

An Analysis of Oral Health Disparities and Access to Services in the Appalachian Region

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AN ANALYSIS OF ORAL HEALTH DISPARITIES AND ACCESS TO SERVICES IN THE APPALACHIAN REGION

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APPALACHIAN REGIONAL COMMISSION

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GLOSSARY OF ACRONYMS

ACS	AMERICAN CANCER SOCIETY
ADA	AMERICAN DENTAL ASSOCIATION
ADHA	AMERICAN DENTAL HYGIENISTS ASSOCIATION
AMA	AMERICAN MEDICAL ASSOCIATION
ANCOVA	ANALYSIS OF COVARIANCE
ANOVA	ANALYSIS OF VARIANCE
ARC	APPALACHIAN REGIONAL COMMISSION
ARF	AREA RESOURCE FILE
ASTDD	ASSOCIATION OF STATE AND TERRITORIAL DENTAL DIRECTORS
BHP	BUREAU OF HEALTH PROFESSIONALS
BLS	BUREAU OF LABOR STATISTICS
BRFSS	BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM
CDC	CENTERS FOR DISEASE CONTROL AND PREVENTION
CHIP	CHILD HEALTH INSURANCE PROGRAM
CHWS	CENTER FOR HEALTH WORKFORCE STUDIES
CMS	CENTERS FOR MEDICARE AND MEDICAID SERVICES
CPS	CURRENT POPULATION SURVEY
CQI	CONTINUOUS QUALITY IMPROVEMENT
CWS	COMMUNITY WATER SYSTEM
DHHS	DEPARTMENT OF HEALTH AND HUMAN SERVICES
DHPPI	DENTAL HYGIENE PROFESSIONAL PRACTICE INDEX
DPH	DEPARTMENT OF PUBLIC HEALTH
EPA	ENVIRONMENTAL PROTECTION AGENCY
EPSDT	EARLY AND PERIODIC SCREENING, DIAGNOSTIC AND TREATMENT SERVICE
FY	FISCAL YEAR
GAO	GOVERNMENT ACCOUNTABILITY OFFICE
HRSA	HEALTH RESOURCE AND SERVICE ADMINISTRATION
JPHC	JAPAN PUBLIC HEALTH CENTER
KCHIP	KENTUCKY CHILDREN'S HEALTH INSURANCE PROGRAM
KFF	HENRY J. KAISER FAMILY FOUNDATION
MCHB	MATERNAL AND CHILD HEALTH BUREAU
MMWP	MORBIDITY AND MORTALITY WEEKLY REPORT

MSA	METROPOLITAN STATISTICAL AREAS
NCHS	NATIONAL CENTER FOR HEALTH STATISTICS
NHANES	NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY
NHIS	NATIONAL HEALTH INTERVIEW SURVEYS
NIDCR	NATIONAL INSTITUTE OF DENTAL AND CRANIOFACIAL RESEARCH
NIH	NATIONAL INSTITUTES OF HEALTH
NIOH	NATIONAL INSTITUTE OF OCCUPATIONAL HEALTH
NORC	NATIONAL ORGANIZATION FOR RESEARCH AT THE UNIVERSITY OF CHICAGO
OES	OCCUPATIONAL EMPLOYMENT STATISTICS
RHRC	RURAL HEALTH RESEARCH CENTER
SAHIE	SMALL AREA HEALTH INSURANCE ESTIMATES
SAS	STATISTICAL ANALYSIS SYSTEM
SCHIP	STATE'S CHILDREN'S HEALTH INSURANCE PROGRAM
SES	SOCIOECONOMIC STATUS
UNC	UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
USDA	UNITED STATES DEPARTMENT OF AGRICULTURE
VHA	VETERANS HEALTH ADMINISTRATION
WWAMI	WASHINGTON, WYOMING, ALASKA, MONTANA AND IDAHO

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AN ANALYSIS OF ORAL HEALTH DISPARITIES AND ACCESS TO SERVICES IN THE APPALACHIAN REGION

EXECUTIVE SUMMARY

ORAL HEALTH FUNDAMENTALS

Good oral health is the result of positive forces in a complex range of issues –from environmental, socio-cultural and behavioral factors to education and health service access. Though integral to personal well-being, oral health receives less attention and less funding than general physical health. Even measurement of national oral health status is limited to interview questions on the Behavioral Risk Factor Surveillance System (BRFSS), a continuous random sample telephone interview survey conducted annually by the Centers for Disease Control and Prevention (CDC), and other single purpose phone surveys conducted by the National Institutes of Health and the United States Department of Health and Human Services (US DHHS). There is no national database on oral health status. Medicare has limited billing information from hospital visits for dental emergencies. Preventive intervention data is similarly limited. About 60 percent of states voluntarily report to CDC the number of counties that fluoridate public water supplies. Dental care is not covered by most public and private health insurance plans. With the exception of government employee plans and children’s Medicaid programs, dental insurance coverage requires a separate policy. Only basic children’s dental services are mandatory for Medicaid. Adult care is optional for state Medicaid programs. Dental care, other than hospital emergency care, is not covered by Medicare or TriCare, the basic military insurance. The Veterans Health Administration (VHA) provides dental care only to a select group of qualified veterans. There is no comprehensive national reporting system for dental insurance coverage. Even the vast Kaiser Family Foundation (KFF) state level database has little information on dental care. The National Health Interview Survey (NHIS) is conducted through the CDC surveys for dental health insurance coverage, with sample sizes designed for accuracy at the national and four sub-national levels.

Across the United States, shortages of dental professionals are common. Scope of dental practice is limited by state dental licensure boards, which are only gradually expanding the scope of oral health services permitted for delivery by non-dentists. As this happens, the oral health workforce expands and more services become available to more people, generally at lower costs. Statistics on oral health workforce are maintained by the American Dental Association, the American Dental Hygienists Association, and self-reported professional status is collected by the U.S. Census in the American Community Survey. Wage and employment data for dental hygienists are sampled, reported and forecast by the Bureau of Labor Statistics (BLS) through its National Employment Matrix. Data on state licensure are available only directly from the states, or in a summary report initially developed by the US DHHS, Health Resources and Services Administration (HRSA) through private contractors. Notably, most public data for oral health in states and regions are four to six years behind the current year.

Information in this report is drawn from literature reviews, and public data sources. Anecdotal information on good practices was provided by presenters at the ARC’s 2011 Annual Conference, *Healthy Families, Healthy Future*. On contract from ARC (Contract #CO-16034-2008), staff from University of Mississippi Medical Center collected primary information on state oral health initiatives; Appendices A through G of this report include much of the reported information.

This report covers:

- State variation in oral health indicators in 2005 and 2007, using CDC and aggregate BRFSS information over a seven- to eleven-year period.
- County variations in oral health workforce, specifically dentists and hygienists.
- State variations in scope of oral health practice for non-dental providers.
- State variations in Medicaid coverage of dental services and dentist participation in Medicaid.
- Information from state health offices on efforts to increase oral health coverage.
- Recommendations from national reports, specifically the 2011 Institute of Medicine report regarding oral health of disadvantaged populations, and the Pew Charitable Foundation report on children's oral health.

ORAL HEALTH INDICATORS

The report compares counties and states in the Appalachian Region and the United States on three measures of oral health: a preventive measure, fluoridation of water supplies; an access measure, dental visits in the past year; and an outcome measure, tooth loss. Data sets for each measure have gaps. For example, in the sampled year, two Appalachian states did not report public water fluoridation at the county level. Some data gaps were filled with statistical models; others were compensated with data from an adjacent time frame.

Within the sample of states reporting data, Appalachia compares well to the United States on fluoridation of community water supplies. About 60 percent of states voluntarily report to the CDC the counties that fluoridate public water supplies, and these are made public. In the year used for this report, neither Ohio nor Maryland reported. Ohio, one of the missing states, has an active local option fluoridation program and reported 90 percent of communities served by public water, of which 92 percent participated in fluoridation programs in 2011 (Ohio Department of Health 2011). Maryland reported 93 percent of its public water supplies fluoridated (National Institute of Dental and Craniofacial Research 2011). Among 11 Appalachian states reporting to CDC, fluoridation levels ranged from a high 99 percent to a low 20 percent of public water supplies.

The measure of dental service use, a visit in the last year, does not reflect the nature of the service or the severity of the reason for the visit. Aggregated BRFSS survey data showed two-thirds of Appalachians interviewed reported seeing a dentist; half reported disease related tooth loss; and almost one quarter reported losing six or more teeth to disease or decay.

Data on Appalachian tooth loss as a result of decay were synthetically derived by University of Mississippi researchers using seven years of BRFSS surveys, separating metropolitan and non-metropolitan data and regrouping them into Appalachian and non-Appalachian areas (Appendix C). Inferences from these data must be drawn with caution, because the data cover an eight-year time span from 1999 to 2006. In summary, the model showed:

- Appalachian areas generally reported more decay-related tooth loss.
- A few Appalachian metropolitan areas reported better oral health than their non-metropolitan counterparts in Appalachia.
- Nationwide, metropolitan areas reported slightly better oral health than non-metropolitan areas, but differences faded when data were controlled for socioeconomic status.

- On average 26.5 percent of Appalachian seniors (over 65) reported having had all of their teeth removed. (Appendix C). By comparison, the 2006 national average on the BRFSS was 19.3 percent.
- Among Appalachian adults aged 34 to 65, 12.9 percent reported six or more teeth removed as a result of preventable causes, compared to 10.9 percent reported by residents of non-Appalachian areas.

When these synthetic estimates were tested against location and socioeconomic status, the University of Mississippi research team found no difference between the Appalachian Region and the nation. High socioeconomic status and metropolitan location were highly correlated with good oral health status (Appendix C).

State-level analyses of the BRFSS surveys are more reliable than analyses of the synthetic carve-outs for the Appalachian Region. On the state level:

- Fewer teeth were reported lost to disease or decay by people in Northern (Maryland, New York, Ohio and Pennsylvania) than in Southern (Alabama, Georgia, Mississippi, and South Carolina) Appalachian states. Tennessee residents reported less tooth loss than other southern states.
- Maryland, Northern Appalachian states and Virginia reported the best oral health status in 2005.
- Mississippi and Southern Appalachian states reported the worst oral health status (Appendix C).

ORAL HEALTH WORKFORCE

Available workforce data show that, compared to the United States, an Appalachian location is associated with fewer dental providers.

- In 2007, there were 36 percent more persons per dentist in Appalachia than in the United States (2,103 versus 1,546, respectively).
- Dentists are more plentiful in certain metropolitan areas.
- Dental workforce concentrations vary significantly within the Appalachian Region.
- Private dentist participation in Medicaid is a challenge, and not all states report data. In 2005, among the 11 reporting Appalachian states, dentist participation in Medicaid ranged from a low of no dentists in the state participating to a high of 44 percent participating (Association of State and Territorial Dental Directors 2008).

Medicaid dental patients are challenging to serve. In most states, Medicaid payment for dental care is low, and Medicaid beneficiaries are more prone to cancel or be late for appointments.

Properly trained dental hygienists can fill access voids associated with shortages of dentists. However, state licensure boards determine the extent to which these non-dentists may provide oral health services. An economic study, released in July 2011 (Kleiner and Park. 2008), details the status of state licensure in 2008. Prior to that study, the most recently published national study of state licensure status was prepared for the United States DHHS, HRSA by researchers at the University at Albany. According to those studies, Appalachian states have been generally more restrictive with regard to expanded practice for dental hygienists. See Appendix E.

Dentists' fear of potential lost income plays a major role in limiting expansion of non-dentist labor force capabilities. Most dental practices are small and involve substantial personal capital investment on the part of individual proprietors. With few people covered by generous dental insurance, dentists fear loss of paying customers when workforce capacity increases.

Trends in these studies are complemented by promising pilots that were reported by representatives from several Appalachian states.

- West Virginia and Kentucky are notable for recent progress. Kentucky expanded practice in 2006, and West Virginia began in 2010 (McKee. 2011) (Muto. 2011).
- Pilot projects started in Appalachian North Carolina have demonstrated that pediatricians can successfully provide topical dental fluoride and dental sealants to large numbers of children.¹
- South Carolina is a leader in expanded practice for Dental Hygienists.

The Appalachian Region would benefit from a high level policy initiative involving the insurance industry, dentists, and public health officials in setting goals for minimum dental care for all residents. The American Dental Association (ADA) is working to increase dentist participation in Medicaid (ADA. 2011).

STATE ORAL HEALTH INSURANCE COVERAGE

Little is written about total dental insurance in the United States. Most studies focus on children. Medicaid, state children's health insurance programs (SCHIP), and private dental insurance are the primary sources of insurance coverage for dental care. The Federal Employees Health Benefits Program includes generous dental coverage. However, few non-governmental employers offer dental insurance. Publically available, consistent data for all of these are limited to the NHIS national data and state summaries, which are reported by the KFF. Data are difficult to assemble, because insurance eligibility can change from month to month, depending on a person's income status and employment status.

BRFSS no longer includes questions about dental insurance, so national oral health insurance data will, at best, be restricted to special studies and state level summaries. Coverage increased as income increased. Data from the NHIS, for January to June 2011, indicated that 82.6 percent of persons under 65 had health insurance (Martinez and Cohen. 2011). They note that 40.1 percent of children were covered by public plans, compared to only 15.7 percent of adults.

This emphasizes the critical role played by Medicaid in dental insurance of children. Martinez and Cohen also note that the near poor are more likely than the poor to lack any health insurance coverage. A survey of 1,000 people, conducted by Brighter.com in June 2010, showed that a third of those without dental insurance have been to a dentist once or less in the last decade².

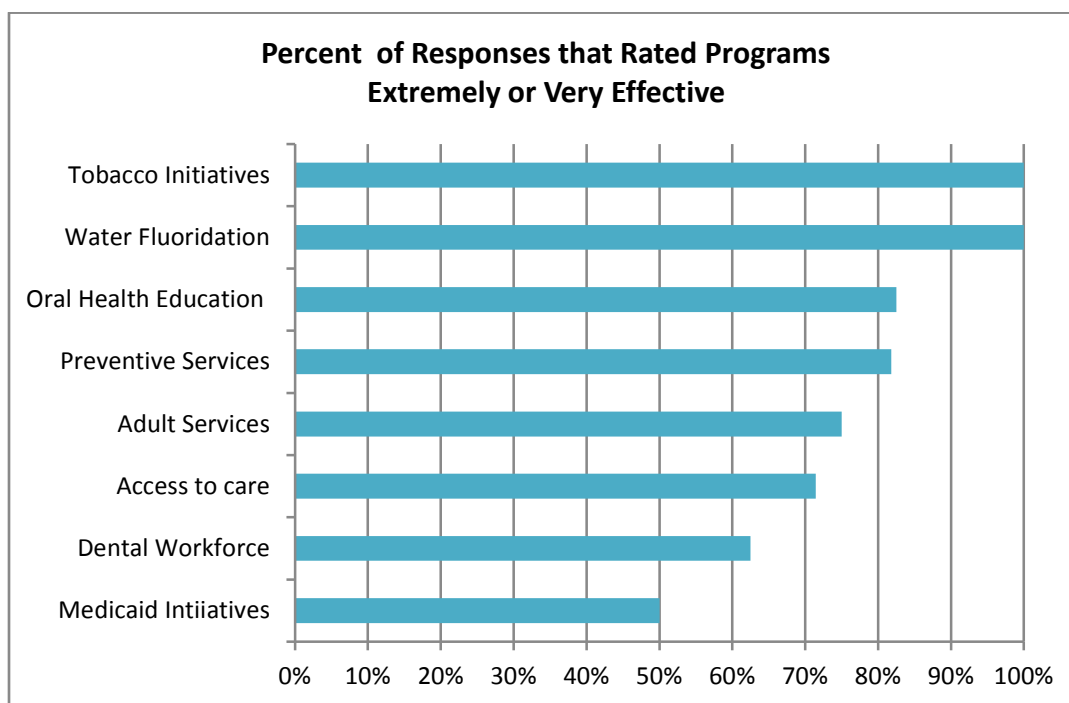
¹ Communicated to Thomas R. Konrad, UNC.

² Linked In news 12 entrepreneurs reinventing health care, online, Jan 5, 2011, 12 reporting from CNN Money

BEST PRACTICES IN STATE ORAL HEALTH POLICIES

Public oral health programs focus primarily on public water supply fluoridation, topical fluoride applications for children, and incentives for providers working in or caring for underserved populations. States struggle to sustain programs that provide dental care for adults. In a telephone interview survey, 31 Appalachian policy makers representing all 13 states reported highest levels of satisfaction with community health interventions: fluoridation, tobacco cessation initiatives and education. At least half reported all of the programs tried were “very effective,” though the direct care and workforce subsidies were rated “extremely” or “very effective” less often than the community-wide programs (Figure 1). Costs of sustaining direct intervention programs, compared to the number of people reached, were major reasons for rating programs low on effectiveness.

FIGURE 1 – STATE PUBLIC HEALTH OFFICIAL EVALUATION OF DENTAL HEALTH INITIATIVES



Source: 2009 Survey of Appalachian Oral Health policy makers, University of Mississippi Medical Center, Appendix F.

Though not reported in the surveys, individual states like Kentucky and West Virginia are working in conjunction with state dental schools to improve children’s oral health, focusing on schools, family awareness and cooperation with private dentists. These anecdotes were shared at the ARC 2011 *Healthy Families, Healthy Future* Conference

The Pew Charitable Foundation’s Oral Health Project is rating states on their attention to children’s oral health. Appalachian states, as a whole, are average; however, South Carolina, Maryland and West Virginia have achieved top national scores.

POLICY ISSUES

Appalachian states have launched creative oral health disease prevention initiatives at the community level: fluoridation and education; and at the personal level: expanded practice, school services and sealants for children under six, and incentives to work in underserved areas. Workforce and scope of practice limitations are determined at the state level.

Throughout the Appalachian Region, and elsewhere, poverty is consistently associated with lower oral health indicators. Because the challenges are large, ARC-facilitated sharing forums are very helpful for providing more current information across state lines on both successful and unsuccessful initiatives.

In order to see trends in oral health in the Appalachian Region over time, policy makers need consistent data that can be geographically associated with Appalachia and its sub-regions. The optional nature of dental health questions, the small sample frame and the telephone source of information all inhibit use of BRFSS or NHIS data for this purpose. Making them useful would require oversampling in a sample frame specific to the Appalachian Region. This would produce reliable year to year measures of the impact of state initiatives. Unfortunately, BRFSS is a state-federal initiative that permits each state to select and adjust the questions asked on the survey. States fund the survey efforts in proportion to the size of their sample and scope of questions.