Report to

The Wisconsin Department of Health Services

Oral Health Education Study

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Howard Bailit, DMD, PhD

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Executive Summary

Introduction - The goal of this two and a half month project is to assess the impact of a new dental school and other educational and non-educational strategies on dental access disparities for rural and urban underserved Wisconsin populations. This project is an independent effort of the State of Wisconsin but uses some data from a recently completed study of the supply and demand for dental care in Wisconsin from 2010 to 2020. The later study reported that the current number of professionally active dentists (3,142) will grow at the same rate as the population. In 2020, Wisconsin residents with the resources to purchase private sector dental services will have the same or better access to dental care than the current population. Privately insured adults and children (Delta Dental of Wisconsin) have utilization rates of 66 percent (at least one dental visit annually).

Access Problem - In contrast, for the 955,336 Medicaid eligibles (2008), utilization rates are low: 25 percent for the ever enrolled and 40 percent and 32 percent for children and adults continuously enrolled for 12 months, respectively. These utilization rates vary by county, and the lowest rates are seen in Racine, Milwaukee, Waukesha, and Kenosha (e.g., 15.9% for continuously enrolled children). Utilization rates are not related to the absolute number of dentists in a county, but rather to the number of dentists (private and safety net) who treat Medicaid patients. Currently, Medicaid patients who receive care do so in safety net clinics (34%) and in private practices (66%).

State Strategies - Many states have addressed the dental access problem by increasing children's Medicaid fees to competitive levels. Usually, there is a significant increase in the number of dentists submitting Medicaid claims, and utilization rates increase by 15 to 20 percentage points within five years. However, the rates do not match those of privately insured children. This is because of significant non-financial barriers to care seen in low-income populations (e.g., language, transportation).

North Carolina addressed the rural disparity problem by establishing a new dental school at East Carolina University. This school is building community clinics in underserved areas where faculty, residents and students will provide care to low-income rural patients.

Marshfield Clinic (MC) – To reduce rural access disparities, MC proposes to establish a dental school. MC will own and control the school but contract with an academic partner (Arizona School of Dentistry & Oral Health, A.T. Still University, Mesa, Arizona) to run the first two years and provide accreditation, licensing, faculty, student-recruitment etc. MC will use a service-learning model and have third and fourth year students provide care in FQHC clinics. The proposals strengths include: MC's nationally recognized expertise in rural health care; strong research and graduate medical education programs; and an innovative clinical education model. The proposal's limitations include: MC is not a degree granting institution; it does not have a clinical dental department; the arrangement with A.T. Still School of Dentistry is problematic in terms of accreditation; there are inadequate numbers of dental school

applicants from rural Wisconsin; and it will be 10 or more years before the new school improves access.

Alternative Educational Strategies – MC may want to consider establishing a clinical dental department, general dental residency programs, and a post-baccalaureate program for college students from rural communities who are interested in dentistry but need stronger academic credentials. This proposal builds on MC's extensive experience in graduate medical education, lays a solid foundation for any future efforts to start a dental school, and reduces dental care access disparities. Residents will provide care in rural FQHCs, and some can be expected to practice in rural communities. To implement this strategy, MC needs to find a partner hospital to obtain Graduate Medical Education support for the residents and recruit a strong group of academic dental clinicians. MC should consider collaborating with the Marquette University School of Dentistry (MUSOD) and the University of Wisconsin School of Medicine and Public Health in developing the residency and other dental education programs. This alternative strategy will require MC to construct a new dental facility in Marshfield. Longer-term MC should explore the establishment of a regional dental school focused on meeting the needs of rural communities in Wisconsin and neighboring states.

MUSOD could expand its class by 20 students, but this will have a limited impact on access disparities, unless the students are recruited from rural and disadvantaged backgrounds. MUSOD could also expand its general dentistry residency program, but it needs a hospital sponsor to obtain GME support for the residents. For this reason MUSOD should consider a joint residency program with MC. The University of Wisconsin School of Medicine and Public Health may have an interest in dental education in the future. The Medical College of Wisconsin does not appear interested in a dental school.

Non-Educational Strategies – An across-the-board increase in Medicaid fees to competitive levels does not appear realistic in terms of State finances. More promising is a school-based dental care system, where dental hygienists use portable equipment to screen and provide preventive services to low-income children. Dentists provide restorative and other services to children under the same arrangement. If operated by FQHCs, this plan has adequate financial support and can be operational statewide in a few years.

Wisconsin recently passed legislation allowing foreign trained dentists to obtain a license, if they complete an accredited general dentistry residency program and pass a licensing examination. This program has the potential to increase the supply of dentists in the State, and because of certain visa requirements, it may distribute these dentists to underserved areas.

Other non-educational opportunities to increase access to care include: 1) pilot-test having a private insurer manage the children's Medicaid program in a few underserved rural and urban counties, 2) improve the productivity of FQHC dental clinics, and 3)

expand the number and size of FQHC dental delivery sites. With national health reform, there may be a large expansion of FQHCs. Wisconsin needs to develop a state-wide plan for the location and management of FQHCs.

The more effective use of allied dental health personnel is another option for expanding the supply of dental services in community clinics and private practices. In addition to the use of more dental hygienists and dental assistants, two new types of mid-level providers deserve consideration. Currently legal in several states and possibly Wisconsin, expanded function dental assistants provide reversible restorative and prosthetic services and increase practice productivity. Longer-term, Dental Health Aide Therapists may become legal in most states. They provide irreversible restorative and other services and are expected to have a significant impact on reducing access disparities, especially for children.

The further integration of medical and dental care is slowly taking place and is likely to improve the quality of care. The effect of greater integration on the supply of dental services and access to care is unclear.

The State has recently addressed the problem of low Medicaid utilization rates for members enrolled in Managed Care Organizations (MCOS). The new contract regulations may lead to higher utilization rates.

Additional Studies – Many important issues require further investigation: 1) Why are Medicaid utilization rates so low in large southeastern counties; 2) Will school-based dental care systems increase access and decrease expenditures per child; 3) What impact will new types of allied dental health personnel have on the supply and distribution of dental services; and 4) Will increasing the number of general dentistry residents reduce access disparities?

Recommendations – Five short-term options for reducing access disparities have particular promise. In priority, they include: 1) develop a statewide system of school-based dental care; 2) increase the number of general dentistry residents at MUSOD and MC; 3) improve the productivity of FQHC dentists; 4) pilot-test a private insurer managing the Medicaid program for children in a few rural and urban counties; and 5) bring utilization rates in the MCO counties to the average of other counties. Collectively, these interventions will increase utilization rates for the ever enrolled from the current 25 percent to 47 percent with an estimated cost to the State of $24 million.

Longer-term, MC's development of dental clinical and educational programs, the expansion of the class at MUSOD, a larger dental safety net system and the effective use of existing and new allied dental health personnel all have the potential to reduce dental care access disparities.

Introduction

This report presents the results of a two and a half month study of dental care access disparities in Wisconsin. The study focuses on the potential impact of a new model of dental education proposed by the Marshfield Clinic. The project also examines other educational and non-educational strategies for reducing disparities and compares the different options in terms of their potential outcomes. Although this study is independent of an earlier project sponsored by the Wisconsin Dental Association (WDA) and funded by Delta Dental of Wisconsin (Delta) ("The Supply and Demand for Dental Services in Wisconsin 2010 to 2020),[1] some of the data from the WDA project is used in this report.

The report is divided into several sections. First, some findings from the WDA study are presented. Then, the paper turns to the present project and describes the objectives and methods. This is followed by the presentation of findings. Next, recommendations are made on the options the State may want to consider in its efforts to reduce disparities. The report ends with a few concluding comments.

Wisconsin Dental Association Study

Supported by a grant from Delta, the WDA contracted with two researchers from the University of Connecticut Health Center, Drs. Howard Bailit and Tryfon Beazoglou, to estimate the supply and demand for dental services in Wisconsin from 2010 to 2020. The study was completed in December 2009. The specific study objectives were:

> To determine the current supply and demand for dental services at the State and county levels;
> To estimate the future supply and demand for dental care in the year 2020, taking into account expected changes in population demographics and delivery systems;
> To estimate the number and distribution of dentists and dental hygienists needed to meet the demand for dental care in 2020; and
> To examine policy options for increasing the supply and distribution of dental services to reduce access disparities.

Some of the more important findings from the WDA study include**:**

1. As seen in Table 1, there are currently 3,142 active dentists in the state, 518 of these dentists work part-time (30 hours/week or less). They have a mean age of 52 years, 16 percent are female, and 18 percent are specialists. Most dentists graduated from Marquette University, School of Dentistry (MUSOD). Over 95 percent of active dentists are in private practice (data not shown). The estimated number of dental hygienists working in private general practices is 2,891.

2. Table 2 gives the distribution of dentists by the size of counties. Most dentists (69%) are located in counties with 100,000 or more people. Only 13 percent of dentists practice in counties with 50,000 or fewer people. Dentist age does not vary by

county size, but female dentists and specialists are concentrated in the larger counties.

3. Table 3 indicates that over the next 10 years, the expected growth in dentists (6.25%) and population (6.70%) will be approximately equal, keeping the population to dentist ratio relatively constant (1,823). The expected rise in dentist productivity (2.6%) will outpace the expected growth in demand for care (1.6%). In 2020 Wisconsin residents with the resources to purchase dental services in the private sector will have the same or better access to dental care than the current population.

   According to Delta Dental of Wisconsin, the State's largest private insurer, they seldom receive member complaints about access to dentists. The WDA reports a similar experience. Currently, the insured population appears to have adequate access to care.

4. The State's Medicaid population has lower dental utilization rates than the privately insured. Medicaid utilization rates for continuously enrolled (12 months) children are 40 percent compared to 66 percent for privately insured children. Disparities in adult Medicaid and Delta populations are even larger.

5. The major limitations of the WDA study were the inability to factor in changes in the larger economy and in the organization and financing of health care at the State and national levels.

The next section describes the objectives, methods, and findings from the Oral Health Education Study.

Objectives

The specific study objectives are:

1. Conduct a comprehensive feasibility study to determine if expanding dental education in the State of Wisconsin will increase access to dental care for rural and underserved populations. The comprehensive study of oral health education expansion should include:
   - Identifying the most effective integrated dental/medical delivery model(s) to improve access to care in rural and underserved areas.
   - Assess which type(s) of dental education: new school, new curriculum, or new training programs for mid-level providers are needed to meet identified service needs in rural and underserved communities.

2. Identify options for the State's role in expanding access to oral health care through education workforce proposals, policy adjustments, or further study.

3. Examine what type of education a new dental school (i.e., Marshfield, WI) would need to provide to lead to the best results in terms of increasing access to oral healthcare for rural and underserved areas.

4. Conduct a cost-effectiveness analysis of expanding oral health education expansion by opening a new dental school, developing new curriculum, and/or developing a new training program for mid-level providers.

Methods

1. Access Problem

Utilization data were available by county from the Wisconsin Medicaid system (Badger Care Plus) and Delta. Utilization was measured in terms of the percentage of the eligible population receiving at least one dental service in 2008. For Medicaid enrollees, the population included members continuously enrolled versus those enrolled for less than 12 months. This was done to make the Medicaid and Delta data comparable, since all Delta members in the database were enrolled for 12 months. Also, utilization rates were calculated for children (under age 21 years) and adults separately.

The contribution of the private and safety net systems to providing care to the Medicaid population was investigated. Data were available on the number of private dentists submitting one or more Medicaid claims, the number of private practitioners, and the number of patient visits provided in the safety net system: FQHCs, non-FQHCs, and Tribal or Indian Health Service clinics (Tribal).

To provide reference points for determining the socially desired utilization rate, data were available from the 2004 National Medical Expenditure Survey,[2] and from national[3] and state policy groups.[4] A related reference point were utilization rates by county for children enrolled in the Delta plan.

Estimating the 10 year change in the number of dentists by county has limited value, because of technical estimation problems related to small numbers. Further, for rural counties in northern Wisconsin, the safety net system is in a period of rapid expansion. Hence, the increase in dentists (and dental residents) employed in the safety-net system overwhelm any likely changes in private practice dentists.

2. State Disparity Improvement Strategies

Many states have tried to address dental care access disparities. The most common method is an across-the-board increase in Medicaid reimbursement rates. This literature was summarized in a National Academy for State Health Policy publication.[5] Connecticut data were also available; this State recently (2008) increased Medicaid dental fees for children.

In Michigan, Medicaid eligible children in 59 rural counties were enrolled in Delta Dental of Michigan private insurance plan. Delta paid the same fees to dentists for treating these children and used the same administrative processes as privately insured patients. The early years (2001 to 2005) of this demonstration were published, and more recent data were obtained from oral presentations by Dr. Stephen Eklund, a public health researcher at the University of Michigan.[6,7]

Another state strategy is to establish a new dental school. Perhaps, the best example of an educational strategy for increasing access to care for underserved rural

populations comes from North Carolina. The State recently funded a new dental school at East Carolina University (ECU) that uses a different model of clinical dental education. The basic dimensions of the new model are described.

3. Marshfield Dental Clinic
The Principle Investigator (PI) and his consultants reviewed the dental school feasibility study prepared by the Marshfield Clinic.[8] In addition, the PI spent two days at the Marshfield Clinic, discussing the proposed school with the senior management team. Since then, the PI has conferred and met several times with Gregory Nycz and Joseph Kilsdonk.

The investigator discussed the proposed school with the major Wisconsin stakeholders (see Attachment A), the head of the Council of Dental Accreditation (CODA), Dr. Anthony Ziebert, and project consultants who have had considerable experience as CODA reviewers.

To determine the number of applicants from Wisconsin from disadvantaged backgrounds likely to apply to a new dental school, Marquette dental school provided data on its 2009 applicant pool. This included the total number of applicants by gender, family education, county, college grade point average, and Dental Aptitude Test (DAT) test scores.

4. Alternative Educational Strategies
An alternative educational strategy was proposed to the Marshfield Clinic leadership and was discussed with most Wisconsin stakeholders and the project consultants.

The PI conferred with Dean William Lobb at MUSOD, discussing the school's role in caring for underserved populations, the potential for expanding the number of Wisconsin dental students and residents in the Advanced Education in General Dentistry (AEGD) program. These discussions also included the Dean's perspective on the Marshfield proposal, and the efforts these two institutions have made to work together.

Contact was also made with the head of academic planning at the University of Wisconsin (UW) and with Dean Robert Golden of the University of Wisconsin School of Medicine and Public Health about UW's interest in starting a dental school alone or in cooperation with the Marshfield Clinic. The Dean of the Medical College of Wisconsin, Dr. Jonathan Ravdin, was also contacted on the same issue.

5. Non-Educational Strategies
The primary non-educational options considered were expanding the safety net system, school-based dental care programs, foreign dentist programs, and the use of allied dental health personnel. As part of the WDA study, the Wisconsin Primary Health Care Association (WPHCA) surveyed current Federally Qualified Health Centers (FQHCs) and provided estimates of their five year expansion plans. In addition, project staff

contacted the major non-FQHC and tribal/IHS clinics. The safety net data did not include local Public Health Departments that employed dental hygienists.

For school-based dental care delivery systems, the investigators had access to data from two FQHCs in Connecticut that provide care in over 100 schools.[9] Additional information was available from school programs in New York State,[10] Massachusetts,[11] Minnesota,[12] Michigan.[13] and California.[14] The investigator had also done work in the past, estimating the financial feasibility of school-based dental care systems for Medicaid eligible children.[9]

To gain a better understanding of current school programs in Wisconsin, the investigator conferred with Stephanie Harrison and Aleksandr Kladnitsky from the WPHCA, senior staff of the Children's Health Alliance of Wisconsin that operates sealant programs in many Wisconsin schools, and William Solberg, Director of Community Services at Columbia St. Mary's Hospital. He administers dental prevention programs in many Milwaukee schools.

The impact of an across the board increase in Medicaid rates was not considered, because of the State's fiscal/budget constraints.

Wisconsin recently changed the Dental Practice Act to allow foreign trained dentists to obtain a license and practice in Wisconsin under certain conditions. To estimate the potential impact of this new program on the number of new dentists in the State, the investigator contacted Dr. Lori Barbeau, the Chair of the Dental Examining Board. Further, the visa challenges faced by foreign dental graduates were also investigated. This issue was discussed with Ms. Anne Dopp from the Wisconsin Department of Health Services and staff from health care organizations that run medical residency programs.

The contributions of dental assistants and dental hygienists on the supply of dental services were investigated based on previous studies, and the analysis of the survey of 167 Wisconsin general dental practices. Further, leaders of the Wisconsin Dental Hygienists' Association (WDHA), and the Dental Hygiene Association of Wisconsin (DHAW) presented several interesting ideas for reducing access disparities.

6. Mid-Level Providers (MLP)

There are two major types of MLPs. First, are expanded function dental assistants (EFDAs). They assist dentists provide reversible restorative and prosthetic services such as inserting and carving filling materials and taking impressions used in prosthetics. Second, are known as Dental Health Aide Therapists (DHATS). They work under direct and indirect dentist supervision and provide irreversible procedures such as the restoration of teeth, minor surgery etc. No data are available from the United States on the impact of DHATs on access disparities. There are publications from several developed countries, where DHATs are mainly used to provide care to children in school-based programs.[15,16] DHATs are currently used in the tribal areas of Alaska,[17] and Minnesota recently passed legislation legalizing their use. Finally, the investigator

is in the early stages of a PEW Foundation sponsored study of the financial impact of DHATs on FQHCs.[18]

7. Medical and Dental Service Integration
The investigator discussed this issue with the medical leadership of the Marshfield Clinic. He also reviewed the literature on physicians providing some dental services and dentists providing some medical services.[19-22]

8. Additional Studies
Two types of additional studies were identified. First, are studies related to gaining a better understanding of the current dental delivery and financing system and second, are projects evaluating the impact of new strategies for reducing access disparities.

9. Recommendations
The paper recommended strategies for reducing disparities that can be implemented within the next few years and have a direct impact on State Medicaid expenditures. Longer-term strategies were also noted, but without more information on how these strategies will be implemented, their impact on State finances could not be defined.

Findings

1. Access Problem
Four issues are addressed: 1) The distribution of utilization rates by county; 2) the relationship between dentist availability and Medicaid utilization rates; 3) the contribution of the dental safety net system and private practices to serving the Medicaid population; 4) setting the social goal for Medicaid utilization rates; and 5) access to primary dental care and hospital emergency room visits for preventable dental conditions.

Utilization Rates - Attachment B gives the 2008 utilization rates for children and adults enrolled in the Medicaid program for 12 month continuously and children and adults enrolled in a Delta plan by county.[1] Approximately, 59 percent of Medicaid eligibles (955,366) are enrolled for 12 months.

The average utilization rate for continuously enrolled Medicaid children and adults is 40.5 percent and 32 percent, respectively. (For children enrolled for less than 12 months, the utilization rate is 25.2 percent). In contrast, about 66 percent of both children and adults enrolled in the Delta plan see a dentist at least once annually.

The utilization rates vary greatly by county for both Medicaid and Delta members. As seen in Table 4, 68.2 percent of Medicaid eligible children in Price County saw a dentist annually but only 18 percent in Milwaukee County. Likewise, 78.9 percent of Delta children in Burnett County had at least one dental visit per year but only 44.4 percent in Iron County. Possible reasons for the variation in Medicaid utilization rates among counties include the percentage of area dentists that see Medicaid patients, the presence of safety net clinics, family education and income levels, the availability of

public transportation, and the presence of dental hygienists in local Public Health Departments.

Figure 1 presents a county map of Wisconsin divided by color into three areas. The dark grey section gives the counties with Medicaid utilization rates for children (12 month enrollment) of 41 percent to 71 percent (39 counties); the light gray section for rates of 31 percent to 40 percent (18 counties), and the white section, 10 percent to 30 percent (15 counties). The counties in the northern section of the State have the highest utilization rates and those in the southeast the lowest.

While relatively few counties are in the lowest Medicaid utilization rate group, the results are much different, if viewed in terms of population. The 15 counties with the lowest utilization rates include about 50 percent of Medicaid eligibles. Thus, the access problem is especially acute for those residing in the larger counties in the southeastern part of the State.

For comparative purposes, Figure 2 presents a county map of Wisconsin based on Delta 12 month continuously enrolled children. The dark grey section gives the counties with Delta utilization rates for children (12 month enrollment) of 70 percent to 80 percent (17 counties); the light gray section for rates of 60 percent to 70 percent (46 counties), and the white section, 44 percent to 59 percent (9 counties). As can be seen, there is little relationship between the distribution of utilization rates by county for Delta and Medicaid.

Utilization Rates and Dentist Availability - A critical issue in looking at the distribution of utilization rates among counties is the availability of dentists by county. That is, does the number of dentists located in a county explain differences among counties in utilization rates? The simple answer is "no." In fact, there are more dentists relative to the size of the Medicaid population in urban counties compared to rural areas, but utilization rates are lowest in urban counties. Likewise, as seen in Figure 3, there is no relationship between the per capita number of dentists in a county and Medicaid utilization rates for 12 month enrolled children.

The more relevant issue is the number of dentists in an area that will accept Medicaid patients. If the dentists are employed in community clinics, they do provide care to the underserved, but relatively few dentists work in the safety net. In terms of private practitioners, as noted in the next section and primarily because of low fees, many do not treat Medicaid patients.

Medicaid Delivery Sites - To determine where Medicaid patients receive care, the number of patient visits and patients provided in community clinics operated by FQHCs, non-FQHCs, Tribes and MUSOD were estimated. For FQHCs, the WPHCA surveyed all Wisconsin FQHCs with dental programs and received completed surveys from 10 FQHCs (15 delivery sites). As seen in Table 5, these clinics employed 53 dentists and 38 hygienists and provided 140,000 patient visits. With an estimated 2.3 visits per patient, care was provided to about 60,000 patients.[23]

Four FQHC dental clinics did not respond (6 delivery sites), but the WPHCA provided some data on these clinics. Assuming the same staffing levels and output as the FQHCs that did respond, the estimated total numbers of patient visits and patients from all FQHCs (74.3 dentists and 53.2 hygienists) were 194,444 visits and 84,541 patients. However, not all FQHC patients are enrolled in Medicaid. On average some 30 percent of patients are not Medicaid members, so FQHCs provided 136,110 visits to 59,178 Medicaid patients.

As seen in Table 6, a survey of the State's largest non-FQHC dental clinics identified three facilities. These clinics partner with MUSOD for student rotations. They provided 21,827 visits and served 12,426 patients. The survey of Tribal clinics identified eight facilities; they employed 16 dentists and 17 dental hygienists (full and part-time). The percentage of Medicaid patients treated by the clinics ranged from 10 to 80 percent. As an estimate, the Tribal clinics provided 12,224 patients visits to 5,314 Medicaid enrollees. MUSOD clinics provided 29,598 visits per year to 4,933 Medicaid patients. In total, the Wisconsin safety net system provided approximately 199,759 visits to 81,851 patients. This is an upper boundary estimate.

The contribution of private sector dentists to meeting the needs of Medicaid patients was based on the percentage of dentists participating in the program and an estimate of the number of patients treated. In 2006, some 43 percent of dentists filed one or more Medicaid claims (1,331 claims and 3,088 dentists). This is a much higher percentage of participating dentists than seen nationally.[24] The total number of Medicaid eligibles was 955,336 people ever enrolled in 2008. Of these eligibles, 25.7 percent (245,521 people) visited a dentist. Assuming up to 81,851 were seen in the safety net system, this leaves 163,670 who received care in private practices. Thus, about 66 percent of Medicaid users received care in private practices. However, in 2009, only 350 private dentists submitted claims for $10,000 or more (34% of dentists submitting Medicaid claims and 11% of all active dentists).

Medicaid Utilization Goal - The appropriate utilization objective for the Medicaid eligible population is important, because it determines the extent and magnitude of the access problem and the strategies selected to reduce disparities. Table 7 gives utilization rates by the Federal Poverty Level (FPL) for children and the total population. These data come from the Medical Expenditure Panel Survey,[2] arguably the best national data source for dental and medical utilization rates and expenditures (survey of 10,500 households).[25] There is little difference in utilization for those under 100 percent of the FPL and those between 100 percent and under 200 percent of the FPL. For people with incomes greater than 200 percent but less than 400 percent of the FPL – generally considered the middle class – utilization rates increased substantially to 46.5 percent for children and 41.9 percent for all ages. One option is to make the Medicaid utilization goal the same rate as middle income families.

Another option is to use the goal set for the Federal Healthy People 2010 initiative: 56 percent for the entire low-income population. The Healthiest Wisconsin 2010 initiative

set a dental utilization goal of 33 percent for all Medicaid enrollees. The national and state goals are for all eligibles ever enrolled during the year.

In setting the utilization rate there are three important considerations: fairness or social equity, the resources available to subsidize the care of lower income groups, and the relationship between utilization rates and oral health. The first two considerations are social decisions by the larger society.

For the third issue, there is some empirical information available. At the extremes of utilization rates (20 to 30 percentage points), there are major differences in oral health status.[26] For differences of 10 percentage points or less, the differences in oral health status appear minimal.[26]

It is important to note that the appropriate utilization rate goal is probably not the same as Delta utilization rates. As discussed previously, many social factors influence utilization rates besides financial access to care, and it is not clear that high utilization rates result in better oral health.

Access and Emergency Services – One argument for more competitive Medicaid fees is the potential savings from reduced hospital emergency room (ER) visits for preventable dental conditions. Presumably, with better access to primary dental care, ER visits would decline and the savings would equal or surpass the cost of higher fees. A recent study of Medicaid claims addressed this issue and reported that of the 4.5 million ER visits to Wisconsin hospitals (2003-2005), 66,783 (1.5%) were for preventable, non-traumatic dental complaints.[27] About 35 percent of patient visits were covered by Medicaid. Charges for all ER visits were $15.1 million and assuming uniform conditions and levels of severity, $5.3 million for Medicaid patients. Even if all Medicaid patient emergencies could be prevented, competitive Medicaid fees would greatly increase Medicaid expenditures relative to the cost of preventable dental ER visits. Another California study found essentially the same results.[28]

2. State Strategies

This section examines two strategies used by some states to address dental access disparities, increasing Medicaid fees and establishing a new type of dental school.

Medicaid Fees - Several states have increased Medicaid dental fees for children to between 70 percent and 90 percent of market rates in an effort to increase the number of dentists participating in the Medicaid program and the percentage of eligibles that receive care. Before examining the results of these efforts, it is important to consider three issues. First, efforts to increase utilization rates take time, so major changes in dentist participation or utilization rates will take several years before clear trends are evident. Second, often states increase utilization rates under political and legal pressure and do not index fees to general or dental fee inflation rates. In just a few years Medicaid fees become uncompetitive again, reducing dentist participation. Third, there are multiple reasons besides financial access to dental care that determine utilization rates. For example, it is well known that better educated people use more dental

services than less educated groups, holding financial access to care constant.[29] Thus, lower income and often less educated populations may not use dental services at the same rate as better educated, middle income populations, even when financial barriers to care are reduced.

Four states – Alabama, South Carolina, Tennessee, and Virginia - raised children's Medicaid dental fees, and a few also provided "outreach" funds to encourage more dentists to participate in the Medicaid program. Overall, there was a significant increase in the number of dentists submitting one or more Medicaid claims – increases of a third or more were common from a relatively low base. The number of patients treated also increased by 10 to 15 percentage points. Thus, from a base of a 25 percent ever enrolled utilization rate, the percentage increased to 35 to 40 percent. Although data on children enrolled for 12 continuous months were not presented, utilization rates for this group probably exceeded 50 percent.[5]

Utilization rates were tracked for five years, and there was a substantial increase in utilization rates from two to five years after the fee increases. In all states the fee increases were one time events, and fees were not increased in subsequent years. Thus, the expectation is that as fees became less competitive, fewer dentists participated in the Medicaid program and fewer children received care. The impact of the fees on total Medicaid dental expenditures was not examined.[5]

A more relevant demonstration of the impact of Medicaid fees on dentist participation and enrollee utilization rates comes from the State of Michigan.[6] In 2000 the State enrolled all Medicaid eligible children from 22 rural counties (increased to 59 counties in subsequent years) in a Delta Dental of Michigan plan (called Health Kids Dental, HKD). Delta set fees for HKD children the same as for privately insured patients and used the same administrative processes for filing claims, utilization review and paying dentists. There were no out-of-pocket expenses for Medicaid members or a yearly maximum. Importantly, Delta increased fees annually to keep up with inflation. The impact of this program is seen in Figure 4: the comparison of utilization rates for privately insured, HKD, and traditional Medicaid program children. All children were enrolled in their respective plans for 12 months. Five years following the start of the program (2005), utilization rates for HKD participants were substantially increased (53.1% visited a dentist) compared to the traditional Medicaid program; they were not as high as the privately insured. Since 2005, utilization rates have continued to grow slowly each year.[7] The number of participating dentists increased 24.7 percent, and the average travel distance to the dentist decreased almost 20 percent.[6] Finally there was no increase in the number of area dentists, so the existing dental workforce was able to provide care to another 100,000 children (200,000 eligibles).

In September 2008, as the result of a lawsuit, the Connecticut Medicaid program increased children's dental fees to the 70th percentile of 2005 market fees, This resulted in an increase in the number of credentialed Medicaid dental providers from 150 to about 1,100 (35% of the dentist workforce).[30] Utilization rates increased from 25 percent to 40 percent for ever enrolled children. Calls and complaints to the Medicaid

program from parents trying to find private dentists for their children declined, and the average wait time for an appointment in a private dental office was reduced to two weeks. In terms of financial impact, the State estimated that the higher fees would increase Medicaid expenditures by $20 million in 12 months. Instead, in just two months, expenditures increased $26 million. If this rate of utilization continues, the State will spend an additional $156 million for the first year of the program.

The evidence seems clear: raising children's Medicaid fees to competitive levels will increase dentist participation and utilization rates. It takes several years to reach steady state utilization rates, fees need to be increased to keep up with inflation, and total Medicaid expenditures will increase substantially. Importantly, even with financial and physical access to care, Medicaid utilization rates for 12 month continuously enrolled children still lag 10 to 15 percentage points below those of privately insured children.

Dental School - East Carolina University (ECU) is a state-supported institution located in a rural and financially depressed part of North Carolina. Located with the main University, the Health Sciences campus includes Schools of Medicine, Nursing, and Allied Health. ECU plans to establish a School of Dentistry and funding for the school was approved by the State legislature.

The mission of the ECU School of Dentistry is to educate primary care dentists who are interested in practicing in rural areas, to provide educational opportunities for underrepresented minority and low-income students, and to improve the oral health of underserved State residents. The first three years of the curriculum follow a traditional program, but the clinical education for seniors and residents and faculty practice is decidedly different. For this group, patient care experiences take place in a real delivery system closely resembling private practice. Faculty deliver care while supervising a few residents and senior students, and residents have a role in supervising senior students. Although new to dental education, this model is well-known in other health professions.

Because the university campus is located in a rural area with limited public transportation, building a large central clinic for seniors, residents, and faculty makes little sense. Instead, the school plans to distribute senior students and residents across the State in group practices (service-learning centers). These practices will be located in areas of greatest need and will treat primarily Medicaid eligible and low income patients. The basic staffing model, defined in terms of full-time equivalent (FTE) positions, includes one faculty, two residents, and two senior students. Some group practices may have one provider team and others two, depending on patient demand in the area.

The group practices are run by the dental school and operate as patient-centered delivery systems. This model requires that faculty and residents work out of multiple operatories and employ an optimum number of trained clinical and administrative support staff. This model works financially because Medicaid program dental fees in North Carolina are at 70 percent of prevailing children's' fees (50% of prevailing adult fees for covered services). In addition, the State has a system of making up about 64 percent of the difference been Medicaid charges and expenses for health professional

education programs run by State educational institutions. For example, if ECU dental school bills Medicaid for $100,000 worth of covered services but actually spends $130,000 to provide those services, the State will compensate the school for 64 percent of the difference or $19,200. These supplemental funds come from the CMS Medicaid match to the State. In addition, residents will receive Graduate Medical Education (GME) support from the federal government.

This educational model will offer students and residents a superb clinical education, providing care in a real delivery system. They will have extensive experience working with trained allied dental health personnel and practice administrators. With this Medicaid arrangement, GME funds, and the operation of a real delivery system, ECU will be able to pay competitive salaries to faculty (75% of private practitioner incomes) and train large numbers of primary care residents and senior students. Attracting faculty is a major problem in most dental schools, because of the large and widening disparity between faculty and practitioner incomes.

Of special significance, this clinical model will provide care to over 60,000 patients per year. This is at least five times the number of patients treated in a comparably sized traditional dental school. In addition, the community-based clinics will provide employment to hundreds of local residents and give them marketable skills as dental assistants, receptionists, etc.

The dental school obtained capital funds for a physical plant that also adds to the capacity of the medical school ($87 million). The estimated cost for constructing a group practice of 18 chairs is $3 million. The annual operating steady-state budget is in the vicinity of $60 million which is higher than the average dental school, but most of these revenues and expenses are associated with the community-based group practices. These practices will require minimal, if any, subsidy. The State contribution to the school's operating budget is not expected to exceed $16.5 million/year.

3. Marshfield Clinic Dental School

The Marshfield Clinic (MC) has presented a proposal (currently under consideration) to start a dental school. This effort is intended to increase the number of dentists practicing in rural Wisconsin and to expand access to care by having third and fourth year dental students provide care in FQHC dental clinics run by the Family Health Center (FHC). Attachment C presents the Executive Summary of the MC plan. Briefly, MC would own, provide governance and control the school but contract with an academic partner (Arizona School of Dentistry & Oral Health, A.T. Still University, Mesa, Arizona) for the didactic and psychomotor-skill education components of the program, typically delivered in the first two years of dental school. The partner would also provide accreditation, licensing, start-up, faculty, student-recruitment, content, delivery, and other elements of the first two years. FHC would use a clinical service-education model to train third and fourth year students, providing care in FHC community-based FQHCs. MC indicated that it plans to construct a new building in Marshfield to house the new dental school.

Proposal Strengths

1. MC is a nationally and internationally recognized health care organization that has special expertise in the delivery of care to rural populations. It has the clinical and management leadership and experience to manage complex programs.

2. MC also has a strong record of excellence in biomedical and especially translational research. With close to $30 million in externally funded research – most from the National Institutes of Health – MC offers an academic clinical environment that is an ideal base for a doctoral level health professional education program.

3. MC is a national leader in biomedical informatics and has an integrated medical and dental record system that is already government certified. This is a major competitive advantage in operating clinical programs that integrate medical and dental care, in generating the detailed information needed to manage complex health care systems, and in offering opportunities for biomedical and health services research.

4. MC has extensive experience in clinical medical education. Many medical students and residents from the University of Wisconsin School of Medicine and Public Health rotate through MC patient care facilities. Further, MC operates a post-baccalaureate program for college students interested in medical careers

5. The clinical education model proposed has special merit and is a model for the rest of the country. Dental students will provide care in a "real" delivery system whose primary mission is patient care. This is superior to the traditional model of dental education where students spend their third and fourth years providing care to patients in dental school clinics that are organized as teaching laboratories with a primary mission of education rather than patient care. In the traditional system students see few patients (e.g., two per day); provide few services per visit, seldom work with dental auxiliaries, and have little experience working in an efficiently run delivery system.

   In the MC proposed model, students will provide care in efficiently run FQHC dental clinics, using the medical model of education.[31] Clinic dentists will continue to see patients as they supervise one or two students. In this model students will see eight to 10 patients per day and work with trained auxiliaries. The capacity of the system to care for patients will be enhanced because of the combined output of faculty and students.

   Lastly, the MC clinical education model is less expensive to operate, because students see many patients and the FQHC visit rate per Medicaid enrolled patient is competitive with private practice fees. In contrast, dental student fees in traditional schools are 50 percent of the market rate. With little output and low fees, student clinics require large subsidies from tuition, state budgets or other fund sources. This

is one reason that dental school tuition is the highest of all health professional schools and dental students graduate with the highest personal debt.

It should be noted that other dental schools are moving in the same direction as MC in having significant portions of their clinical programs based in community clinics or practices.[32] What is unique about the MC strategy, is the FQHCs have stable and adequate financial support to cover the cost of patient care and at the same time, subsidize dental education.

6. The MC school will improve access to care in rural areas. Depending on the types of students recruited, some graduates can be expected to open private practices or work in safety net clinics in rural Wisconsin. Also, if effectively managed, students will add to the net number of patients treated in FHC dental clinics. They will not provide services at the level of dental residents or experienced dentists.

7. All the FHC delivery sites provide medical, dental, and behavioral health services to patients. In the traditional dental school, students are totally separate from the main stream health care system. This is a great opportunity to integrate the education and delivery of medical and dental care.

Proposal Limitations

1. MC is not an accredited educational institution and has no experience with degree granting health professional educational programs. This means that they will first have to gain regional accreditation as a degree granting institution, and this will take several years.

2. MC is unlikely to receive accreditation from the Council on Dental School Accreditation (CODA). Based on extensive conversations with Dr. Anthony Ziebert, the head of CODA, if A.T. Still University is responsible for running the first two years of the proposed school and accreditation is based on A.T. Still, then, the proposed dental school is a branch school of A.T. Still. As such, the school can not be owned and governed by MC (see Appendix B).

   The proposed contractual relationship between A.T. Still and MC is very unusual, and there is no precedent to support the viability of this model. Thus, the accreditation committee is likely to view this arrangement with concern.

   A.T. Still is a unique dental school, associated with an osteopathic medical school. It has a very small full-time faculty, few, if any, scholarly activities, and most basic and clinical science teaching is done by visiting faculty. This dental school has no experience managing another dental school.

3. MC does not have a clinical dental department or faculty and does not sponsor any dental residency programs. The leadership for the proposed dental school are not dentists or educators, and MC's culture does not include any form of dental

education. A critical component of establishing a dental school is having a core faculty of experienced clinical educators.

4. To reduce access disparities, MC must recruit a large number of dental students from rural Wisconsin. Even then, a large percentage of these students will not move back to a rural area. Based on the experience of other medical schools focused on rural care, maybe 30 percent of graduates will open practices in rural areas.[33.34] This is a rough estimate, because few studies have addressed this issue. Also, it is not clear how experiences in one academic setting relate to another. From personal experience, the East Carolina University School of Medicine claimed that 25 percent of their graduates practiced in rural areas, but they used a very loose definition of rural area. MUSOD estimates that about 30 percent of their rural students practice in rural communities. For these reasons the 30 percent figure is an educated guess. Finally, it is important to stress that even if students return to rural locations, they will treat mostly non-Medicaid patients. This is because rural dentists can not operate financially viable practices based on Medicaid fees.

   An examination of Marquette School of Dentistry 2009 applicants showed that only 15 percent of the 196 applicants came from rural areas (counties with 50,000 or fewer people), and only four applicants from any part of the State were underrepresented minorities. Even for qualified applicants from rural areas, it is not clear that they will decide to go to dental school in Wisconsin. MUSOD makes every effort to recruit a diverse class but has had modest success. Most of the nation's top dental schools have special programs and funds to recruit more students from rural, low-income and minority backgrounds. MC will have difficulty identifying and recruiting a qualified pool of 50 students from rural Wisconsin. Figure 5 gives the county distribution of 2009 MUSOD applicants.

5. FHC has little experience operating their dental clinics with dental students or residents. This is a significant gap, and using dental students to provide care is not the most effective approach to provide care to patients. Of particular concern, is having third year students gain basic clinical skills in FQHC clinics. Because of their lack of experience, third year students will require close supervision by clinic dentists and have a negative impact on the number of patients treated and clinic revenues.

   FHC is unlikely to have significant problems recruiting and retaining dentists. With a relatively high negotiated per Medicaid visit rate, FHC is well-positioned to offer competitive salaries and to recruit and retain an adequate dental workforce. Fully staffed with experienced dentists, dental hygienists, managers etc., FHC dental clinics will be much more productive than having dental students providing care.

   If FHC wants to gain experience with dental students, it could easily attract them from Marquette and dental schools in neighboring states. This will provide FHC the opportunity to assess the impact of clinical education on their operations. They

may find that patients and clinics are better served using dentists and dental residents rather than students.

6. While there are certainly access problems in rural areas, the major access challenges are in the large counties in the southeastern corner of the State. The proposed school will have little, if any, impact on this critical problem.

7. It will take at least 10 years before a new MC dental school has a significant impact on access to care. It will be at least five years before the school opens and another five to 10 years before significant numbers of students graduate, obtain further clinical training, and open practices.

4. Alternative Educational Strategies

Three other education-based strategies have the potential to reduce access disparities.

Marshfield Clinic - To have an impact on dental access disparities, MC may want to consider establishing a dental department and recruiting a core group of academically qualified clinical dental faculty. The dental service would provide dental care to MC patients, participate in MC research programs and provide a foundation for any dental education programs. Specifically, the dental department should focus initially on primary care dental residency programs and possibly some specialties.

Another opportunity that MC can consider is establishing a post-baccalaureate (PB) program for college graduates who are interested in dentistry but were unsuccessful in gaining admission or never applied because of low grades or lack of required courses. This year long program should focus on applicants who come from disadvantaged backgrounds, including underrepresented minorities and low-income and rural families. From national experience, if the PB program is well-run, 80 percent or more of students will gain entrance and graduate from dental school.[35, 36] These students are much more likely to care for patients living in underserved areas, because many come from disadvantaged families. However, there is no “hard” data on the practice locations of PB students who complete dental school.

MC should also consider forming a regional dental school to serve the many rural states that do not have a dental school (e.g., South Dakota, North Dakota, New Mexico, and Wyoming). The WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho) regional medical education program sponsored by the University of Washington, School of Medicine in Seattle is a good example. In operation for close to 50 years, this regional medical education program has been very successful in producing physicians for rural states. Students are admitted to the University of Washington, School of Medicine and take their first year of basic medical science training at their state university, following a curriculum approved by the University of Washington. Students then spend the next two years in Seattle and their fourth year back in their home state in clinical rotations. The graduates of this program perform as well academically as students who spend their entire four years in Seattle, and most return to their home states to practice.[37, 38]

Proposal Strengths

1. To provide comprehensive care to patients, MC needs a credible clinical dental department. A recent survey of the MC medical faculty about the need for a dental department was positive.

2. The strategy builds on MC's extensive experience in graduate medical education. There are hundreds of medical residents receiving clinical training at Marshfield, so MC has the clinical and management staff who know how to run these programs.

3. Dental residents are not under the federal cap for new medical residents. So, MC can establish dental residency programs without sacrificing the number and quality of their medical residency programs.

4. Through careful selection of residents from rural areas and integrating residency training with rotations in rural private practices, MC may attract many residents who are interested in opening practices in rural Wisconsin or joining existing private practices.

5. The availability of residents will have a significant and immediate impact on improving access to care to rural low-income families. Working in FHC clinics, residents will provide care to thousands of patients. Residents are more productive than dental students, and MC should be able to have the dental residency program in operation within three years.

6. FHC can assess the value of having dental students provide care in their clinics by partnering with dental schools in Wisconsin, Minnesota, Iowa and Illinois. All of these schools send senior students to community clinics and should look favorably at an opportunity to work with MC/FHC.

7. A post-baccalaureate program will have an immediate impact on increasing the number of students from disadvantaged backgrounds in the dental profession. MC already operates a post-baccalaureate program for students interested in medical careers, so it has the experience to begin a dental program. This strategy also provides MC a pool of competitive students, if they decide to eventually establish a dental school.

8. A regional dental school has considerable merit. The access problems of rural Wisconsin are similar to those in other rural states. MC has an established reputation for excellence in rural patient care and graduate medical education. Their sponsorship of a regional dental school is likely to receive interest and support from neighboring rural states.

9. Once the MC dental department and dental residency programs are operating and MC has obtained regional accreditation as a degree granting institution, it is well-positioned to develop a first-rate dental school.

10. If MC pursues this alternative strategy, they will need to construct a facility for the dental department: faculty offices, clinics, and research laboratories, dental resident clinics and teaching areas, PB program, etc.

Proposal Limitations

1. MC needs to identify a hospital that will sponsor the dental residency programs. To obtain Graduate Medical Education (GME) support, the residency must be based in a hospital. The problem is that the hospital must bear the cost of the first three year rolling average of resident stipends and other costs before CMS (Center for Medicare and Medicaid Services) covers program costs. A related financial concern for hospitals is providing a training site for dental residents. Most hospitals do not want to invest millions of dollars in dental clinics that will lose money providing care to Medicaid patients. However, the latter is not a concern with the proposed MC dental program, because residents will provide care in FHC dental clinics. Further, a local hospital may be willing to partner with MC, if the hospital keeps the indirect GME funds. Because of MC's strength with medical residency programs, they probably already have established relationships with local hospitals that could be extended to a dental residency program.

2. Another concern is the MC medical staff's acceptance of a strong dental department and residency program. For several reasons this may not be an issue. First, MC was already committed to starting a dental school, and based on conversations with the organization's leadership, there is strong support for this initiative. Second, is the previously cited survey of medical staff views on dentistry - the results were very positive.

3. MC may not be able to recruit adequate numbers of dental school graduates to fill their residency positions. Although a possibility, with MC's national reputation and with the ability to offer residents GME support, they should have little problem recruiting residents.

4. MC may have difficulty funding the PB program. With tuition and room and board costs of $20,000 or more per year, it is difficult to pass all these costs on to students who come from disadvantaged families.

Marquette University School of Dentistry (MUSOD) – According to Dean William Lobb, MUSOD could increase its class-size by 20 students with existing facilities and staff. The assumption is that a large percentage would come from Wisconsin. In addition, MUSOD could establish a program for international students who take their junior and senior years at Marquette and obtain a U.S. dental degree. While these two strategies will increase the number of dental graduates, they may not decrease access disparities. As evidenced by the high percentage of college graduates among applicant parents (71%), most MUSOD applicants come from middle and upper middle class families.

These students are likely to open practices in higher-income communities. However, this may not be the case, if MUSOD partners with MC in sponsoring students for the proposed PB program, assuming most of these students are from rural areas or underrepresented minorities, and are therefore, more likely to practice in underserved areas. An expansion of the MUSOD class under these circumstances could be a plus for the MUSOD, MC, and the people of Wisconsin. The addition of more students from Wisconsin will require more State support for MUSOD and the students.

Another opportunity is for MUSOD to increase the number of general dentistry residents. The current residency program does not have GME support, and MUSOD has limited funds to expand the number of residents, since they require stipends to cover their living expenses. Discussions with the Wisconsin Hospital Association about the possibility of one or more hospitals sponsoring dental residency programs were not promising. As already noted, hospitals view dental residency programs as a significant drain on their resources.

One option to get around this problem is to have a hospital obtain GME support for MUSOD residents but have the residents provide care in FQHCs. In this way hospitals would not have to invest in constructing dental clinics or to cover clinic losses. Their only additional expense is the three year rolling average for resident stipends. Again, if MUSOD and the partnering FQHCs make arrangements for the hospitals to keep some of the indirect GME support or to share in surplus revenues generated by the residents providing care in FQHCs, the financial problems may be resolved. Initial discussions with Stephanie Harrison from the WPHCA about this model indicated some interest.

It is also possible that MC and MUSOD may have an interest in a joint dental residency program. The two institutions could cooperate in finding GME support for residents, and MUSOD could provide residents didactic courses. Residents would provide care in both rural and urban underserved communities with MC responsible for rural program operations and MUSOD for urban programs.

Proposal Strengths

1. The marginal costs for MUSOD increasing the number of graduates are much less than starting a new dental school.

2. If the additional students are from Wisconsin and from disadvantaged backgrounds, perhaps 30 percent will locate in underserved communities, providing substantial care to low income populations.

3. The expansion of the dental resident program has even greater potential to provide significant amounts of care to underserved populations, especially in urban areas of the State.

4. Working cooperatively, MC, FQHCs, MUSOD, and possibly other partners have considerable potential to have a significant impact on reducing access disparities cost-effectively.

Proposal Limitations

1. If MUSOD recruits additional students who are not from rural and disadvantaged backgrounds, they will have minimal impact on access disparities. Further, the WDA study found that there should be sufficient dentists available in 2020 to provide care to privately insured and more affluent patients. Also, 12 or more new schools of dentistry will open in the next ten years, and a large private school is opening next year near Chicago.[39] Many Wisconsin residents will attend these schools and return to the State to work in the more affluent communities. Finally, it appears that dentist retirement age is increasing. The reasons for this are not entirely clear, but one primary factor may be the amount of money dentists have saved for retirement.

   In a national study (2000), at ages 55-59 years the average dentist had about $540,000 (2010 dollars) in retirement savings.[40,41] Even assuming the sale of their practice for $300,000, this is not an adequate amount of money ($58,000/year at 6% interest) to generate 70 percent to 80 percent of current income, the amount needed for a comfortable retirement. Dentist's retirement financial problems are further exacerbated by the decline in the stock market. As such, more dentists are likely to remain in practice, reducing the need for additional new dentists.

2. Unless MUSOD can build a cooperative relationship with MC, FQHCs, hospitals etc., it has little chance of finding GME support for increasing the number of primary care dental residents.

3. MUSOD may need additional financial support from the State to cover the costs of the additional students.

University of Wisconsin (UW) - The interest of the UW in a dental school was discussed with Ms. Janet Sheppard and Lisa Beckstrand, from the Office of Education Planning at the University of Wisconsin, School of Health Sciences. They brought this issue to the attention of their Senior Vice President and Provost and suggested a conversation with the Dean of the School of Medicine and Public Health, Dr. Robert Golden. Dean Golden noted that the University of Wisconsin Health Sciences Center was one of the few major state academic medical centers without a dental school. While interested in a dental school, he also noted that the University faced fiscal/budgetary constraints, and this was not the time to consider a major new investment in a School of Dentistry. The possibility of a joint venture between UW and the MC was discussed. In this model a small group of dental students would be integrated into the first two years of the medical school class for the basic medical sciences. Dental students would get their clinical training at MC. The Dean agreed that this strategy would have a limited impact on reducing access disparities, unless students were recruited from rural and disadvantaged backgrounds. The interest of UW in a regional dental school was also discussed.

Medical College of Wisconsin - The Dean, Dr. Jonathan Ravdin, was contacted and offered the opportunity to meet, but he was not available within the time frame of the study.

5. Non-Educational Strategies

The non-educational options for decreasing access disparities include increase in Medicaid fees to competitive levels, school-based dental delivery systems, foreign trained dentists, Medicaid managed care contracts, pilot-test of a Delta run Medicaid program in a few underserved counties, expansion of the dental safety net, and increased FQHC productivity, and greater use of allied dental health personnel.

Medicaid Fees - Wisconsin Medicaid fees are 40 percent to 50 percent less than Delta fees, depending on the service, and Delta fees are discounted by about 20 percent from market fees. Since most general dental practices have overhead costs of 60 percent to 65 percent of gross revenues, practices lose money treating Medicaid patients. One obvious option to increase dentist participation in Medicaid and in turn, utilization rates is to increase Medicaid fees. This requires a substantial investment by the State. As seen in the recent Connecticut experience, utilization increased dramatically with competitive Medicaid fees, but so did total expenditures. Since Wisconsin faces major budget deficits and is trying to slow increases in Medicaid expenditures, the impact of increasing Medicaid fees was not considered.

School-Based Dental Systems - In many states (including Wisconsin) employed dental hygienists can legally deliver care to children in schools and other public settings without the authorization or direct supervision of dentist. Using portable equipment, they screen children, provide preventive care, and identify those needing restorative and other dentist-level services.[14] Hygienists alone can care for about 60 percent of children who do not have any untreated decay or other conditions requiring dentist services. Most dentist services can also be delivered in schools by FQHC employed dentists under the same general arrangement. A small percentage of children (e.g., 10 to 15%) need to be treated in FQHC dental clinics because of serious dental, medical, or behavioral problems. A case manager is used to make sure that children receive care. This model is financially feasible because most low income children are Medicaid/CHIP eligible (300% of FPL), and FQHCs receive their usual per visit rate for treating these children.

This model fosters the effective use of preventive care to reduce the incidence of caries and other dental diseases. Preventive care is delivered both at the class-room and patient levels and is risk-based. That is, higher risk children receive a more intense application of educational, chemical, and mechanical services, but all children receive basic preventive care. More detailed descriptions of school-based dental programs are available in the literature. The advantages of school programs include:

1. Reduces access and oral health disparities;
2. Reduces social access barriers and time lost from school/work (parents);
3. Reduces unit cost of providing dental care to children;
4. Reduces need for dentists;

5. Makes FQHC clinics more available to children/adults who require higher technology services;
6. Requires minimal capital to implement program;
7. Emphasizes education of student, teacher and parent;
8. Establishes a dental home for children.

FQHCs in several states now run full service school-based programs using a combination of fixed facilities, dental vans, and portable equipment. These states include Connecticut, New York, Michigan, and California.[9-14] A few Wisconsin safety net dental clinics also provide dental care in schools following this general model. Thus, there are no legal or financial barriers to implementing this program in communities where Medicaid eligible children have low utilization rates.

There are a number of Wisconsin organizations that provide dental sealants to low-income children in schools using portable equipment, including the Children's Health Alliance of Wisconsin and Columbia St. Mary's Hospital (under the direction of William Solberg). These programs have a great deal of operational experience working in schools, and FQHCs can use their expertise to build a strong school-based delivery system in Wisconsin.

Foreign Trained Dentists (FTDs) - Wisconsin is one of the few states where FTDs can obtain a license to practice without having a U.S. dental degree. Graduates of any foreign dental school are eligible to participate. They must pass Parts I and II of the Dental National Boards (required of all dental students) and complete a one year accredited general dentistry residency program. After completing the residency, they must pass a regional dental licensure examination.

According to the Chair of the Wisconsin Dentistry Examining Board, Dr. Lori Barbeau, the foreign dentist program has been operational for four months and so far, five FTDs have obtained a Wisconsin dental license. Asked to estimate the number of FTDs who will obtain Wisconsin licenses, she said about 20 per year.

The impact that these dentists have on access disparities is another issue. A California study of foreign trained dentists found that most located in the same upper income areas as U.S. dental graduates. However, there is some reason to believe that this may not be the case in Wisconsin.

Based on conversations with Ms. Anne Dopp from the Wisconsin Department of Health Services and lawyers from a few health care organizations, most foreign trained medical residents, have H-1B visas. Although data are not available, this may also be the case for dental residents and FTDs. Upon completing their residency programs, physicians who work at least five years in a designated shortage area on an H-1B work visa, can petition for a National Interest Waiver to gain permanent residency (green card) or can apply for permanent residency through the much longer Labor Certification Process. FTDs are not eligible for the faster National Interest Waiver process, unless they can prove national interest by improving health care in an underserved area. They would need to maintain employment through an H-1B work visa and apply for permanent

residency through the Labor Certification process or apply through Family-based immigration.

Foreign medical students who complete residency training on a J -1visa have to leave the country for two years before they can apply to return. However, since 1995, the State has had the option under the federal Conrad-30 law of recommending up to 30 waivers a year for the return home law, if medical residents with J-1 visas agree to work in a health professional shortage area for three years. In order to start work, they must also apply for an H-1B visa which is usually granted. This option is only available for medical residents and does not apply to dental residents.

How these visa requirements will affect FTDs are unknown. If they have an advantage obtaining a green card by improving health care, this may lead many FTDs to work in safety net clinics or practices in underserved areas. In this case, the Wisconsin FTD program may have a significant long-term impact on reducing access disparities. Other relevant factors are the number of FTDs who obtain Wisconsin licenses and green cards. If other states recognize the Wisconsin FTD dental license, many FTDs may obtain a Wisconsin license but end up practicing in another state.

Connecticut has a similar program but requires that FTDs complete their residency program within the State of Connecticut and spend at least two years providing care in a safety net clinic before opening practice. Wisconsin may want to consider adjusting their Dental Practice Act to follow the Connecticut model. It will give the State better control over the number and quality of foreign trained dentists and will ensure that these dentists play a role in reducing access disparities.

Managed Care Organizations (MCOs) - As previously noted, utilization rates in the larger counties in the southeastern corner of the State are low. The reasons for these low utilization rates are not clear, but since a large percentage of Medicaid patients in these counties are enrolled in MCOs, this may be a factor. Although the State has recently changed the contract with MCOs in an effort to increase utilization rates, further research is needed to better understand the delivery of care to Medicaid members in these counties.

Private Insurance Pilot – The State may want to replicate Michigan's Healthy Kids Dental program[6] by having Delta or some other insurer assume responsibility for running the Medicaid program for children in a few rural counties and an urban county where utilization rates are low. This would be an opportunity to determine the impact of bringing children's Medicaid fees to competitive levels. Will more dentists participate in the Medicaid program and will utilization rates increase significantly? Depending on the number of eligible children, the cost of this pilot test will likely be modest, and possibly the insurer, the State and a local foundation may be interested in financing the pilot-test.

Dental Safety Net Expansion - FQHCs have a large financial advantage in providing dental care to Medicaid eligible and low-income populations compared to non-FQHC community clinics. As such, in selected areas of the State where utilization rates are low, a strong case can be made for increasing the number and size of FQHC dental programs. Apparently, this expansion is already underway and may well accelerate

with the passage of national health care reform. At this time FHC plans to add another three dental clinics in the northern rural counties next year for a total of 10 delivery sites. These are large clinics with 19 chairs per clinic. Also, according to the WPHCA, several other FQHCs are planning to expand their dental operations. Specifically, within the next five years, seven FQHCs plan to increase their dental capacity and employ another 36 FTE dentists. Building on the 74 dentists already working in FQHCs, the 110 dentists and associated dental hygienists should provide about 330,000 patient visits to 143,000 patients.

Expansion of FQHCs is a viable option for both rural and urban areas. In fact, it should be easier to recruit and retain dentists in urban locations because of the advantages spouses have finding employment. However, the expansion of FQHCs will increase State Medicaid expenditures.

As the number and size of FQHCs increase and more State funds are allocated to these delivery units, it is important to have a State-wide plan for locating FQHC clinics and for operating them effectively. This is the only way to maximize the effectiveness of these resources.

Opportunities to expand the number or size of non-FQHC community clinics are probably limited. These clinics will have a difficult time financially, providing care to Medicaid eligible and indigent patients. They need an additional source of revenue.

<u>FQHC Dental Clinic Productivity</u> - Because FQHCs are such an important and growing resource, they need to operate efficiently. The WDA study found a difference of about a 1,000 patient visits per dentist per year between private general practices and FQHCs. The reasons for this large difference are not entirely clear, but it appears that the FQHCs underutilize dental auxiliaries and especially dental hygienists. This has been reported in other studies,[42] and analyses suggest that if FQHCs used space and personnel more effectively, they could substantially increase the number of patients treated per dentist. The complexity of care provided in FQHC – at least for children - does not appear to be greater than in private practices.[1] That is, the mix of services provided to children in FQHCs and private practices is very similar. With an estimated 74 full time equivalent dentists now working in FQHCs, another 74,000 visits per year (32,000 patients) should be possible.

There are many ways that the WDA working with the WPHCA could assist FQHC dental programs collectively and individually improve their productivity. This could include clinical and management continuing education courses for FQHC Dental Directors, Chief Financial Officers (CFOs), and Chief Executive Officers (CEOs) and onsite consultations with specific FQHCs.

Part of the problem is that dental programs only constitute 10 percent to 15 percent of FQHC total revenues. As a result, CFOs and CEOs do not spend a great deal of time on their dental operations. Of course, there are two or three FQHCs in the State that have very large dental operations, and presumably, they receive a great deal of management attention. One option for the FQHC community to consider is for FQHCs

with small dental programs to contract with a large FQHC to run the small FQHC's dental operations. If paid a reasonable management fee, this should result in improved clinical and financial dental operations for the smaller FQHCs, a new revenue stream for larger FQHCs, and most importantly, thousands of additional underserved patients receiving dental care.

6. Allied Dental Health Personnel

This section examines the potential for the more effective use of different types of allied dental health personnel to reduce access disparities. The occupations of interest include dental hygienists and two types of mid-level-providers, expanded function dental assistants, and Dental Health Aide Therapists.

Dental Hygienists - Based on the survey of general dental practices, there are about 1.4 hygienists (full and part-time) per dentist. Over the past 25 years, there has been a large increase in the number of hygienists per practitioner as a result of the improved health of patients.[43] With a large percentage of patients on maintenance; more hygienists are employed to provide these patients preventive and related hygiene services. This trend is likely to continue as the oral health of the American people improves.[44]

The total number of full- or part-time dental hygienists working in general dental practices is estimated at 2,891. This does not include dental hygienists working in dental specialist offices or in safety net clinics and other settings. The WDA study predicted a need for 3,085 dental hygienists in private general practices by 2020. This increase of 194 additional dental hygienists should be easily achieved, since Wisconsin technical colleges now graduate 182 dental hygienists per year. Based on conversations with the State's dental hygiene leadership, there is a surplus of hygienists, and new graduates are having problems finding full time positions.

The impact of Wisconsin dental hygienists and dental assistants on dentist productivity is seen in Table 8 (sample includes rural and urban practices). This is a production function with gross billings as the outcome variable. The five predictor variables account for 81 percent of the variance in gross billings among practices. The most important predictor is dental auxiliaries. Specifically, for a 10 percent increase in dental auxiliaries, practice gross billings increase five percent. This also means that the number of patients provided care increases.

While dentists have a financial incentive to employ more dental hygienists, and greater use of dental hygienists will increase the supply of dental services, the decision to employ more hygienists depends, in part, on the demand for services. Another factor influencing dentist employment and effective use of dental hygienists and other staff is the ability to manage additional people. As a generalization, many dentists do not employ adequate numbers of auxiliaries or use them effectively. Two reasons often posited for this situation are the lack of formal training in the use of dental hygienists and practice/clinic management in dental school and residency programs. Now that many dental practices have 10 or more employees, this is becoming a serious issue.

MUSOD, the WDA, the WPHCA, the Wisconsin Dental Hygienists' Association (WDHA), and the Dental Hygiene Association of Wisconsin (DHAW) need to work cooperatively to increase the ability of dental students, residents and practicing dentists to more effectively practice with dental hygienists and other staff and manage dental practices. There is also a need for professionally trained dental practice managers.

The WDHA and DHAW suggested other ways to decrease access disparities through the more effective use of dental hygiene resources.

1. The Wisconsin Technical College System dental hygiene programs have considerable physical capacity to provide preventive and restorative services to low-income families (e.g., Chippewa Valley in Eau Claire). This capacity is currently underutilized. These clinics need to affiliate with FQHC programs to provide basic dental care to area populations. Only FQHCs have adequate reimbursement rates to cover the cost of these operations. Ideally, if FQHCs partner with Marquette and MC dental residency programs, residents, dental students, and voluntary dentists can provide care in these facilities. In addition to meeting the needs of the underserved, this is an opportunity to provide dental and dental hygiene students and dental residents experience in delivering care efficiently in teams.
2. Currently, Wisconsin dental hygienists may practice only as employees or independent contractors (Ch. 447.06(2), Wis. Stats.). When practicing as an employee or independent contractor for a school board or governing body of a private school, for a school for the education of dentists or dental hygienists, and for local health departments, a dental hygienist does not require the authorization or oversight of a dentist (i.e., without the presence or written or oral prescription of a dentist). A dental hygienist working in this manner may provide hygiene services in any related setting without the oversight of a dentist.

   The issue of restricted sites (beyond the above listed three settings) will need to be addressed through public policy changes in order to allow other public or voluntary health sector organizations to employ or contract with dental hygienists and provide care to their underserved patients.

Expanded Function Dental Assistants (EFDAs) - Several states allow specially trained and certified or registered dental assistants to provide reversible operative and prosthetic services. These include inserting and carving restorative materials, taking preliminary and final impressions, placing temporary crowns, cementing crowns etc. Colorado has allowed EFDAs to operate for over 25 years, and a recent study evaluated the impact of EFDAs on the productivity of general dental practices. Briefly, detailed financial and clinical data were obtained from a convenience sample of 154 general dental practices. Sixty-four percent of the practices - mainly those with two or more dentists - delegated expanded duties to their EFDAs, and on average they delegated 31.4 percent of delegatable services/procedures. Practices that delegated, treated more patients and had higher gross billings and net incomes, and the more services delegated, the higher the practice productivity and efficiency.[45]

According to Dr. Lori Barbeau, the Wisconsin Dental Practice Act is unclear about the use of EFDAs (legality), and the Dental Examining Board plans to address this issue in the next few months. If legal, EFDAs could have a significant impact increasing the supply of services in dental practices and clinics and the efficiency of the delivery system. However, from the Colorado experience, even if EFDAs are legal, this does not mean most dentists will use them or use them effectively. Dental students, residents, and dentists need to be trained to work with EFDAs. A survey of Colorado dentists indicated that their primary reason for not employing EFDAs was the lack of training. Also, the Wisconsin Technical College System will need to establish EFDA education programs.[46]

Dental Health Aide Therapists (DHATs) - A national movement is underway to license DHATs. They provide basic diagnostic, preventive, and irreversible restorative care and some minor surgical services. DHATs are now operating in tribal areas of Alaska, and recently, they were approved in Minnesota. In the next several years, more states (e.g., Maine, Connecticut, Washington, Missouri, California) are expected to authorize this new dental professional. In fact, the Connecticut State Dental Association recently approved a pilot-test of the use of DHATs in school-based dental delivery programs. Depending on how they are trained, regulated, and organized, DHATs have the potential to significantly increase access to dental services, especially for underserved children.

The potential impact of DHATs on the oral health of children is seen in Table 9 which presents the mix of services provided to children enrolled in the Wisconsin Medicaid program. About 90 percent of services are diagnostic, preventive, and restorative, and DHATs are trained to provide these services. Some children with behavioral, medical and complex restorative needs will need to be cared for by dentists.

A PEW Foundation funded project is now underway on the financial impact of DHATs on FQHC finances, because FQHCs are likely to be early adopters of this new member of the dental workforce.[18] The economic modeling will look at DHATs delivering care within the four walls of FQHCs and school-based delivery systems.

DHATs are not legal in Wisconsin, and the WDA does not support legislation to make them legal. The dental hygiene associations are advocates for DHATs, and although they do not have explicit positions on DHATs, the WPHCA and the State Department of Health Services may view DHATs as an opportunity to reduce access disparities. Over the next 10 years, it is likely that DHATs will become legal in many states, including Wisconsin. Accordingly, further studies are needed on the likely impact of DHATs on access to care, the need for dentists, Medicaid expenditures, etc.

7. Integration of Medical and Dental Care

The idea of closer cooperation between physicians, dentists and other health providers in delivering comprehensive care to patients makes intuitive sense but is practically a challenge. At a minimum, organizations such as FQHCs and other community clinics are rapidly moving to integrated patient records so all providers and staff within the organization can use the same demographic patient information and assess the care

patients are receiving from other providers. Presumably, this will make the delivery of care more efficient and improve the quality of care.

Several states, including Wisconsin reimburse physicians who provide basic dental screening and preventive services to Medicaid eligible young children. One study reported that a large percentage of North Carolina pediatricians do provide dental services and bill private and public insurers for the services.[19] One problem is finding dentists to see children with untreated disease.

More generally, the PI has discussed training primary care physicians to provide basic dental services, (e.g., restorative care) with medical school colleagues. The reaction from primary care physicians is generally negative. They point out that their scope of practice is too broad now, and they do not have the time or interest to provide dental care.

Their perspective may change when MLPs become available. Research is needed on the feasibility of allowing primary care physicians to employ dental hygienists and DHATs to provide care to children living in rural and other areas without easy access to dentists.

Having dentists provide some medical care is another option. Most dental schools train students to take medical histories and collect basic physical data from patients. It is unclear if most dentists continue doing this when in their own practices. Several studies have tried to get dentists to treat patients who are chronic smokers and excessive drinkers, since these conditions adversely affect oral and general health.[21,22] Even when allowed to bill for these services, few dentists or dental practices cooperated in these studies. Perhaps, as dental schools spend more time training students and residents to perform these services, more dentists will provide them.

Overall, a strong case can be made that physicians and dentists should work more cooperatively. This will improve the quality of care and perhaps efficiency. However, changing long-term practice behaviors is a major challenge, and it will take many years before significant gains are made. The place to start this effort is medical and dental education.

Additional Studies

As in any research project, the findings lead to further questions that can only be answered with additional research. The first project addresses the need for more data to understand the current dental delivery system for Medicaid members. The others evaluate the effectiveness of the recommended strategies for reducing access disparities.

1. Why are Medicaid utilization rates so low in large southeastern counties, and what can be done to correct this situation?
2. If Delta pilot-tests Michigan's Healthy Kids Dental program in a few rural and urban counties, what will happen to Medicaid utilization rates and expenditures?

3. What is the relationship between utilization rates and oral health for different population subgroups?
4. Are there particular utilization patterns (visits, services etc) that are more cost-effective?
5. Will school-based dental care systems for low income children increase access, decrease expenditures per child, but increase aggregate Medicaid costs?
6. What impact will EFDAs and DHATs have on the supply of dental services, the distribution of dental services to underserved areas, and access and oral health disparities?
7. Will a regional dental school based in Wisconsin and focused on rural areas have a significant impact on reducing access disparities?
8. What impact will increasing the number of general dentistry residents have on access disparities.
9. With an effective post-baccalaureate program, can the number of Wisconsin dental students from disadvantaged backgrounds be substantially increased and will the increase lead to reduced access disparities?
10. Will having large FQHCs manage FQHC dental operations in its region result in more cost-effective care?

Recommendations

This section selects the most promising educational and non-educational strategies for reducing access disparities and examines their impact on access to care and costs. The focus is on interventions that will have a direct impact on the State's Medicaid population and, in turn, budget. If five priority recommendations described below are pursued, another 185,350 Medicaid eligibles will receive care at an estimated cost of about $24 million to the State. This will result in the average Medicaid utilization rate for the ever enrolled increasing from the current 25 percent to 47 percent. For the 12 month continuously enrolled, utilization rates of 55 percent or greater can be expected.

In order of priority, this section first examines the impact of the programs on access to care and State Medicaid expenditures. All of the recommended strategies can be implemented within one or three years, because they do not require changes in the Dental Practice Act, large capital investments in facilities or equipment, or the establishment of new delivery organizations.

This section also examines longer-term strategies related to expanding dental education, the safety net system, or the use of mid-level-providers. Because these programs are still in development, it is impossible to estimate their impact on State spending.

Appendix D presents a summary table of the short- and long-term strategies discussed in this section. This summary is intended to provide readers a brief but easily understood overview of the recommendations.

<u>Shorter-term Strategies</u>

<u>School-Based Dental Care</u> - FQHC run school-based delivery systems have the greatest potential for decreasing access disparities in children. The State statues allow

dental hygienists to practice without authorization or oversight by a dentist; minimal capital funds are needed since new facilities are not required; FQHC reimbursement rates are adequate to cover the cost of the program; and the program is already in operation in some areas of Wisconsin and in other states. Thus, with effective leadership and management, school-based care can be implemented in underserved areas within the next two years.

The major assumptions underlying this program include:
1. Most schools with large number of low income children will welcome the school-based dental program.
2. Most parents of low-income children will enroll their children in the program.
3. The average utilization rate will increase from 40 percent to 55 percent for 12 month continuously enrolled Medicaid children.
4. The average child will require 2.0 visits per year.

In terms of access to care and State expenditures, there are 209,700 12 month continuously enrolled children and 83,880 (40%) see a dentist annually. With a utilization rate of 55 percent, 115,335 children will receive care, an increase of 31,455 children and 62,910 visits. At $176 per visit, the additional 62,910 visits will generate additional expenses of $11,072,160 or $4,428,864 for the State. This is an upper boundary estimate, because not all eligible children will enroll in the program and some counties already provide adequate access to care.

General Dentistry Residents – Wisconsin has a paucity of primary dental care residents, in part, because MUSOD can not find a hospital to sponsor the program so residents receive Graduate Medical Education support. If MC and MUSOD work cooperatively to identify a hospital to sponsor the dental residency program and if residents work in FQHC clinics in rural and urban underserved areas, this program can have a substantial impact on access disparities. This strategy can be implemented within a few years; it will have a significant direct impact on access disparities, and depending on the residents recruited and the quality of their experience, a meaningful number may pursue private practice and community clinic careers in rural and underserved areas. As an estimate, MC needs to build the capacity to have 25 General Practice Residents in a one or two year program and MUSOD 20 residents for a total of 45 residents per year.

The major assumptions underlying this program include:
1. The residents will receive GME support to cover program costs.
2. Residents will provide care in FQHCs and possibly other community clinics.
3. The average resident will see one patient per hour or eight patients per day, and they will work for an average of 250 days per year.
4. The average Medicaid/FQHC negotiated visit rate is $176, (Wisconsin Health Department data, excluding Tribal clinics which have a higher visit rate).
5. The average patient will receive 2.3 visits per year, the current FQHC per patient visit rate.

In terms of access to care and State expenditures, the 45 dental residents will provide 90,000 visits to 39,000 patients. Seventy per cent of these patients will be covered by

Medicaid, and the remaining 30 percent will have private insurance or pay on a sliding scale. The average reimbursement rate per visit will average $176 from these multiple payers, including the dental clinic's portion of the federal 330 grant. The cost of providing care to the additional 39,000 FQHC patients will be $15,787,200. The cost to the State will be $6,314,880. To the extent that the residents substitute for employed FQHC dentists, there will be no net increase in State expenditures.

FQHC Productivity – The WDA study reported that private general dentists averaged 3,384 patient visits per year and general dentists working in FQHCs 2,641. This is a substantial difference, and it should not be difficult to increase the productivity of FQHC clinics with the employment of additional dental hygienists and assistants and more attention to clinic management. Thus, this initiative can start almost immediately, and it will have a substantial impact on access disparities.

The major assumptions underlying this program include:
1. The major reason for the lower patient visits in FQHCs is the availability of dental hygienists and assistants.
2. FQHCs are interested in increasing dentist productivity.
3. Adequate numbers of dental hygienists and assistants are interested in working in FQHCs.
4. FQHC leaders have the capacity to manage a larger dental workforce.

In terms of access to care and State expenditures, if the 74 FTE dentists employed by FQHCs increase the number of patient visits 743 per year, they will generate another 54,982 visits to approximately 23,905 patients. At an average of $176 per visit, this comes to $9,676,832. The State's portion will be $3,870,732.

Insurer Pilot – There is substantial evidence from Michigan's Healthy Kids Dental program that private dentists will provide care to Medicaid children if compensated at competitive rates. This strategy has considerable potential because it can be selectively implemented within a year or two in counties with low utilization rates.

The major assumptions underlying this program include:
1. A few rural counties will participate in the pilot test of the proposed program.
2. Waukesha or some other urban county will participate in the program.
3. 16,000 children will participate in the program: 10,000 from rural counties and 6,000 from an urban county.
4. Utilization rates will increase from an average of 25 percent for continuously enrolled children to 55 percent.
5. With competitive fees, many private dentists will participate in the program.
6. The insurer, the State and a private foundation will cover program costs.

In terms of access to care and State expenditures, of the 16,000 children, 25 percent currently see a dentist annually at an average cost of about $292 per user or $1,168,000. The average per user cost for Delta insured children is $422. With a 55 percent utilization rate 8,800 children will obtain care, and at $422 per user this comes

to $3,713,600. The total increase in expenditures will be $2,545,600. The State's portion will be $1,018,240.

Managed Care Organizations (MCOs) – The four urban counties, where most Medicaid members are enrolled in MCOs, appear to have very low utilization rates (e.g., 15.9 percent for continuously enrolled children). The utilization data from these four counties is limited and sometimes conflicting, so more research is needed on this issue. Because currently available data may not be adequate, a new study is needed to collect primary data from Medicaid members, participating dentists and the MCOs. This will require surveys of these different groups to obtain utilization and expenditure data. With three independent sources of information, the study should provide a "true" picture of the problem. Once the problem is fully understood, corrective actions can be taken.

Assuming the access problems in the MCO counties are "real," an effort is needed to increase utilization at least to the level seen in the 68 non-MCO counties. Please note that the State plans to change the MCO contracts for dental care, and this may resolve the problem. In any case, the Medicaid participation rates need to increase, and depending how this is accomplished, total State Medicaid spending may increase.

The major assumptions underlying this program include:

1. The total eligible Medicaid population in Milwaukee, Kenosha, Racine and Waukesha Counties was 355,823.
2. 229,700 Medicaid eligibles were enrolled in MCOs and 126,123 in the fee-for-service plan.
3. Utilization and expenditure data for the four counties were only available for the entire Medicaid eligible population.

In terms of access to care and State expenditures, the number of Medicaid eligibles in the four MCO counties was 355,823, and the average utilization rate for the 208,308 continuously enrolled was 15.9 percent. In 2009, total MCO expenditures for the ever enrolled were about $17 million dollars or $47.78 per eligible and $220.82 per user. No data is available on the fee-for-service eligibles. The number of Medicaid eligibles in the 68 other counties was 599,513, and the average weighted utilization rate for the total ever enrolled population was 24.5 percent, and for the 341,850 continuously enrolled the utilization rate was 36.0 percent. In 2009, total expenditures for the ever enrolled in the 68 non-MCO counties were about $43 million dollars or $71.73 per eligible and $292.86 per user.

To bring MCO county utilization rates to the level in the other 68 counties, this will require that an additional 74,990 of the continuously enrolled receive dental care per year. Based on the user expense in the 68 counties ($292), the additional expense is $21,897,080. The additional cost to the State will be $8,758,832.

Longer-Term Strategies

In addition to these five priority recommendations, there are several longer term strategies for increasing access to care. These include expanding the number of

dentists in Wisconsin who practice in underserved areas. This expansion can come from an increase in the number of students enrolled in MUSOD, the recommended MC post-baccalaureate program, and a new regional dental school at MC. Other longer-term strategies include expansion of the safety net system and allied dental health personnel.

Dental Graduates - Increasing the number of Wisconsin residents graduating from Wisconsin dental schools has the potential to increase access if the new graduates come from disadvantaged backgrounds – namely underrepresented minorities, low-income families, and rural communities. Finding adequate applicants from disadvantaged backgrounds is a major challenge, and this is the reason a well-run post-baccalaureate (PB) program is so important. The State may want to consider providing scholarships for PB students and later dental students which they can repay by working in underserved areas after graduating from dental school. Without funds to subsidize their education, most disadvantaged students will be hard pressed to fully finance their own PB and dental education. Expenses will run $20,000 to $30,000 for the one year PB program and $50,000 to $60,000 per year for dental school. Although expensive, this is an excellent long-term invest for the State, since these students are much more likely to provide care to underserved patients, even though it may mean a significant financial loss.

Expansion of the Dental Safety Net – It is likely that the number of FQHCs in the State will increase in both number and delivery sites. These clinics have the potential to greatly reduce access disparities in the State. This is certainly the case in the northern part of the State where the 10 FHC FQHC dental clinics will soon employ more than 100 dentists and possibly many dental residents. This well-thought-out regional strategy needs to be implemented in other areas of the State and especially in the large southeastern counties. That is, it is not enough to just build more dental capacity, this needs to be done employing a regional county strategy so that the right number of clinics are located, where they are most needed. Likewise, the management of the dental component of these clinics also needs to be regionalized as it is in the northern part of the State. Having the 10 FHC dental facilities under a central professional management system is a major advantage in using these resources effectively. Working with the WPHCA, the State needs to develop a safety net plan for each major region of the State and part of this plan needs to include the management of these facilities. Since the State is responsible for covering the costs of FQHC clinics, it has an obligation to make sure that these funds are used to maximum effectiveness.

Allied Dental Health Personnel – As the oral health of the US population improves, there is an increasing role for various types of allied dental health personnel. Most important are dental hygienists working in FQHC clinics, private practices, school clinics, health departments etc. They have the potential to significantly expand the supply of dental services. Of special importance, FQHCs have the opportunity to increase their effectiveness with the use of more dental hygienists.

It appears that EFDAs may be legal in the State, and this issue needs to be resolved as soon as possible. If legal, the technical college system needs to begin training dental assistants in this new role. EFDAs can also increase the supply of services and the efficiency of the system. Longer-term are the use of DHATs to provide basic restorative care to children. Although controversial, these new auxiliaries are likely to become part of the dental team, and now is the time to plan for their impact on access, the number and types of dentists needed in the State, etc.

As noted previously, just legalizing the use of different types of allied dental personnel will not assure their effective use. The State needs to develop programs or to provide incentives so dental students, residents, dentists, administrators and others involved in the dental delivery system receive formal training in operating with different types of allied dental health personnel.

Conclusions

Similar to other states, Wisconsin has a significant dental care access problem. Although most low-income adults and children are enrolled in the Medicaid program, utilization rates are relatively low compared to privately insured patients. While lack of dentists is an issue in selected counties, the core problem is Medicaid fees are low and do not provide Medicaid members adequate financial access to care. Even so, about 66 percent or more of Medicaid enrollees who do obtain care receive it in private practices. The other 34 percent receive care in the dental safety net system.

There is no simple solution to reducing dental care access disparities. An across the board increase in Medicaid fees does not appear feasible, considering the States financial constraints. The five most promising recommendations will significantly increase utilization and will also serve to make the delivery system more productive and efficient. However, the additional cost to the State will be substantial.

The establishment of a new dental school at the Marshfield Clinic, as currently designed, does not appear feasible. Longer-term, a strong case can be made for a regional dental school that serves other rural states. If Marshfield Clinic builds a solid dental care clinical and educational infrastructure, it is well-positioned to become a national leader in preparing a dental workforce for rural America.

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Table 1
Professional Active Wisconsin Dentists, Dental Hygienists, and Dental Assistants and Selected Dentist Characteristics[1]

Dentists*	Values
Mean Age (years)	52.0
Percent Females	16.6
Percent Specialists	18.1
Percent Marquette Graduates	60.9
Dentist-to-population ratio	1/1,811
Number of Professionally Active*	3,142
Dental Hygienists*	2,891

*Full- and part-time dentists and dental hygienists

Table 2
Distribution of Professionally Active Wisconsin Dentists by County Characteristics, 2009[1]

Population	Counties	Dentist %	Dentist Age	Female %	Specialist %	Dentist/ population
200K+	4	43.8	51.5	18.4	22.1	1/1497
100 –200K	10	25.5	52.1	17.2	19.6	1/1810
50-100K	13	17.1	52.5	15.1	12.0	1/1833
25-50K	19	8.8	52.3	11.6	4.6	1/2622
0-25K	26	4.8	51.2	11.8	5.1	1/2704

Table 3
The Predicted Increase in the Wisconsin Population, Number of Dentists, and Population to Dentist Ratio, 2010 to 2020[1]

Year	Population (000)	Dentists	Pop/DDS
2010	5,751	3,161	1,820
2012	5,822	3,199	1,821
2014	5,894	3,239	1,822
2016	5,966	3,278	1,822
2018	6,038	3,318	1,822
2020	6,110	3,358	1,823
Change	6.25%	6.23%	-

Table 4
Percentage of Delta and Medicaid Children (12 Months Continuously Enrolled), Ages 0 to 20 Years, Visiting Dentists One or More Times by Selected Counties, 2008[1]

Measure	Delta	Medicaid
Mean	66.4%	40.5%
Maximum	78.9 (Burnett)	68.2% (Price)
Minimum	44.4 (Iron)	18.0% (Milwaukee)

Table 5
Characteristics of Wisconsin Federally Qualified Health Center Dental Clinics, 2009[1]

Variable	Number
Clinic Sites	15
FTE Dentists	53
FTE Hygienists	38
FTE Other Staff	107
Visits	140,058

Table 6
FQHC Clinics, Non-FQHC Clinics, Marquette School of Dentistry, and Tribal Clinic Services to the Wisconsin Medicaid Population

Institution	Clinics	Patient Visits	Patients
FQHCs Clinics	21*	136,110	59,178
Non-FQHC Clinics	3**	21,827	12,426
Marquette Dental School	1	29,598***	4,933
Tribal Clinics****	8	12,224	5,314
Total	33	199,759	81,851

* 14 FQHCs with 21 clinics.
** Three clinics are partnered with MUSOD.
*** The number of visits per patient is unknown. A reasonable estimate is 6.
****The number of visits is based on scheduled appointments and not actual visits. The number of patients is estimated assuming 2.3 visits per patient.

Table 7
Dental Utilization Rate by Federal Poverty Levels for Children and All Ages, 2004[2]

Federal Poverty Level	Utilization Rates	
	<21 Yrs	All Ages
<100	30.8%	26.5%
>100 to<200	33.9%	29.9%
>200 to<400	46.5%	41.9%
>400	61.8%	57.9%

Table 8
General Dental Practice Production Function for Gross Billings Per Practice 2008[1]

Variables	% Output Response to a 10% increase in:
Dentist Hours	2.06
Auxiliary Hours	5.39
Dental Operatories	4.41
Number of Locations	N/A*
PCT Self-pay	-3.07

* Not significant at a = .05.
R2 = .810, F = 124.99, N = 153

Table 9
Percent Distribution of Service Categories for Medicaid Children (<21 Years) Continuously Enrolled for 12 months, 2008[1]

Service Category	Percent
Diagnostic	34.70
Preventive	40.32
Restorative	15.00
Endodontics	1.03
Periodontics	0.36
Removable Pros	0.04
Fixed Pros	0.00
Oral Surgery	4.19
Orthodontics	2.28
Adjunctive	2.01

Figure 1
The County Distribution of Medicaid Utilization Rates for Children (<21 years of age) Continuously Enrolled for 12 Months, 2008[1]

Figure 2
The County Distribution of Delta Utilization Rates for Children (<21 years of age) Continuously Enrolled for 12 Months, 2008[1]

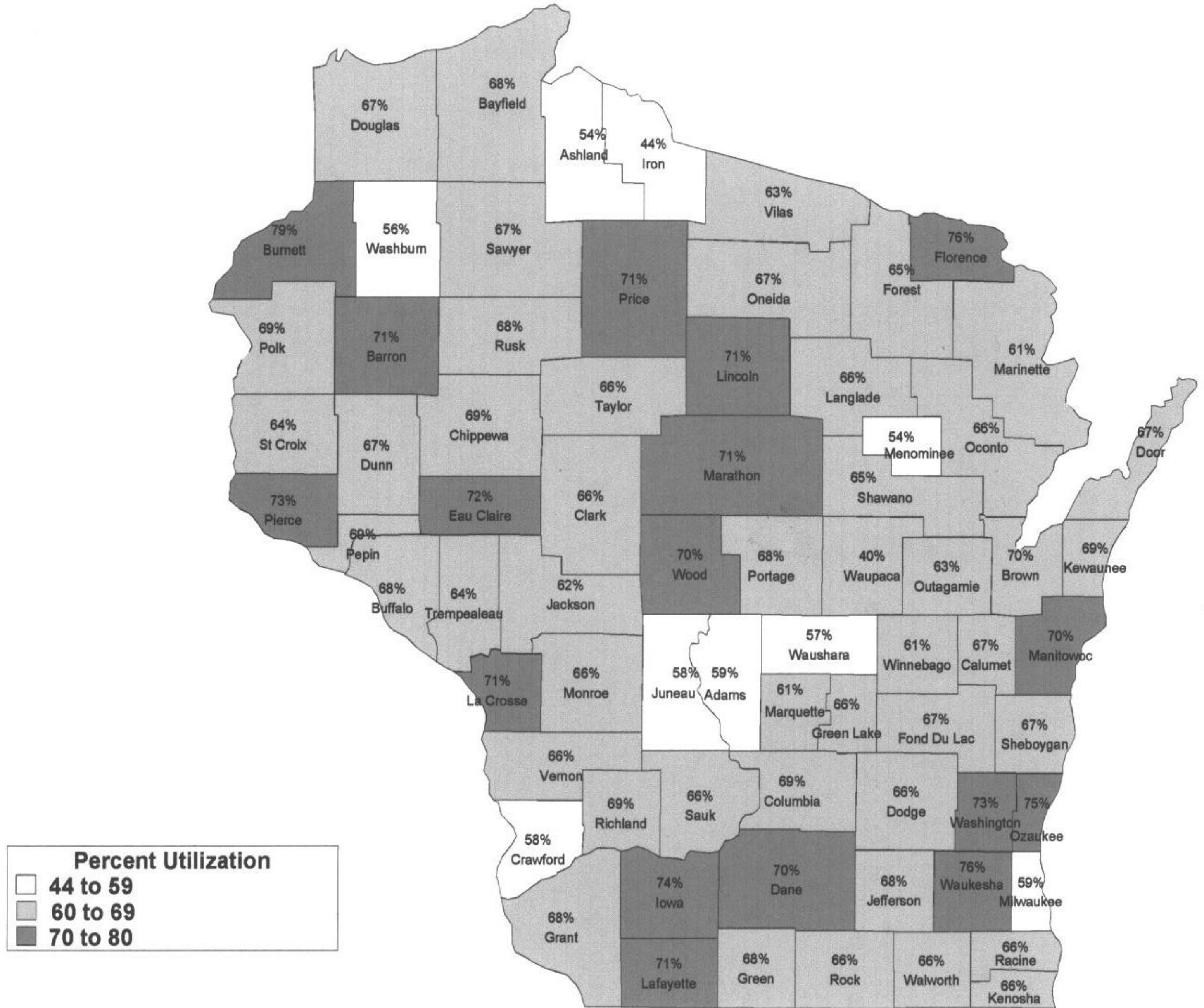

Figure 3

Utilization Rates for Medicaid Children <21 Years of Age Continuously Enrolled for 12 Months) and Population Per Dentist by County, 2008[1]

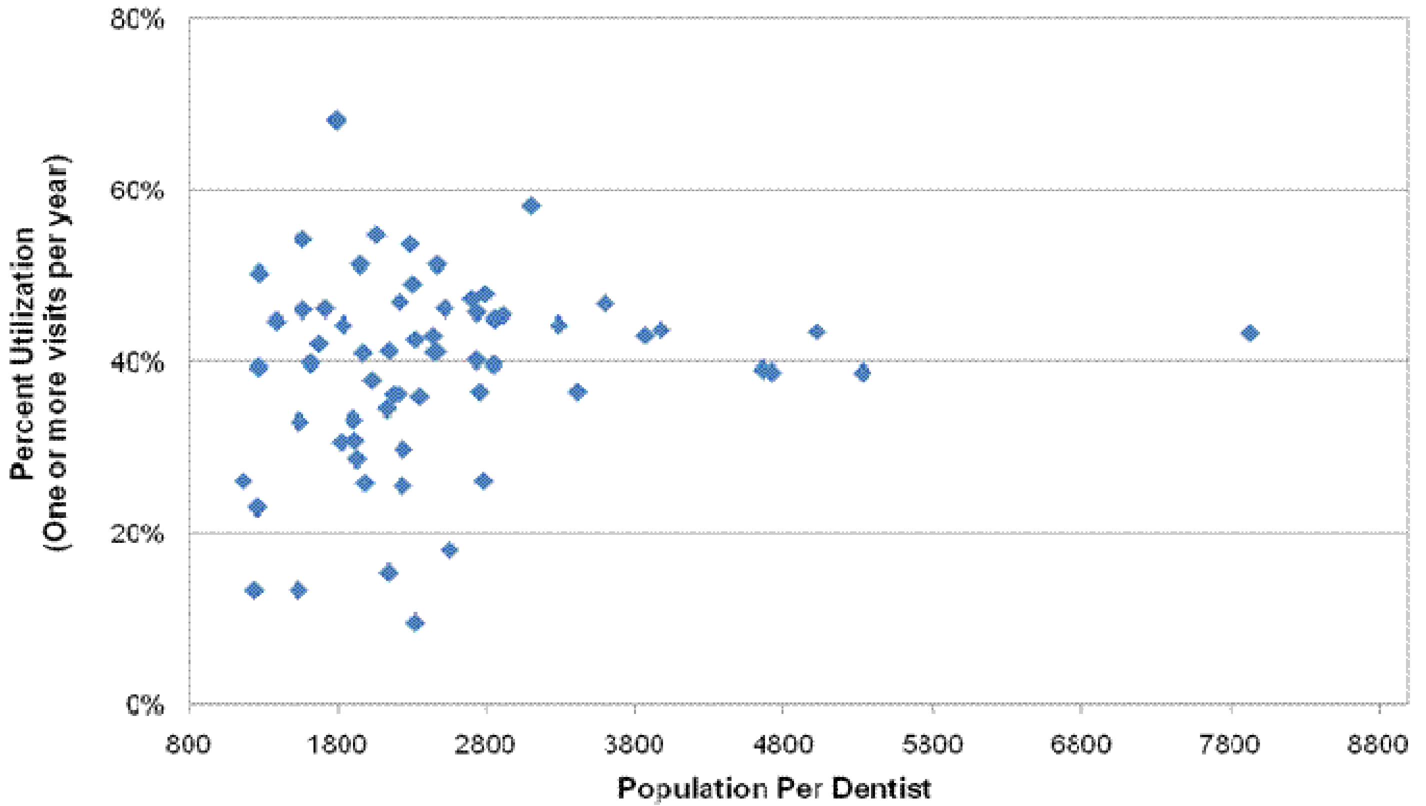

Figure 4

Comparative Utilization Rates for Children Enrolled for 12 Months in The Healthy Kids Dental Program, Delta Dental of Michigan Plan, and Traditional Medicaid Program, 2005.[6]

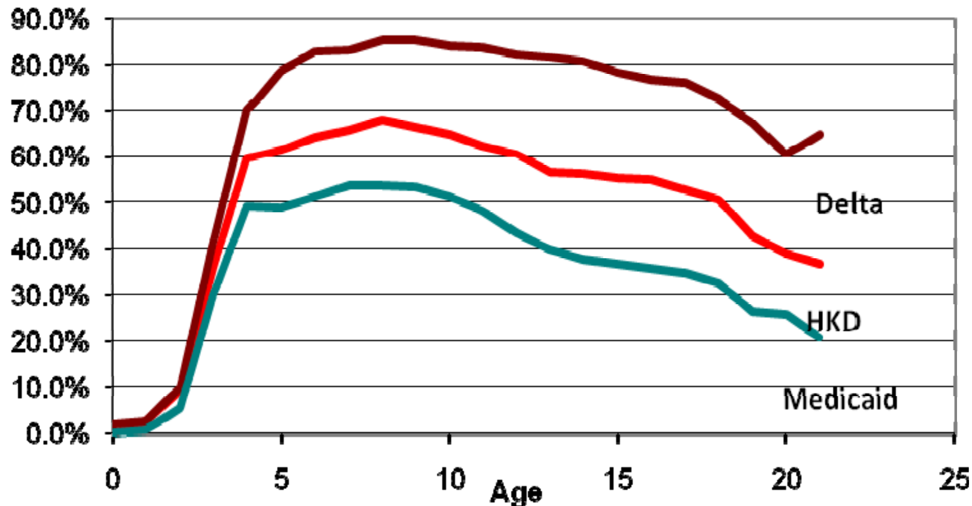

Figure 5
The County Distribution of the 196 Marquette University, School of Dentistry Applicants, 2009[1]

Attachment A
People Interviewed and the Issues Discussed by Project Objectives

Contact		Organization	1	2	3	4	5	6	7	8	9
Acharya	Amit	Marshfield Clinic	X		X	X	X				X
Barbeau	Lori	Dental Examining Board	X	X	X	X	X	X			
Bazan	William	Wisconsin Hospital Association	X	X	X	X	X				
Beckstrand	Lisa	UWI School of Health Sciences			X	X	X				
Bell	Lisa	DHS PH RDH	X		X	X	X	X			
Brooks	Mara	Wisconsin Dental Association	X	X	X	X	X	X	X		
Brown	Jack	Consultant, ADEA	X	X	X	X	X	X	X		X
Bunck	Ted	DHS Long-term Care	X				X				
Clemens	David	Consultant, Private Practice	X	X	X	X	X	X	X	X	
Cruz	Evelyn	DHS Minority Health	X		X	X	X				
Currans-Sheehan	Rachel	DHS Executive Assistant	X		X	X	X				
Dopp	Anne	DHS Primary Care				X					
Eckland	Steve	University of Michigan					X				
Endres	Kathleen	Dental Hygiene Assoc. WI	X	X	X	X	X	X	X		
Gehshan	Shelly	PEW Foundation		X						X	
Gilmore	Claude	DHS Minority Health	X		X	X	X				
Golden	Robert	UW Medical School			X	X	X				
Hager	Ron	Family Health Centers	X	X	X	X	X	X	X	X	
Harrison	Stephanie	WI Primary Health Care Association	X	X	X	X	X	X	X	X	
Helgerson	Jason	DHS DHCAA	X	X	X	X	X	X	X		
Jauch	Robert	WI Senator	X	X	X	X	X				
Kahn	Carrie	DHS Legislative Liaison	X	X	X	X	X				
Kilsdonk	Joseph	Marshfield Clinic	X	X	X	X	X	X	X	X	X
Kladnitsky	Alek	WI Primary Health Care Association				X	X				
LeMay	Warren	DHS Public Health	X	X	X	X	X	X	X	X	X
Lobb	William	Marquette University School of Dentistry	X	X	X	X	X	X	X		
McKenney	Nancy	DHS Workforce Development		X	X	X	X				
Nycz	Greg	Family Health Centers	X	X	X	X	X	X	X	X	X
Ordinans	Karen	Children's Health Alliance	X	X			X	X			
Ouapa	Fabienne	DHS Minority Health	X		X	X	X				
Rodriguez	Julio	Wisconsin Dental Association	X	X	X	X	X	X	X		
Shepherd	Janice	UWI School of Health Sciences			X	X	X				
Shumacher	Deborah	WI Dental Hygienists' Assoc.	X	X	X	X	X	X	X	X	

Starren	Justin	Marshfield Clinic	X		X	X					X
Stover	Sheila	Consultant Marquette	X	X	X	X	X	X	X	X	
Stratman	Erik	Marshfield Clinic	X	X	X	X	X				X
Timberlake	Karen	DHS Department Secretary	X	X	X	X	X	X	X	X	X
Tomlinson	Ken	Consultant, U. Florida	X	X	X	X	X	X	X		
Ulrich	Karl	Marshfield Clinic	X		X	X					
Vandehaar	Kent	Wisconsin Dental Association	X	X	X	X		X	X		
Wesbrook	Steve	Marshfield Clinic	X		X	X					
Ziebert	Anthony	American Dental Association			X	X					

Project Objectives

1 - Assess the Wisconsin access problem
2 - Review strategies used by other states
3 - Examine feasibility of dental school proposed by the Marshfield Clinic
4 - Determine impact of other educational strategies
5 - Consider non-educational strategies
6 - Estimate impact of mid-level-providers and dental auxiliaries
7 - Comment on integration of medical and dental services
8 - Describe need for additional studies
9 - Compare promising interventions in terms of costs and access

Attachment B
Medicaid and Delta Utilization Rates for 12 Month Continuously Enrolled Children and Adults by County

Table 2. 2008 Utilization Rates by Type

County	Medicaid				Delta		
	Ever Enrolled	Continuously Enrolled			Continuously Enrolled		
	All	Under 21	Over 20	All	Under 21	Over 20	All
Adams	0.268	0.389	0.287	0.337	0.589	0.542	0.555
Ashland	0.337	0.489	0.433	0.462	0.542	0.556	0.552
Barron	0.300	0.450	0.404	0.425	0.710	0.722	0.718
Bayfield	0.364	0.547	0.375	0.460	0.676	0.589	0.615
Brown	0.201	0.330	0.256	0.298	0.699	0.679	0.685
Buffalo	0.275	0.451	0.343	0.393	0.684	0.659	0.667
Burnett	0.297	0.473	0.326	0.397	0.789	0.707	0.732
Calumet	0.145	0.230	0.223	0.227	0.668	0.680	0.676
Chippewa	0.334	0.513	0.449	0.482	0.691	0.665	0.673
Clark	0.327	0.493	0.420	0.458	0.655	0.625	0.635
Columbia	0.191	0.362	0.362	0.362	0.689	0.654	0.664
Crawford	0.249	0.426	0.298	0.357	0.583	0.529	0.547
Dane	0.255	0.421	0.317	0.372	0.702	0.685	0.690
Dodge	0.214	0.351	0.275	0.314	0.659	0.667	0.664
Door	0.176	0.259	0.230	0.244	0.671	0.683	0.679
Douglas	0.284	0.491	0.352	0.416	0.672	0.582	0.607
Dunn	0.295	0.444	0.360	0.402	0.666	0.625	0.638
Eau Claire	0.286	0.447	0.367	0.406	0.717	0.676	0.689
Florence	0.212	0.391	0.302	0.340	0.765	0.655	0.681
Fond du Lac	0.213	0.308	0.295	0.301	0.670	0.661	0.664

Forest	0.313	0.513	0.379	0.442	0.653	0.546	0.577
Grant	0.227	0.412	0.267	0.332	0.681	0.632	0.647
Green	0.174	0.262	0.211	0.236	0.682	0.655	0.664
Green Lake	0.264	0.426	0.384	0.404	0.662	0.650	0.654
Iowa	0.218	0.388	0.216	0.302	0.742	0.676	0.698
Iron	0.379	0.581	0.450	0.505	0.444	0.587	0.540
Jackson	0.215	0.397	0.268	0.332	0.622	0.555	0.577
Jefferson	0.242	0.346	0.394	0.369	0.676	0.663	0.667
Juneau	0.258	0.388	0.283	0.335	0.580	0.574	0.576
Kenosha	0.149	0.229	0.264	0.244	0.663	0.640	0.647
Kewaunee	0.141	0.180	0.232	0.206	0.693	0.646	0.661
La Crosse	0.257	0.394	0.357	0.375	0.711	0.684	0.692
Lafayette	0.223	0.434	0.234	0.333	0.706	0.659	0.673
Langlade	0.295	0.443	0.369	0.406	0.658	0.623	0.634
Lincoln	0.260	0.412	0.344	0.376	0.708	0.682	0.690
Manitowoc	0.218	0.411	0.232	0.321	0.705	0.722	0.717
Marathon	0.248	0.399	0.357	0.379	0.711	0.701	0.704
Marinette	0.236	0.359	0.339	0.348	0.615	0.644	0.635
Marquette	0.253	0.436	0.306	0.361	0.611	0.601	0.604
Menominee	0.352	0.537	0.382	0.477	0.536	0.466	0.496
Milwaukee	0.230	0.304	0.306	0.305	0.597	0.611	0.607
Monroe	0.259	0.410	0.343	0.379	0.661	0.621	0.634
Oconto	0.245	0.365	0.320	0.343	0.661	0.627	0.638
Oneida	0.261	0.461	0.328	0.397	0.670	0.684	0.680
Outagamie	0.156	0.230	0.267	0.248	0.629	0.637	0.634
Ozaukee	0.194	0.262	0.354	0.310	0.746	0.708	0.721
Pepin	0.246	0.412	0.268	0.333	0.688	0.671	0.676
Pierce	0.275	0.462	0.412	0.436	0.726	0.660	0.679

Polk	0.297	0.469	0.404	0.437	0.693	0.680	0.684
Portage	0.326	0.543	0.392	0.465	0.682	0.673	0.676
Price	0.410	0.682	0.464	0.560	0.710	0.663	0.675
Racine	0.169	0.244	0.287	0.262	0.655	0.633	0.640
Richland	0.278	0.468	0.378	0.421	0.686	0.649	0.661
Rock	0.254	0.379	0.328	0.357	0.656	0.630	0.638
Rusk	0.336	0.549	0.448	0.497	0.679	0.609	0.633
Sauk	0.198	0.333	0.256	0.296	0.658	0.645	0.649
Sawyer	0.291	0.462	0.375	0.421	0.672	0.592	0.608
Shawano	0.255	0.457	0.295	0.377	0.646	0.612	0.623
Sheboygan	0.195	0.306	0.299	0.303	0.670	0.688	0.682
St. Croix	0.240	0.362	0.394	0.377	0.644	0.619	0.626
Taylor	0.251	0.431	0.333	0.380	0.662	0.661	0.662
Trempealeau	0.276	0.438	0.397	0.416	0.643	0.580	0.602
Vernon	0.276	0.455	0.330	0.390	0.664	0.625	0.638
Vilas	0.219	0.430	0.315	0.377	0.630	0.676	0.662
Walworth	0.182	0.297	0.251	0.278	0.660	0.635	0.643
Washburn	0.292	0.479	0.338	0.402	0.556	0.618	0.600
Washington	0.193	0.256	0.335	0.294	0.732	0.725	0.728
Waukesha	0.228	0.317	0.365	0.342	0.756	0.722	0.733
Waupaca	0.229	0.402	0.277	0.331	0.598	0.592	0.594
Waushara	0.223	0.365	0.302	0.333	0.574	0.599	0.591
Winnebago	0.195	0.286	0.299	0.292	0.610	0.617	0.615
Wood	0.305	0.504	0.370	0.438	0.705	0.708	0.707

Attachment C
Executive Summary of Marshfield Clinic Dental School Proposal, 2009

Executive Summary - Introduction

Background
Improved oral health, rural and underserved workforce development, and sustainable dental school economics converge at community health centers. As the Family Health Center of Marshfield, Inc is Wisconsin's largest community health center and as its workforce needs are expanding to improve the oral health of patients within the Clinic system, the feasibility of a Marshfield Clinic School of Dentistry is investigated. If established, a School of Dentistry could create an avenue for Marshfield Clinic to fulfill its mission, strengthen its capacity to address society's needs, stabilize sustainable organization operations, and foster regional enterprise.

Purpose
The purpose of the feasibility study is to serve as a guiding document for the Marshfield Clinic Executive Committee and Board and to serve as a reference document for potential stakeholders, surrounding the feasibility of a Marshfield Clinic dental school.

Mission Fulfillment
A dental school, if established, provides an avenue for Marshfield Clinic to meet its mission. The Marshfield Clinic School of Dentistry would compliment the health-care and research components of the Clinic's tri-part mission. Oral disease is typically systemic, with broader health implications for individuals, populations, and communities. Integration of dental education within the Marshfield Clinic medical paradigm would encourage enhancements in health practices, referral patterns, and learning experiences. It would facilitate development and use of an integrated EMR, and increase Family Health Center's capacity to address patient needs. It would expand the Marshfield Clinic sphere of influence by graduating dentists that would both embed in Family Health Center clinics and disperse to other centers. In addition, if established, it would foster new fields of study and new opportunities for funding for the Marshfield Clinic Research Foundation.

Meeting Society's Needs
A dental school, if established, would allow Marshfield Clinic to take a regional and national leadership role in addressing the 'Silent Epidemic.' The nation's rural and under-served populations are experiencing an oral disease burden and paucity of oral health providers, called a "Silent Epidemic" by the Surgeon General. The nation's first rural-based, health center- integrated dental school would allow Family Health Center to pursue its dream of oral health access for all Wisconsinites. It would also position Marshfield Clinic as a national leader, addressing the critical dental work-force shortage experienced by the nation's safety-net of Community Health Centers.

Enhancing Organizational Stability & Sustainability

If established, a dental school would provide an operational and financial counterbalance to the clinical care and health research endeavors of Marshfield Clinic. Economic and fiscal resource cycles for health care could be offset from those in education. A Marshfield Clinic School of Dentistry would provide an economic diversification that would enhance the organization's stability and sustainability. It would provide an enlarged base for supporting the overhead of certain Clinic services and educational functions, essential for providing patients with high quality and accessible health care. It would help maintain Marshfield Clinic's strategic advantage by engendering further leadership through innovation. It would enhance the Clinic's ability to recruit against other systems (such as Mayo), by creating and offering joint clinical/academic programs. In addition, it would expand the basis for Marshfield Clinic funded research offerings and development opportunities including generation of eventual alumni from whom to seek support.

Fostering Regional Enterprise

If established, a graduate level health professions university would strengthen the economic base of central Wisconsin and the region. Classic regional economic development models place higher education as a foundational strategy. Those models typically describe a developmental pattern of education fostering creativity, creativity fostering ideas, ideas fostering new and improved products and services, new products and services fostering jobs, and jobs providing the economic basis for community. Both the training of professionals who would live and work in rural communities, and the creativity/ideas that undergird economic development, would result from a dental school at Marshfield Clinic.

Executive Summary – Descriptions

Asset Inventory

Marshfield Clinic has a distinct asset mix which positions the organization to establish a rural-focused, needs-based, Community Health Center-partnered dental school. The Clinic is known for its reputation, quality, size, rural location, and research prowess. Its' Family Health Center is unique among Community Health Centers for the same reasons, and because that affiliation allows systemic medical approaches to care plus insurance that allows full spectrum coordination of care for communities. Marshfield Clinic's unique asset mix has positioned the organization to bolster its role amongst health care providers, and assume a national leadership position amongst Community Health Centers.

Model

Marshfield Clinic has neither the systems nor culture to start-up or operate a graduate, health professions, degree- granting college. Without these, the independent start-up and operation of a college would be problematic and cost prohibitive. Outside organizations have the systems and cultures to start and/or run a dental school, but do not have local relationships or organizational visions that would lead to their long-term adherence to Family Health Center's purposes. A significant portion of this study was spent identifying a strong academic model.

The proposed model has Marshfield Clinic maintaining ownership, governance and control of a new dental school, while contracting with an academic partner for the didactic and psychomotor-skill education components typically delivered in the first two years of dental school. Accreditation, licensing, start-up, faculty, student-recruitment, content, delivery, and other elements of those first two years of education would be provided through this partner. The learning model would be needs-based and competency-driven, and could include training in public health or dental specialty care, and features a self-funded scholarship program to best prepare and reward students for working with the under-served. A small cadre of learning coordinators would facilitate short intensive courses taught by visiting faculty. The visiting faculty would be drawn from partner universities, world experts and community responsive dentists.

Family Health Center would utilize a clinical service-education model to both train the future dentists in the third and fourth year of their education, and provide care for the health center's population base. The Clinic-based training would provide the ability to adapt curriculum, motivate faculty, and respond in a timely manner to healthcare advances and trends including the potential creation of team-based and integrated learning opportunities with medicine.

Relationships

Relationships would be part and parcel to the success of a Marshfield Clinic School of Dentistry. The proposed model would require partnerships with an educational entity for design, accreditation, and start up of a school, as well as possible partnerships with other Community Health Centers for expanded clinical education. The new school would also cement relationships with strategic Marshfield partners and elevate Marshfield's leadership role among safety-net providers,

Fiscal Sustainability

The proposed model for a School of Dentistry at Marshfield would be fiscally viable. Applicant interest in dental school is strong enough that price has limited impact on demand. Projected tuitions in the various pro forma models utilized for this feasibility study targeted the mid-point for private schools. The proposed model reduces costs over that of traditional schools by minimizing on-site full-time faculty and covering clinical education costs through service-learning in the Family Health Centers. With the ability to flex revenues, and with reduced operating costs, a Marshfield Clinic School of Dentistry would be fiscally viable across a range of scenarios. The principal fiscal variable for those scenarios would be the strategy chosen for start-up capital. If funds are raised, operations provide significant early support for self-funded scholarships. If funds are borrowed, some of the scholarship funds need be utilized to repay the loan. In either scenario, Marshfield Clinic's fiscal contribution was limited to contributing land for standing up the facility [if in Marshfield].

Executive Summary – Considerations

If Marshfield Clinic moves forward in further evaluating the potential for a School of Dentistry, it should consider essential licensing and accreditation requirements, the

impact of timelines on windows of opportunity, prudent use of the Clinic's critical resources, and implications for additional degree granting educational endeavors.

Licensing & Accreditation

Gaining accreditation (and to a lesser extent, licensing) for a school at Marshfield would require creative and skillful effort because it is outside of the organization's current purview. There are three major steps in gaining licensing and accreditation; state licensure as a post-secondary education institution, accreditation for the dental school, and regional accreditation as a recognized graduate college. These are each time-consuming, costly, and tedious necessities. In addition, accrediting guidelines assume the pre-existence of a program within a college. There are a variety of options available for addressing this dilemma. Since these strategies involve differing time lines and/or varied relationships for the new school, the next steps in planning should include a focus on licensing and accreditation with the stakeholders involved.

Timeline

Establishment of a Marshfield Clinic School of Dentistry would take 3-5 years. A variety of factors influence the timeline for establishing a school. These include timelines and queues for licensing and accreditation, procurement of start up funding, cycles for posting guidelines and marketing for recruitment of students, staffing, facilities, and equipment. Timing would be of fiscal significance to Family Health Center as it gears up with facilities. Given the windows of opportunity relative to each factor and other entries into the market, the next steps in planning should also include careful evaluation of planned timing. If necessary, those plans should include (bridging) options for gaining Family Health Center-embedded students and/or residents in the event of a prolonged interim.

Critical Resources

The critical resources for Marshfield Clinic in establishing a School of Dentistry are organizational commitment and the dedication of key employees.

Important capital resources for the start-up of a Marshfield Clinic School of Dentistry, as proposed, are land and start-up capital of approximately twenty-three million dollars. If in Marshfield, the land would need to be designated by Marshfield Clinic. The start-up capital could be raised or borrowed, each requiring support for backing by Marshfield Clinic.

Important resources for operational success of a Marshfield Clinic School of Dentistry are students, faculty, and clinical experiences. There are three qualified applicants in the country for each dental school opening. Some schools have in excess of forty applicants per opening. Marshfield Clinic School of Dentistry could engage the academic partner to assist in recruiting community-minded applicants. The faculty model relies on a handful of coordinators to organize content and monitor delivery utilizing visiting learning facilitators as is done at A.T. Still University [ATSU]. Clinical experiences require populations seeking care in volumes to support education, and

clinics where that care would be organized and delivered. Family Health Center would have both the volume of demand and clinics.

The critical resource for Marshfield Clinic in establishing a School of Dentistry, however, is opportunity cost. Organizational commitment, dedication, and creative energy focused on evaluations for establishment of a Dental School would limit organizational ability to pursue other ventures and endeavors. Marshfield Clinic should verify that continued evaluation is a prudent investment of organizational energy particularly for Family Health Center and the Division of Education.

Next Steps

If Marshfield Clinic moves forward special attention needs to be paid to licensing and accreditation requirements, stakeholder engagement, the impact of timelines on windows of opportunity, prudent use of the Clinic's critical resources, and implications for additional degree granting educational endeavors.

Attachment D
Summary of Recommendations

Recommendations	Access	Costs	Implementation	Time
High Priority Short-Term				
Develop FQHC run school-based care system and increase utilization from 40% to 55% for 12 month enrolled children.	Number of children seen annually increases 31,455	Total $11M; $4.4M for State	There are no significant legal or financial barriers to the program.	Fully implement in 24 months
Expand general dental residency programs at MUSOD and MC to 45 residents/year	45 residents see 39,000 more patients in FQHCs	Total $15.7M; $6.3M for State	If MUSOD and MC get GME support for residents, the plan if feasible.	Fully implement in 36 months
Increase FQHC visits /dentist from 2,641 to 3,384.	For 74 FQHC dentists number of patients treated annually increases by 23,905.	Total $9.6M; $3.8M for State	Requires better use of more allied health personnel and management.	Fully implement in 24 months
Pilot-test private insurer run Medicaid for children in a few low utilization counties.	For 16,000 children increase utilization from 25% to 55%	Total 2.5M; $1.0M for State	The pilot replicates Michigan experience.	Fully implement in 24 months
Increase utilization in 4 MCO counties to 36% for ever enrolled	74,990 more members obtain care	Total $21.8M; $8.7M for State	Not clear how to solve access problem in MCO counties.	Probably 3 to 4 years.
Lower Priority Long-Term				
Increase Wisconsin graduates from MUSOD and MC	Students from poor rural families, repay loans with practice in underserved areas.	State provides some financial aid to students	Framework for program already established at MUSOD.	Fully implement 48 months
Expand safety net clinics, especially FQHCs.	Large increase in access, if expansion follows regional plans and clinics are well-managed	Significant growth in Medicaid budget	Key challenges are developing and following regional expansion plans and management strategies.	Implement over next 10 years.
Increase use of Allied Dental Health Personnel	Better use of hygienists, assistants, EFDAs and DHATs will increase supply dental services	As more Medicaid patients treated, State budget will increase.	Complex problem requiring training of dentists and system administrators.	Evolve slowly over next 10 years