A	G	G/A	G/A	D/G	G	G	D/G
Soft Tissue Curettage			G/A	G		D	G	D	G	G/A	G	G/A			G		
Administer N2O	D	D ¹				D	G	D	D			D/G	D	D		D	
Study Cast Impressions	G	D	G/A	G	G/A	G/A	G		G	G	G	G/A	G	D	G	D	D/G
Place Perio Dressings	G	D	D	G	G/A	G/A	G		G	G	G	G/A		D		D	
Remove Perio Dressings	G	D	G/A	G	G/A	G/A	G	D	D	G	G	G/A	G	D	G	D	D/G
Place Sutures																	
Remove Sutures	G	D	G/A	G	G/A	G/A	G		G	G	G	G/A	G	D		D	D/G
DH Diagnosis/ Assessment	G										G	G/A					
Treatment Planning												G/A					

Key:

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Dental Hygiene Practice Act Overview: Permitted Functions and Supervision Levels by State

FUNCTION	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VT	VA	WA	WV	WI	WY
Prophylaxis	G	G/A ¹	G	G/A	G/A	G/A	G	G	G	G/A	G	G/A	G/A ⁵	G/A	G/A	G/A	G
X-Rays	G	G	G	G/A	G/A	G/A	G	G	G	G/A	G	G/A	G	G	G	G	G
Local Anesthesia	D	D	D	G	D	D	D	D	D		D	D	D ³	D	D	D	D
Topical Anesthesia	G	G	G	G/A	G/G	G/A	G	G	G	G/A	G	G/A	G/A ⁵	G	G	G	G
Fluoride	G	G/A ¹	G	G/A	G/G	G/A	G	G	G	G/A	G	G/A	G/A ⁵	G/A	A	G	G
Pit / Fissure Sealants	G	G/A ¹	G	G/A	G/A	G/A	D/G	G	G	G/A	G	G/A	G/A ⁵	G/A	G	G/A	D
Root Planning	G ²	G	G	G/A	G/A	G/A	D/G	G	D	G/A	G	G/A	G	G/A	G	G/A	G
Soft Tissue Curettage	G ²	D	G	G/A				G	D		G			D/A			
Administer N2O		D	D	D		D		D	D		D		D ³	D			D
Study Cast Impressions	G	G	G	G/A	D	D	D		D	G/A	G	G	G	G	G	G	G
Place Perio Dressings	G	G	G	G/A		D				G/A	G	G	G	D	D	D	D
Remove Perio Dressings	G	G	G	G/A		D	D		D	G/A	G	G	G	D	D	D	D
Place Sutures																	
Remove Sutures	G	D	G	G/A	D	D	D		D	G/A	G	G	G	D	D	D	G
DH Diagnosis/Assessment				A		G											
Treatment Planning	G			A													

Key:

- D Direct Supervision Levels; dentist needs to be present
 - G General Supervision Levels; dentist needs to authorize prior to services, but need not be present
 - A Direct Access Supervision Levels; hygienist can provide services as she determines appropriate without specific authorization
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Appendix D: Workforce Initiatives Across the US

There is much activity across the country regarding expanding access to oral health care through the introduction of new workforce models. Following is a snapshot of some of the more recent initiatives.

Oregon saw the introduction of a bill to create licensure for dental therapists. This version of the therapist would be licensed as a dental hygienist, complete an additional education program approved by the Dental Board, and pass an exam. Instead, a modified law was passed that include specific language authorizing the OHA to conduct a community dental health coordinator (CDHC) pilot program and the conversion of existing limited access permit dental hygienists into expanded function dental hygienists. In addition to the CDHC pilot, the Oregon Health Authority is also authorized to conduct an undefined number of three to five year pilot projects on dental workforce and education pathways.

While **New Hampshire** hygienists can already practice under public health supervision, legislation introduced in the most recent session will create the category of public health hygienist, and is expected to receive approval in the Legislature and be signed into law in June, 2012. This legislation will allow a public health hygienist to perform interim restorations or atraumatic restorative treatment (ART), the excavation of cavitated carious lesions with hand instruments and restoration of the cavities with a glass ionomer restorative material, nutritional counseling and radiographs. The genesis of this initiative was in a facilitated stakeholder process which produced three recommendations: the establishment of expanded function dental auxiliaries, expanding the scope of practice for dental hygienists and piloting a dental therapist program. The diverse workgroup consisted of professional organizations, children's advocacy groups, the oral health coalition, private insurance and state officials. Proposed legislation regarding dental therapists is anticipated in the 2012-2013 legislative session.

Last year the **Maine** legislature passed a bill that commissioned a study on access to dental care in the state. The results of that study are expected in August, 2012, and will inform a workforce stakeholder group's consideration of new provider legislation in the state.

The **California** senate passed legislation to establish a state dental director and pursue a pilot program for dental providers with expanded scopes of practice. This legislation is headed to the California Assembly in June. The California Dental Association, in concert with 20 other key organizations, is supporting the bill.

The state of **Michigan** is interested in conducting a two-year pilot project of new dental providers in the state under the direction of one of the state's dental schools. The providers are dental hygiene-based, will be under the direct supervision of a dentist, but will perform similar scopes of practice to the Alaska DHAT and Minnesota ADT.

Efforts have been underway in **Kansas** to create a dental mid-level – a *registered dental practitioner (RDP)*. This individual would be an Associate Degree level registered dental hygienist with 18 months additional training in restorative care, who would practice under the general supervision of a dentist. Curriculum development is in process and training sites are being determined. This new practitioner is being proposed by a coalition led by the Kansas Association for the Medically Underserved and the Kansas Health Consumers' Association. A bill enabling the RDP has been under consideration in the legislature's health care committee, but is not expected to move forward until the 2013 legislative session.

The state's extended care permit (ECP) was legislatively enhanced in February, 2012. The ECP has allowed experienced dental hygienists who complete additional course work, and are sponsored by a dentist who agrees to monitor their practice, have been providing most dental hygiene services directly to children (ECP I) or to seniors and disabled persons (ECP II) in community settings such as Head Start programs, schools, local health departments, safety net clinics and long-term care facilities. The expansion of the permit adds an ECP III, who has an enhanced scope that would include identification and removal of decay using hand instruments and placing a temporary filling (including glass ionomer); adjusting dentures and placing soft relines; smoothing a sharp tooth with a slow-speed handpiece; extracting mobile deciduous teeth; and prescribing fluoride, chlorhexidine, antibiotics and antifungals according to a dentist's standing order. While all other hygienists may administer local anesthesia only when a dentist is present, ECP IIIs would be permitted to administer local anesthesia without a dentist in settings where medical services are available.

Led by **Washington's** Children's Alliance in partnership with the Hygienists' Association, legislation enabling a dental therapist (DT) has been proposed. There would be 2 training tracks for this practitioner – an additional 1 year of training for a registered dental hygienist, or a 2 year training program for the DT. A bill was passed by the state senate's health care committee, and is expected to be proposed again in

the upcoming legislative session. Communications from the Washington Dental Association have indicated an interest in participating in the shaping of this new practitioner.

In **Vermont**, a coalition of more than 40 stakeholders has been working on an expanded care practitioner model – a Registered Dental Practitioner – that is dental hygiene-based. It includes an additional year of training in restorative techniques. The group has also pushed an expansion of Medicaid benefits for pregnant and nursing mothers.

In addition, a bill has been filed that would task the Commissioner of Health with the design of a community dental health coordinator (CDHC) pilot project in which the CDHC may provide educational services, preventive and limited palliative care services, and dental assessment services in a variety of settings under the supervision of a dentist, meaning the dentist has authorized the procedures. Design recommendations for the pilot project are due no later than January 15, 2013. While the commissioner is charged with designing the pilot, the scope of practice for this provider is laid out in the legislation. It includes placing temporary and sedative restorative material in unexcavated carious lesions and unprepared tooth fractures; collecting and transmitting diagnostic data and images via a telemetric connection; dispensing and applying medications on the specific order of a dentist; and providing limited services for dental emergencies, in consultation with a supervising dentist. A CDHC is defined as a dental assistant, dental hygienist or other trained dental professional certified by the Commissioner.

New Mexico is pursuing the introduction of a dental health aide therapist (DHAT). A two-year training program modeled on the Alaskan DHAT and a dental hygienist with 1 additional year of training are both being considered. No legislation was filed in the 2012 session, but is anticipated in the coming year.

In 2011, New Mexico was the first state to formally authorize the community dental health coordinator (CDHC) through its dental practice act. In addition to codifying CDHCs, the dental practice act enabled EFDAs; and expands dental hygiene services to include the “dental hygiene focused assessment”. This allows hygienists, based on their “identification of potential oral disease” to develop, communicate, implement and evaluate a plan of oral hygiene care and treatment. All hygienists will be able to provide such assessments, as well as assess for sealants and expose radiographs for the purpose of assessing abnormalities. Hygienists under general supervision will be able to prescribe, administer and dispense fluoride supplements, topical fluorides and topical antimicrobials; and administer local anesthesia. The legislation also allows people licensed to practice dentistry or dental hygiene in another state or students enrolled as dental residents at the University of New Mexico to obtain temporary public-service licenses.

Ohio is working on the introduction of a dental therapist requiring either successful completion of 2 years of a dental therapy curriculum or completion of a 1 year curriculum for a registered hygienist. It is anticipated that the proposed model would follow the curriculum published by the Journal of Public Health Dentistry. Legislation is expected to be introduced in the 2013 legislative session.

These initiatives provide a glimpse of the efforts underway to expand access to care across the country through changes in the traditional workforce. The strategies and success will be closely monitored by both those supporting and opposing the introduction of new workforce models, and will add to the discussion of appropriate solutions for Missouri.