MCD Public Health

Insight Innovation Impact

Oral Health Care in Maine

Report in response to Resolves 2011 Chapter 92 (LD1105)

Resolve, To Study Oral Health Care in Maine and Make Recommendation Regarding How to Address Maine's Oral Health Care Needs

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EXECUTIVE SUMMARY

LD 1105, *Resolve, To Study Oral Health Care in Maine and Make Recommendations Regarding How to Address Maine's Oral Health Care Needs* was introduced in the 125th Maine Legislature. The resolve directed the Executive Director of the Legislative Council to designate Medical Care Development (MCD Public Health) to contract with a qualified consultant to conduct a study of Maine's oral health care needs and outline six specific points to be included in that study. This report is the result of that study.

As stipulated in the legislation, MCD Public Health convened an advisory group and worked with that group to construct a request for proposals and review bids from consultants. The Center for Health Workforce Studies (CHWS), part of the School of Public Health of the State University of New York in Albany, NY was selected to complete the study. The result was over 400 pages of research contained in five different reports. The reports contain a detailed analysis of access to oral health care in Maine, the financial resources committed to oral health care, the workforce needs of Maine and how recent changes in the workforce have impacted access as well as a summary of policy and workforce models from other states and countries.

In preparing its report MCD Public Health has extracted from this body of research those findings relevant to the request for information contained in the legislation and identified parts of each report that contain further relevant details.

Key findings:

ITEM 1: EXISTING PUBLIC AND PRIVATE FINANCIAL RESOURCES FOR ORAL HEALTH CARE IN THE STATE

- MaineCare is the largest public payer ($36.5 million in 2010)
- The majority of financial resources for oral health care come from private insurance ($206.5 million in 2010) and out of pocket payments by individuals with dental insurance ($62.7 million in 2010)
- Out of pocket costs for those without dental insurance cannot be measured because no one collects or tracks that information.
- The state Oral Health Program provides evidence based preventive health services (dental sealants) and subsidies for sliding scale fees at safety net clinics with a SFY 2013 budget of $300,000 for both programs.

ITEM 2: LIMITATIONS ON ACCESS TO ORAL HEALTH CARE FOR CITIZENS OF THE STATE

- Access to publicly funded evidence based prevention services for low income children through the state Oral Health Program has declined in the last five years.
- The primary barrier to access to care identified by oral health care providers is ability to pay.
- Oral health literacy was the second most common barrier to oral health care cited by oral health care providers.
- Individuals insured by MaineCare travel further for care than those with commercial insurance regardless of their geographic location within the state
- RHDs working under PHS status and IPDHs are more likely to work in rural areas than dentists.

ITEM 3: THE SUSTAINABILITY OF PUBLIC FINANCING PROGRAMS FOR ORAL HEALTH CARE

- More money is spent fixing oral health problems than preventing them.
- Oral health insurance funds (public and private) are not being spent for cost effective care.
- Cuts to the state OHP (Oral Health Program) have resulted in less support for prevention programs and less support for sliding scale services for low income Mainers.
- Safety net providers indicate that more than 40% of services are uncompensated care.

ITEM 4: THE ACTUAL AND PROJECTED DENTAL WORKFORCE NEEDS FOR THE STATE

- Implementation of the ACA is likely to result in greater demand for preventive oral health services for youth up to age 21 as coverage expands.
- The new UNE School of Dentistry makes projecting the dental workforce capacity in State impossible to predict with any reliability.
- There is an existing need for more oral health care providers and safety net providers in rural areas.
- Within the next five years 23.7% of dentists in Maine plan to retire; an additional 16.1% expect to reduce their hours.
- More than four of every five EFDAs work in urban areas.
- There is excess capacity of RDHs, as indicated by the number working less than full time and reporting having difficulty finding employment.
- IPDHs report treating more adult patients and more patients in rural areas than RDHs.

ITEM 5: THE EFFECT OF RECENT CHANGES SURROUNDING ORAL HEALTH CARE IN THE STATE, SUCH AS THE DEVELOPMENT OF A DENTAL SCHOOL BASED IN THE STATE AND THE CREATION OF EXPANDED FUNCTION DENTAL ASSISTANTS, DENTAL HYGIENISTS WITH PUBLIC HEALTH SUPERVISION STATUS AND INDEPENDENT PRACTICE DENTAL HYGIENISTS

- Recent innovations, such as RDHs with PHS status and IPDHs are improving access to oral care in rural areas and for low income adults.
- The distribution of the dental auxiliary workforce (Dental Assistants and Dental Hygienists) is determined by the degree of supervision required by their license.

ITEM 6: POSSIBLE POLICY MODELS FROM OTHER STATES AND COUNTRIES THAT HAVE BEEN EFFECTIVE IN ADDRESSING IDENTIFIED WORKFORCE SHORTAGES

- 20 states are considering legislation that would expand current scope of practice for dental auxiliaries or create new categories of providers.
- New workforce models have been implemented in Alaska and Minnesota.
- Case studies of the Dental Health Aide Therapist (DHAT) in Alaska show no differences in diagnosis, treatment or complications between services provided by a dentist and those provided by DHATs.
- Legislation creating Minnesota's Dental Therapist license required an evaluation of services which is due in 2014.
- Implementation of a new workforce model requires consideration of an array of factors including education and certification, patient acceptance and a workable economic model for sustainability.

INTRODUCTION

The need for oral health care and barriers to access to that care has been a continuing concern for the citizens of Maine for the past decade. The Maine State Legislature has been the recipient of numerous reports on various aspects of oral health in Maine over the past decade. The legislation which produced the report contained herein was the most comprehensive in the scope of information which was requested and has resulted in a body of research on oral health that we believe is without comparison in other states in the country.

In the pages that follow we present the context that led to the research and this report. Key findings from the research that were extracted using an interpretive framework that used evidence based public health to provide meaning for the results.

CONTEXT OF THE REPORT

In 2011 the Maine State Legislature passed legislation that directed Medical Care Development (MCD Public Health) to seek an appropriate consultant to conduct research on six points related to oral health in Maine and barriers to care. With the assistance of an advisory group, sufficient non-governmental funds were raised and the Center for Health Workforce Studies (CHWS) at the State University of New York at Albany was chosen to conduct the research. The CHWS provided MCD Public Health with a body of research contained in five different reports. A report entitled "The Oral Health Workforce in Maine" was prepared by the CHWS under a contract with a group of Maine foundations referred to as the Maine Oral Health Funders (MOHF). This report was made available to MCD Public Health for use in producing our report to the legislature.

This report to the legislature was written by staff at MCD Public Health based on the results of the research conducted by the CHWS and is structured to summarize parts of that research that specifically address the concerns of the Maine State legislature regarding barriers to access to oral health care in Maine as expressed in Resolves 2011 Chapter 92. The entire body of research represents a rich, unprecedented source of information on oral health and Maine. As such it should be considered a baseline picture of the status of the oral health care delivery system in Maine just prior to the full implementation of the Affordable Care Act.

DATA USED

For its work the research team at CHWS relied on a variety of data sources, including previously published reports, claims data provided by the Maine Health Data Organization (MHDO), and surveys of oral health professionals in Maine. Previously published reports on oral health include Initiatives for Children's Oral Health Care (January, 2008) the Report of the Governor's Task Force on Expanding Access to Oral Health for Maine People (February 2008), Analysis of Emergency Department Use in Maine (Kilbreth, 2010), and Report of the Resolve, To Study Expenditures for Oral Health Care in the MaineCare Program (Public Law Chapter 145) Working Group (February, 2011) as well as information regularly published by the Department of Health and Human Services (DHHS) of the state of Maine. Analysis of the claims data provided estimates of the amount of funds spent on oral health services by both public and private insurers and the context in which these

services were delivered. In order to understand the current capacity of the oral health workforce in Maine the CHWS conducted surveys of oral health providers in Maine. These surveys included both written surveys and interviews. Three separate surveys were conducted:

1. A written survey of the oral health workforce to assess demographic, educational and practice characteristics of Maine's oral health professionals as well as their perspective on access barriers to oral health services in Maine.
2. A written survey of safety net providers to better understand their contributions to oral health care for Maine's people
3. Interviews with a list of key informants provided to the researchers by the Advisory Group

In this report MCD Public Health has also included results from claims data analysis conducted by MCD Public Health in 2009-2010. This analysis examined the relationship between oral health care and medical expenditures for both diabetes and cardiovascular disease (funded by MeHAF).

Where appropriate, the researchers at CHWS have provided comparisons with national data drawn from a wide variety of sources such as the federal Centers for Disease Control (CDC), the Health Resources and Services Administration (HRSA), the Centers for Medicare and Medicaid Services (CMS) and the US Census Bureau (Census).

LIMITATIONS ON THE STUDY

In their proposal to MCD Public Health the team at CHWS stipulated that they would not be able to address certain provisions of the legislation due to the lack of data or the excessive cost of collecting or accessing some data. Specifically, a complete analysis of existing public and private financial resources available for oral health care in Maine was not possible. Population rates of dental insurance coverage are not published and are subject to frequent change. An analysis of the sustainability of public financing programs for oral health care would have required economic data (public expenditures, tax revenues, etc.) beyond the resources available for the research. The analysis of the limitations on access to oral health care in Maine cannot include analysis of care for the uninsured and those who pay out of pocket since there is no mechanism for collecting these data. In addition, the researchers considered rate of response to the survey of safety net providers low but sufficient for analysis, though they caution that one should avoid against over-generalization of the results.

Finally, all studies are static can only represent the information available to the researchers at the time the research was being completed.

INTERPRETIVE FRAMEWORK – EVIDENCED BASED PUBLIC HEALTH

All data are interpreted within a framework that allows researchers, professionals and lay people to agree on the meaning of any given analysis. There has been every effort made in this report to relate the analysis performed by the CHWS within the framework of **evidence based practice.**

Terms such as “large” and “small” or “adequate” and “insufficient” are imprecise in meaning and the understanding of these terms varies by individuals. To add precision to the interpretation of data scientists have reached consensus on the rules by which analysis is done and data are interpreted. Perhaps the most familiar examples are the rules established by the Federal Drug Agency (FDA) for clinical trials to test the efficacy of new medicines.

The scientific analysis that establishes the effectiveness of a procedure or practice in dentistry and medicine provides the **evidence base** for that intervention. There is increasing emphasis on the employment of evidence based practice in both medicine and dentistry. In the provision of oral health services in the traditional dental practice setting, this means providing individual patients treatments that are shown to be effective through the accumulation of scientifically rigorous research.

Beyond the dental practice setting, there are public health programs that can be implemented at the community level in order to improve population health. ““Evidence-based public health” calls for a solid knowledge base on disease frequency and distribution, on the determinants and consequences of disease, and on the safety, efficacy, and effectiveness of interventions and their costs.” (Victora et al 2004). Once the evidence base for a procedure or practice has been established, it is promulgated and supported by agencies such as the federal Centers for Disease Control (CDC), or professional associations such as the American Dental Association.

Prevention of dental disease is a key element in improving oral health of populations. With proper care most oral disease and associated tooth loss can be prevented. The federal CDC supports policies that promote two evidence based interventions to prevent oral disease identified by the U.S. Community Preventive Services Task Force, an independent, nonfederal, unpaid body, appointed by the Director of the Centers for Disease Control and Prevention (www.thecommunityguide.org). These interventions are: community water fluoridation and dental sealants, specifically school-based sealant programs and community-wide sealant promotion programs.

Early preventive intervention is also considered an important means of preventing oral disease. Current American Academy of Pediatric Dentistry (AAPD) guidelines call for all children to be seen by a dentist and have a regular source of dental care (a Dental Home) by one year of age (AAPD Reference Manual, 2012). The guidelines also contain a number of recommendations as to the sort of preventive interventions that should be implemented. While these recommendations appear to be sensible, not all of them reach the criteria for evidence based practice.

CONCLUSIONS OF THE RESEARCH

In this section of the report the six points listed in the legislation are addressed individually. The major conclusions from the research reports are listed with some supporting data and references to data in the reports supplied by the CHWS as well as additional material from other research and the Maine Department of Health and Human Services.

ITEM 1 OF LEGISLATION: EXISTING PUBLIC AND PRIVATE FINANCIAL RESOURCES FOR ORAL HEALTH CARE IN THE STATE

- MaineCare is the largest public payer ($36.5 million in 2010)
- The majority of financial resources for oral health care come from private insurance ($206.5 million in 2010) and out of pocket payments by individuals with dental insurance ($62.7 million in 2010)
- Out of pocket costs for those without dental insurance cannot be measured because no one collects or tracks that information
- The state Oral Health Program provides evidence based preventive health services (dental sealants) and subsidies for sliding scale fees at safety net clinics with a SFY 2013 budget of $300,000 for both programs.

The CHWS relied on extensive literature review about oral health in Maine and the U.S. and an analysis of claims data in order to provide a snapshot of existing resources for oral health in Maine[1]. The public and private dollars available for oral health care in Maine include dental and medical insurance payments (both private and MaineCare), the Fund for a Health Maine, federal grants and private philanthropy. This section reviews total dollars spent and how these dollars flow through the oral health care delivery system to support evidence-based practices as well as the delivery of services to low-income, rural and uninsured people in Maine.

A detailed analysis of public and private funding of oral health care in Maine is provided in the report 'Assessment of Oral Health Delivery in Maine: An analysis of insurance claims and eligibility data for dental services 2006-2010' referred to henceforth as Assessment of OH. Additional information on funding is found in 'Report of Survey of Dental Safety Net Providers in Maine' henceforth abbreviated as SNS.

The major source of public funding for oral health care in Maine is MaineCare. MaineCare dental insurance payments in the years from 2006 through 2010 ranged from $25.4 million (2006) to $36.5 million (2010) with a five-year average of $31 million (Assessment of OH, Table 23). MaineCare medical insurance payments for dental diagnoses over the same five year period ranged from $5.9 million (2006) to a high of $9.1 million (2009).

A second source of public funding for oral health is through the Maine Center for Disease Control and Prevention's Oral Health Program (OHP), a program in the Division of Population Health. The OHP implements both of the evidence based practices cited earlier through its support of community water fluoridation and its school oral health program. The School Oral Health Program (SOHP) provides a variety of services including oral health education, oral health assessment and screening,

[1] In their proposal to MCD Public Health the researchers specified that this issue could not be answered completely as the data are simply not available. As noted above, population rates of dental insurance are not systematically reported and are subject to frequent change. In addition, it is important to keep in mind that dental insurance is not directly comparable to medical insurance and functions more like a subsidy or offset to incurred costs, often with a low annual cap.

fluoride mouth rinse and dental sealants. (OH in ME, p76). The state OHP also administers grants to some but not all safety net dental providers in Maine to help support their sliding scale fee structure. The SOHP and the subsidies to safety net providers are funded through the Fund for a Healthy Maine. The 2013 state financial year (SFY2013) allocation of $300,000 is split equally between the two programs.

The funding mix for the state OHP has been dynamic over the past decade. The OHP has received state-related funding from the General Fund, the Fund for a Healthy Maine, and two federal block grants (the Maternal and Child Health Block Grant and the Preventive Health and Health Services Block Grant) through the Maine CDC. The program has also applied for and received federal grants to implement specific oral health initiatives, including a dental sealant program expansion grant, workforce development grants and system development grants, and is the recipient of a grant from the US CDC to build state oral health program infrastructure and capacity, particularly to implement and evaluate those evidence-based practices, and to facilitate the collection and dissemination of data.

Public funds support oral health workforce development through education loans and loan repayment for dental students as well as actively practicing dentists. The Finance Authority of Maine (FAME) receives an allocation from the Fund for a Health Maine (FHM) for its Dental Education Loan and Loan Repayment Program as well as federal dollars and some funds from a private insurance company –Northeast Delta Dental. To participate in the program a dentist must serve in an area designated by the state Office of Rural Health and Primary Care as an area of need (OH in ME, p84). The legislature should confer with the appropriate agencies for the most current information on dollars available.

Dental insurance through a private insurer and out of pocket payments from individuals with dental insurance are the largest sources of private funds available for oral health care in Maine. The National Association of Dental Plans reported in 2010 that 36.3% of the state's population was enrolled in private dental plans (OH in ME, p49). Total private dental insurance payments have shown a steady increase from $166.7 million in 2006 to $206.5 million in 2010. Medical insurance payments for dental diagnoses have increased similarly from $17.9 million to $22.1 million in 2010 (Assessment of OH, Table 30, p70). Table 31 in Assessment of OH also provides total dollars spent by insurers for different types of services and the average cost of these services

Individuals also contribute private funds to their oral health care through direct payment for services, co-pays or deductibles. Out-of pocket payments by individuals with dental insurance have also increased from $53.8 million in 2006 to $62.7 million in 2010 (Assessment of OH, Table 29, p67). These figures do not include payment for oral health care services by individuals without insurance.

The assortment of oral health services providers that provide services to low-income and uninsured individuals is referred to as the "safety net." The safety net includes Federally Qualified Health Centers (FQHCs), Community Dental Clinics (CDCs), Independent Practice Dental Hygienists

(IPDHs) and Registered Dental Hygienists (RDHs) working under Public Health Supervision (PHS) status. Slightly less than one half of the safety net serves rural or small town populations.[2]

The table below is from the Report of Survey of Dental Safety Net Providers in Maine (SNS, Table 12, p35). The table shows the percent of revenues received from commercial insurance, MaineCare, Self-pay, Sliding scale fee, Program subsidies and other sources. The number of respondents to the survey was too small to do an extensive analysis of revenue source by type and their distribution by organization type. Nearly half of the organization surveyed reported that their patients paid for services. In some cases patient payments represented as much as 30% of the total revenue for the organization (SNS, p35). This same survey showed that 50% of Federally Qualified Health Centers (FQHCs) and 42.9% of Community Dental Clinics (CDCs) and all of the school-based programs reported they received *no* revenue from private insurers. Commercial insurance payments are important because reimbursement rates are higher and can help subsidize the sliding-scale fees and uncompensated care. Twenty-eight percent (28.6%) of the Community Dental Clinics received no income from MaineCare, depending entirely on donations and subsidies.

Table 1. Percent of Safety Net providers by Percent of Revenue for Oral Health Services, by Source, Maine, 2012

Percent of Revenues	Commercial Insurance	MaineCare	Self Pay	Sliding Fee	Program subsides	Other
0%	45.8%	.3%	16.0%	47.4%	81.3%	54.5%
1% to 10%	16.7%	16.7%	20.0%	15.8%	6.3%	0.0%
11% to 20%	12.5%	4.2%	24.0%	31.6%	6.3%	0.0%
21% to 30%	12.5%	4.2%	16.0%	5.3%	0.0%	0.0%
31% to 40%	4.2%	0.0%	8.0%	0.0%	0.0%	0.0%
41% to 50%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%
51% to 60%	0.0%	8.3%	4.0%	0.0%	0.0%	0.0%
61% to 70%	0.0%	4.2%	4.0%	0.0%	0.0%	9.1%
71% to 80%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%
81% to 90%	8.3%	8.3%	0.0%	0.0%	6.3%	9.1%
91% to 100%	0.0%	16.7%	8.0%	0.0%	0.0%	27.3%

*Source: CHWS, 2012, Survey of Dental Safety Net Providers in Maine, Question 22. (Page 35)

[2] Rural is defined here based on RUCA codes. RUCA codes are a comparatively new Census tract-based classification scheme that utilizes the standard Census Bureau Urbanized Area and Urban Cluster definitions in combination with work commuting information to characterize all of the nation's Census tracts. The metropolitan classification includes areas where there is an urban cluster of 50,000 or more people. The micropolitan classification includes areas where there is a cluster of 10,000 or more people. Small towns include areas with at least 2,500 residents and rural areas comprise settlements with fewer than 2,500 residents. See USDA Economic Research Service: http://www.ers.usda.gov/topics/rural-economy-population/rural-classifications.aspx.

ITEM 2 OF LEGISLATION: LIMITATIONS ON ACCESS TO ORAL HEALTH CARE FOR CITIZENS OF THE STATE

- Access to publicly funded evidence based prevention programs for low income children through the state Oral Health Program has declined in the last five years.
- The primary barrier to access to care identified by oral health care providers is ability to pay.
- Oral health literacy was the second most common barrier to oral health care cited by oral health care providers.
- Individuals insured by MaineCare travel further for care than those with commercial insurance regardless of their geographic location within the state
- RHDs working under PHS status and IPDHs are more likely to work in rural areas than dentists.

There are a number of factors that create limitations on access to oral health care, not all of which are independent of one another. To identify barriers to access to oral health care in Maine the CHWS surveyed national literature for common themes, surveyed providers and key stakeholders, and analyzed data. Here we consider access to evidence-based preventive programs and barriers identified by the research conducted by CHWS.

Access to Evidence Based Population Health Preventive Care

Community water fluoridation: Maine meets the Healthy People 2010 goal; with 65 public systems serving 133 communities, 80% of Maine residents served by community water systems have access to fluoridated water. However, fluoridated public water is supplied to only 37% of the state population as just over half of Maine households obtain their drinking water from a private supply such as a well. http://www.maine.gov/dhhs/mecdc/population-health/odh/water-fluoridation.shtml)

School-based Programs: Oral health services in Maine's schools are provided on a district-by-district and sometimes school-by-school basis, and not in or by all schools. Within the limits of available funding, the state OHP provides small grants for a School Oral Health Program (SOHP) based on a formula that determines eligibility based on community based risk factors, including the percent of children eligible for the Free and Reduced Lunch Program at each school and the availability of fluoridated drinking water in each community. The SOHP is thus directed toward schools where children are more likely to have difficulty accessing dental services. A cut-off score is determined and schools are funded using a funding allocation methodology. About half of participating schools have supplemental grants to provide dental sealants for second-graders, also limited because of funding constraints. The OHP only funds sealant programs in schools already eligible for the SOHP, so this program component meets the same eligibility screen. In 2007, there were 79 grants for oral health programs operating in 242 schools with a total student population of 45,146 students in kindergarten through sixth-grade. In 2007, about 125 schools participated in a dental sealant program which provided about 1,400 children, mostly second-graders, with sealants. State expenditures for these programs totaled $251,000 in 2008, at an average cost per child of $5.56 per participant. (OH in ME, p76). In the 2010-2011 school year, the sealant component was implemented in 94 schools, providing sealants to close to 1000 children, mostly second-graders. The OHP cannot fund all interested and eligible schools; there is a waiting list for the SOHP and a waiting list for SOHP schools that want to add the sealant component. At the end of the 2010-2011

school year, these schools represented an estimated 8,464 children overall and among them, an estimated 5,890 second-graders who could, but did not, receive dental sealants (Personal correspondence, ME OHP, 2012).

School-based services are provided, for the most part, by RDHs working under Public Health Supervision (PHS) status (MOHF, p66). Some are contracted individually by schools; some work for private organizations (some but not all incorporated as non-profit entities) that make appropriate arrangements with schools; some, but not all of these, work in concert with the state OHP's School Oral Health Program. In a few areas, local dentists work with schools to provide preventive and sometimes limited restorative services, sometimes at schools and sometimes in their offices. Some dentists do this as individuals; there are also efforts organized by some local (county) dental societies. One distinction to be noted is that there is no charge to children receiving preventive services through the state-sponsored program, which also includes an ongoing educational component. Private organizations may include education at the time a service is provided, usually bill MaineCare for enrolled children, and charge fees to other children, usually less than what would be charged in a dental practice. In addition, the state program will provide or facilitate services at smaller and more rural schools that the other organizations may not find it cost-effective to serve.

Barriers to Access to Individual Care

Low MaineCare reimbursement rates: A survey of safety net providers asked them to identify barriers to their organization's ability to offer oral health care services. Low MaineCare reimbursement rates were the most common barrier identified. Half of respondents to the survey reported receiving more than 50% of their total revenues through payments from MaineCare (SNS, p35). In 2008 MaineCare reimbursement for dental services was less than the 25th percentile of regional dental fees.

Ability to pay: Financial limitations were the most common barrier to oral health care identified by oral health professionals surveyed by the CHWS. Dental insurance status does not just provide a way to pay for oral health care services; it also influences the perception of the importance of oral health. In a survey conducted by Delta Dental in 2009 participants without dental insurance were less able to recognize the linkage between oral health and overall health (OH in ME, p51). Uninsured individuals are also more likely to visit the emergency department.

There has been a decline in the rate of dental insurance coverage for certain age groups in Maine during the five year period from 2006 to 2010. While there was an increase in the percentage of the population with dental insurance, the rate of private insurance declined and the proportion of the population with coverage through MaineCare increased. "The number of people age 12 to 18 years with any dental insurance declined by 5.1% between 2006 and 2010, and the number of people age 25 to 44 years with any dental insurance declined by 3.2% in the same period. These declines occurred despite increases in the number of people in both age groups who were insured by MaineCare suggesting that loss of private dental insurance coverage contributed to the change" (Assessment of OH, p13). The report 'Assessment of OH' gives detailed information on dental insurance coverage rates by county, by type of insurance, by age as well as trends over time (Assessment of OH, pp 28-43).

Oral Health Literacy: Oral health literacy was the second most common barrier to oral health care cited by oral health professionals. Health literacy is the degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions. No matter your education, income, employment status, age or race, health literacy is a stronger predictor of your health than any other factor (www.cdc.gov/healthliteracy). Oral health education is provided through the School Oral Health Program, now limited to grades K-4. The vast majority of RDHs and IPDHs reported providing oral health education on a regular basis as part of their clinical work. The Maine Dental Access Coalition is part of a national coalition supporting a national oral health literacy campaign. The campaign is not currently active on broadcast media in Maine, but is available on social media such as YouTube.

Geography: Individuals with MaineCare travel further for care than those with commercial insurance, but individuals in rural areas may have to travel long distances for services, regardless of insurance status. While the average distance traveled for MaineCare recipients was 21.3 miles, residents of towns such as Baileyville, Oxbow or Jackman traveled as much as 60 miles or more to obtain services. Maps of dental Rational Service areas (RSAs) and a town-by town listing of mean commuting distance to services broken down by type of dental insurance is provided (Assessment of OH, pp 77 -126). Distance traveled for care is due in part to the geographic distribution of providers. Only 13.5% of dentists in Maine practice in areas falling into the rural category (OH Workforce, Table 1, p20). Since Registered Dental Hygienists (RDHs) must work under the supervision of dentists the distribution of their work locations mapped closely to that of dentists (OH Workforce, Table 30, p55). RDHs working under PHS status were more likely to work in rural areas, but the percent is still only 20.8% (OH Workforce, Table 46, p70). Of the Independent Practice Dental Hygienists (IPDHs) who responded to the survey, 42.9% work in areas that meet the definition of rural (OH Workforce, Table 56, p76).

ITEM 3 OF LEGISLATION: THE SUSTAINABILITY OF PUBLIC FINANCING PROGRAMS FOR ORAL HEALTH CARE

- More money is spent fixing oral health problems than preventing them.
- Oral health insurance funds (public and private) are not being spent for cost effective care.
- Cuts to the state OHP have resulted in less support for prevention programs and less support for sliding scale services for low income Mainers.
- Safety net providers indicate that more than 40% of services are uncompensated care.

An extensive economic analysis of public financing for oral health care was not possible within the scope of resources available for this research. Nonetheless, it is possible to infer from the available analysis whether public funds are leading to good oral health outcomes. Use of public funds for poor outcomes places strain on the public financing system. Additionally, we can examine the sustainability of evidence based population health programs and the oral health care safety net, both of which serve the most vulnerable populations in Maine, given the current trends in public financing.

A high level of concern about the level of public funding for oral health services and the use of public funds for good oral health outcomes has resulted in a number of studies of how public expenditures are impacting the oral health of Maine people. These include the Report of the

Governor's Task Force on Expanding Access to Oral Health for Maine People (February 2008), Analysis of Emergency Department Use in Maine (Kilbreth, 2010), and Report of the Resolve, To Study Expenditures for Oral Health Care in the MaineCare Program (Public Law Chapter 145) Working Group (February, 2011). The current research from the CHWS both confirms and adds to the findings of the previous reports.

Impact of expenditures on oral health: More dental insurance dollars are spent on restorative procedures (fillings, crowns, etc) than on preventive procedures in Maine (Assessment of OH, Table 31, p71). More medical insurance dollars are spent on oral health care services in hospital outpatient settings than in dental offices, ambulatory surgery centers, dental clinics and hospital emergency rooms combined - $13.8 million in 2010 (Assessment of OH, Table 34, p74). The mean cost of these services is twice the cost of a service provided in a dental office or dental clinic. Hospital outpatient facilities are used when the procedures are complex enough to require the kind of medical support of a hospital and are indicative of serious oral health problems. Adults age 19-64 were the most likely to receive treatment for a dental complaint in a hospital or emergency room setting that was reimbursed by medical insurance. Kilbreth (2010) reported that the most common diagnosis for Emergency Department (ED) visits among uninsured and MaineCare insured individuals ages 15-44 was untreated dental disease. While the expenditures for these visits are dwarfed by the expenditures in hospital outpatient settings, they are problematic because they are largely avoidable and EDs cannot treat the underlying dental disease leading to a poor oral health outcome. These observations suggest that Maine is spending public dollars without obtaining good oral health outcomes.

Impact of oral health care on cost of care for chronic disease: A number of studies have shown a relationship between oral health and a variety of chronic condition. The oral-systemic connection has been shown to have implications for the medical costs of individuals with chronic disease who have poor oral health. In 2008 the Maine Health Access Foundation (MeHAF) awarded MCD Public Health $120,000 in a two-year grant award as part of a project to support policy and advocacy intended to reduce health care costs. The MCD Public Health project sought to replicate studies from other states that found an association between good oral health care and clinical outcomes related to systemic health, especially diabetes and other chronic conditions. MCD Public Health worked closely with researchers in Michigan and North Carolina, who had done work on the oral-systemic connection as it pertains to diabetes and adverse birth outcomes respectively. The purpose of the project was to support policies that promote improved access to oral care by showing potential savings in overall health costs.

Working with On-Point Health Data to define data elements, we retrieved two sets of linked dental and medical record extracts over the years 2005-2007 for all privately insured Mainers from Maine's all-insurer data set. No Medicaid (MaineCare) data were used in the analysis. One data set included individuals who had a diagnosis of diabetes; the other contained individuals with a diagnosis of cardiovascular disease. Details of the data extraction are available on request.
Analysis of claims for insured persons with diabetes and full year dental insurance yielded ambiguous results overall, but a relationship between number of preventive oral health care visits and the costs related to some cardiovascular conditions for people with a primary diagnosis of diabetes was observed. Analysis of the data set that was extracted on the basis of a cardiovascular diagnosis confirmed this relationship.

Analysis of merged dental and medical claims for privately insured persons in Maine, 2005-2007 suggest that on average, people with cardiovascular diagnoses, (including high blood pressure and high cholesterol) who receive preventive oral health care, such as a cleaning, have significantly lower overall medical costs than people who have no such care or even a single preventive oral health treatment. The more care people received, on average, the lower their medical costs. The analysis showed that, for people with any cardiovascular disease, medical costs were over 20% less on average for people with three or more preventive oral health visits compared to people who had dental insurance yet received no preventive oral health care. To put it another way, if the 55% of records showing no care or a single oral health treatment in a year had the same predicted spending as the 21% showing two visits, more than $4,000,000 would have been saved in the three years, 2005-2007[3].

The study also looked at costs related to specific cardiovascular conditions. The overall medical spending showed statistically significant differences across levels of care for coronary artery disease, chronic kidney disease, and severe cardiovascular disease. The savings increased as the number of oral health treatments increased.

Two numbers highlight how important preventive oral health care may be in maintaining good health and managing costs for people with specific conditions: kidney disease and coronary artery disease.

- If average medical spending for people with kidney disease who had no visits or one visit had been the same as for people with two visits, there would have been over $795,000 savings in the three years.
- If average medical spending for people with coronary artery disease who had no visits or one visit had been the same as for people with two visits, there would have been almost $3,600,000 in savings in the three years.

Independent confirmation through reanalysis of the data was completed by the staff of Dr. Stephen Offenbacher of the Department of Periodontology at the University of North Carolina Dental School in Chapel Hill, North Carolina. In addition, the researchers at Chapel Hill performed a decision tree analysis to identify what parts of the patient population were incurring the most and least costs. Age and the dentist to population ratio were the most important predictors of costs. Males aged 61 and older in areas with low dentist to population ratios and no dental visits incurred the highest medical costs for cardiovascular disease.

Similar analysis of the costs of individuals with MaineCare was impossible. Adults with MaineCare coverage do not have dental benefits that include preventive oral health care such as cleanings. Even if these individuals had received such a treatment it would not have been recorded as a claim. However, we can reasonably assume that the experience of individuals insured by MaineCare is similar to those with dental insurance and that they incur higher medical costs for their cardiovascular disease due to the lack of oral health care.

[3] Actual prediction is more complicated than this. These numbers are actually very low-ball estimates.

School-based Programs: Reductions in allocations from the state General Fund and then a shift to the Fund for a Healthy Maine (FHM) for the majority of the SOHP's support resulted in over a 40% cut to the SOHP's total funding between 2009 and 2012. The focus of the program was narrowed to grades K-4. Schools that did not adhere to program performance and reporting requirements were dropped. The SFY13 state budget further reduced the FHM allocation for oral health, which is split between the SOHP and subsidies for safety net clinics to support their sliding scale fees; for the SOHP, this meant further trimming of grant awards. The FHM was always the funding source for the support provided to safety net dental providers and by state fiscal year 2011 became the major source for the OHP's school and community-based prevention programs as well.

Safety Net Providers: The financial viability of the dental safety net is dependent on sufficient revenue to cover the cost of providing services. In recent years safety net providers have faced decreasing subsidies to support their sliding scale fees and low reimbursement rates from MaineCare in the face of rising costs. In addition, the proportion of uncompensated/free care and reduced fee care is high. The table below shows the percent of providers who reported providing more than 40 uncompensated services each month by type of service (SNS, Table 15, p38). The majority of FQHCs and CDCs report providing more than 40 uncompensated services each month. Some clinics have responded by increasing charges for services and adjusting their sliding scale upwards.

Table 2. Percent of All Safety Net Providers, FQHCs, and CDCs Offering More Than 40 Uncompensated or Reduced-fee Services to Patients, Maine, 2012

Type of Provider	Diagnostic	Preventive	Restorative	Therapeutic
More than 40 uncompensated services				
All Safety net providers	33.3%	22.2%	41.7%	36.4%
FQHCs	100.0%	50.0%	100.0%	100.0%
CDCs	60.0%	20.0%	40.0%	50.0%
More than 40 reduced-fee services				
All safety net providers	38.5%	41.2%	40.0%	30.8%
FQHCs	50.0%	50.0%	50.0%	50.0%
CDCs	50.0%	50.0%	50.0%	40.0%

*Source: CHWS, 2012, Survey of Dental Safety Net Providers in Maine, Questions 2, 23b, and 23c. (page 38)

ITEM 4 OF LEGISLATION: THE ACTUAL AND PROJECTED DENTAL WORKFORCE NEEDS FOR THE STATE

- Implementation of the ACA is likely to result in greater demand for preventive oral health services for youth up to age 21 as coverage expands.
- The new UNE School of Dentistry makes projecting the dental workforce capacity in State impossible to predict with any reliability.

- There is an existing need for more oral health care providers and safety net providers in rural areas.
- Within the next five years 23.7% of dentists in Maine plan to retire; an additional 16.1% expect to reduce their hours.
- More than four of five EFDAs work in urban areas.
- There is excess capacity of RDHs, as indicated by the number working less than full time and reporting having difficulty finding employment.
- IPDHs report treating more adult patients and more patients in rural areas than RDHs.

Demand for oral health care services is expected to rise as the Affordable Care Act (ACA) is implemented. A pediatric oral health benefit (coverage until age 21) is one of the Essential Health Benefits included in the legislation. Given that fact, the size and structure of the oral health workforce is of concern, but projecting the workforce needs was not possible. The CHWS cite uncertainty over the impact the University of New England Dental School on the number of students attending dental school as the main obstacle to a reliable projection. The use of historical data to project future workforce in the face of such a significant environmental change would be misleading.

Workforce needs depend on the types of services needed by the population and the settings where providers are needed. The terms of the ACA indicate that need for preventive services will increase as all children will presumably have dental insurance coverage. The distances traveled for care by residents of rural areas indicate a need for more providers in rural settings and in settings such as school-based programs and safety net clinics that serve low-income populations.

All of the following information was extracted from 'The Oral Health Workforce in Maine' which was produced by the CHWS under contract to the Maine Oral Health Funders. Exceptions are indicated.

Registered Dental Hygienists (RDHs) are the major providers of preventive services in clinical settings and in school-based programs (working under PHS status). Hygienists report serving all age groups, although currently few report serving children ages 1-3, when AAPD guidelines recommend that preventive services start. RDHs must work under the supervision of a dentist and many dentists do not see young children. Public Health Supervision status could be employed by RDHs to provide these services to very young children in alternate settings such as day care. Half of RDHs report working 30 or fewer hours per week. Most (86.7%) report that it is somewhat or very difficult to find employment as an hygienist. Of those who reported difficulty finding employment 61% indicated that there were too many RDHs in the area, and almost half indicated there were too few dentists in the area. Again, since RDHs must work under supervision their employment opportunities will be determined by the geographic distribution of dentists. About 80% of RDHs reported that they expected to be working in dental hygiene in five years.

Independent Practice Dental Hygienists (IPDHs) in the state of Maine can offer preventive services outside a dentist's office, take x-rays (which must be read by a dentist) and refer to a specialist such as an oral surgeon or periodontist. Of the IPDHs who responded to the survey from the CHWS 90% indicated that they are self-employed at least part of the time and many continued to work in a dental office. Half of those who responded are working in rural areas and expressed that they were

motivated to provide needed services in the area where they lived. IPDHs treated more adults than RDHs; half of their patients were in the 19-64 age group.

Expanded Function Dental Assistants must work under the supervision of a dentist and assist the dentist in a variety of ways including placing temporary restorations and contouring amalgam. Since they work in the dentist's office they are primarily located in (81.3%) urban areas. Most work part time and most work in private solo or group practices.

The ratio of dentists to population in Maine (5.1 dentists to 10,000 population) is similar to the national ratio. However, dentists in the state practice in the more populated regions with only 13.5% located in rural communities. The patient population served by dentists is largely adult. Thirty-six percent (36%) reported that they saw no children ages 1-3 and another 57.4% reported that children of these ages were less than 10% of their patients. Within the next five years 23.7% of dentists in Maine plan to retire; an additional 16.1% expect to reduce their hours.

Workforce innovation in Maine is increasing the availability of oral health care services in rural areas of the state and in settings other than the dental office. RDHs working under PHS status and IPDHs are more likely to work in public health settings such as school-based or other community settings and provide services to the very young and elderly.

ITEM 5 OF LEGISLATION: THE EFFECT OF RECENT CHANGES SURROUNDING ORAL HEALTH CARE IN THE STATE, SUCH AS THE DEVELOPMENT OF A DENTAL SCHOOL BASED IN THE STATE AND THE CREATION OF EXPANDED FUNCTION DENTAL ASSISTANTS, DENTAL HYGIENISTS WITH PUBLIC HEALTH SUPERVISION STATUS AND INDEPENDENT PRACTICE DENTAL HYGIENISTS

- Recent innovations, such as RDHs with PHS status and IPDHs are improving access to oral care in rural areas and for low income adults.
- The distribution of the dental auxiliary workforce (Dental Assistants and Dental Hygienists) is determined by the degree of supervision required by their licensee.

The intent behind workforce innovations such as EFDAs, IPDHs and PHS status for hygienists is to increase the availability of oral health care services in the state of Maine. In this report we have emphasized the need to consider oral health care from the perspective of evidence based practices. We have also identified the lack of availability of oral health care services in rural areas and to low-income adults. The research shows that RDHs are using PHS status to deliver dental sealants and other preventive services in schools. IPDHs are locating in rural areas and are serving adults. The geographic location of RDHs, IPDHs and EFDAs is determined by the degree of supervision required by their license. The supervision requirements for a variety of alternative providers are depicted graphically in Figure 2.

Ideally IPDHs and RDHs with PHS status work in coordination with dentists to ensure that the patients they serve have access to the full scope of oral health care services they need. RDHs working under PHS status report that they regularly refer to dentists. Most have an established dental referral network (71.9%) or refer to their supervising dentist (12.5%), but more than half report that they find it either somewhat or very difficult to find a dentist who would accept referrals in the area where they work. IPDHs show a similar referral pattern with 64.3% reporting having an

established referral network and 21.4% referring to a supervising dentist. IPDHs report greater difficulty finding dentists to accept patient referrals in their geographic area, but it should be noted that many IPDHs are located in rural areas where dentists are scarce. Only 14.3% of IPDHs responding to the survey report that they have no difficulty finding a dentist to accept their referrals.

EFDAs work in the dental practice and allow the dentist to see more patients by taking on certain tasks. This has the potential to increase access by increasing the volume of patients that a dentist can see. However, there is no data to document that dentist are seeing more patients due to the use of EFDAs. Currently most EFDAs are located in urban areas with their employer dentists. However, some are located in safety net clinics. It is unclear how EFDAs have impacted the availability of oral health care services.

ITEM 6 OF LEGISLATION: POSSIBLE POLICY MODELS FROM OTHER STATES AND COUNTRIES THAT HAVE BEEN EFFECTIVE IN ADDRESSING IDENTIFIED WORKFORCE SHORTAGES

- 20 states considering legislation that would expand current scope of practice for dental auxiliaries or create new categories of providers.
- New workforce models have been implemented in Alaska and Minnesota.
- Case studies of the Dental Health Aide Therapist (DHAT) in Alaska show no differences in diagnosis, treatment or complications between services provided by a dentist and those provided by DHATs.
- Legislation creating Minnesota's Dental Therapist license required an evaluation of services which is due in 2014.
- Implementation of a new workforce model requires consideration of an array of factors including education and certification, patient acceptance and a workable economic model for sustainability.

The CHWS has provided a report 'New or Expanded Oral Health Workforce Models in the US" (OH Workforce Models) that details the various workforce innovations that have been implemented or are planned in the US. The report also includes a table of Oral Health Workforce Legislation Promulgated in 2012 by State (p47-48). Readers of this report are referred to the CHWS report for details on these models.

Over the past decade the strategies, nationally and in Maine, to increase access to oral health care and improve oral health outcomes have included broadening the scope of practice and reducing the levels of dental supervision for current dental auxiliaries (dental hygienists, dental assistants and denturists). Ongoing concerns about poor oral health as well as anticipated changes in the demand for oral health care services and supply of oral health professionals has increased interest in new oral health workforce models to create alternative points of entry for patients to dental care.

There are currently two new or alternative workforce models implemented in the United States, the Dental Health Aide Therapist (DHAT) in Alaska and the Dental Therapist (DT) in Minnesota. The history of implementation of these models is too complex to detail here but can be found in the CHWS report. This history provides important lessons for other states contemplating similar additions to the oral health workforce.

DHATs have been practicing in Alaska for about a decade. Evaluation of the Alaska DHAT services show that the services that they provide are safe and of high quality and acceptable to patients. Two different studies comparing work performed by DHATs to that of dentists for the procedures DHATs are licensed to perform show no significant differences in the diagnosis and treatment of dental disease or in the development of complications (OH Workforce Models, p20).

Also included in the report on workforce models is a discussion of the requirements for implementation and potential challenges. Figure 1 is a graphic depiction of the environmental factors that must be considered for successful implementation of a new practitioner. These include an appropriate curriculum and an accredited education program to deliver it. Acceptance by the highest licensed profession affected by the change and acceptance by patients are considerations as well. Challenges include the capacity of existing programs to deploy a new professional and the changes in workflow, use of space, etc. it entails.

The researchers include the following observation on the selection of a new workforce model which included here in its entirety. "The selection of an appropriate workforce model to address disparities in oral health care must be guided by an assessment of the patients to be served, an evaluation of the current inventory and placement of dental providers in the community of interest, consideration of the availability and sufficiency of the community safety net, and the kinds of dental services that are needed. There is no single solution to address the needs of all communities" (OH Workforce Models, p49).

CONCLUSIONS

The stated intent of the legislature in passing the legislation that engendered this report was to provide itself with current information on the ongoing challenges to meeting Maine's oral health care needs and to obtain information on the impact of changes in dental workforce scope of practice enacted by previous legislatures.

Based on the resources available, the simplest answers to these concerns are:

1. The safety net providers that serve low income Mainers face serious financial barriers to continued provision of low cost high quality oral health care, and low income adults in Maine face challenges in obtaining preventive oral health services leading to use of costly medical benefits to solve preventable dental disease.

2. Expanded scope of practice has resulted in more oral health professionals in rural areas providing evidence based preventive care (RDHs under PHS status) and more care to adults without dental insurance.

The full reports produced by the CHWS include quantitative analysis of data addressing the broad scope of information requested by the legislature. The reports also include thoughtful comments by an array of oral health stakeholders on the needs of Mainers for oral health care and possible solutions. Both should be useful in making future policy decisions.

Figure 1

CHWS 2012

Figure 2.

CHWS 2012

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