Private sector approaches to workforce enhancement

Wayne R. Wendling, PhD

American Dental Association, Health Policy Resources Center

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Correspondence
Dr. Wayne R. Wendling, American Dental Association, Health Policy Resources Center, 211 East Chicago Avenue, Chicago, IL 60611. Tel.: 312-440-7745; Fax: 312-440-7461; e-mail: wendlingw@ada.org. Wayne R. Wendling is with the American Dental Association, Health Policy Resources Center.

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Abstract

Objectives: This paper addresses the private practice model of dental care delivery in the US. The great majority of dental care services are delivered through this model and thus changes in the model represent a means to substantially change the supply and availability of dental services. The two main forces that change how private practices function are broad economic factors, which alter the demand for dental care and innovations in practice structure and function which alter the supply and cost of services.
Methods: Economics has long recognized that although there are private market solutions for many issues, not all problems can be addressed through this model. The private practice of dentistry is a private market solution that works for a substantial share of the market. However, the private market may not work to resolve all issues associated with access and utilization. Solutions for some problems call for creative private – public arrangements – another form of innovation; and market-based solutions may not be feasible for each and every problem. This paper discusses these economic factors and innovation as they relate to the private practice of dentistry, with special emphasis on those elements that have increased the capacity of the dental practice to offer services to those with limited means to access fee-based care.
Results: Innovations are frequently described as new care delivery models or new workforce models. However, innovation can occur on an ongoing and regular basis as dental practices examine new ways to combine capital and human resources and to leverage the education and skill of the dentists to a greater number of patients. Innovation occurs within a market context as the current and projected economic returns reward the innovation. Innovation can also occur through private–public arrangements.
Conclusions: There are indications of available capacity within the existing delivery system to expand service delivery. The Michigan Medicaid Healthy Kids Dental program is discussed as one example of how dental services to Medicaid insured children were effectively expanded using the private practice model.

Background

According to the report, Trends in Oral Health Status in the United States, 1988-1994 and 1999-2004, "For most Americans, oral health status has improved between 1988 and 1994 and 1999-2004. For seniors, edentulism and periodontitis has declined; for adults, improvements were seen in dental caries prevalence, tooth retention, and periodontal health; for adolescents and youths, dental sealant prevalence has increased and dental caries have decreased; however, for youths aged 2-5 years, dental caries in primary teeth has increased" (1).

Dental utilization over this time period declined for most adults between the ages of 20 and 49 years of age (1). This decline in utilization may reflect general lower disease rates or may be caused by decreasing access (possibly because of economic or other problems) for a growing number of individuals. Evidence from the National Health Interview surveys documents that roughly two-thirds of the US population

accesses the private delivery system within any given 12-month period (2). However, there is also evidence that showed that for the remainder of the US population, access to care through the traditional, fee-for-service private dental offices was difficult. Thus, any solution aimed at improving overall access would necessarily need to focus on measures that would either improve access to private practice-based care or expand alternative modes of care delivery, such as rebuilding the public oral health infrastructure. According to a report from The Pew Center on the States, there are two factors giving rise to unmet needs: "the relatively low level of public financing to subsidize payments for care and the lack of an adequate safety net system for the roughly one-third of the population not served by the private dental care system. While poor children are guaranteed dental coverage through Medicaid, states are not required to provide dental benefits for adults also covered by Medicaid" (3).

The purpose of this article was to provide an overview of factors that are likely to change the amount of care available and delivered to the US population through private dental offices, and to discuss how innovation can improve care delivery and access within the private practice framework. Alternatives to private practice-based care are discussed elsewhere in this issue. In addition, this article will review how economic and demographic changes will influence access to care through private dental practice in the foreseeable future, and discuss how changes and innovations in the way care is delivered in private dental practice could lead to improvements in access by increasing the efficiency of care delivery.

The current private practice delivery system: successes and challenges

Private practice in the United States is based on market principles. This model offers both benefits and drawbacks to all of the associated stakeholders concerned with the delivery of dental services. From the dentist/owner perspective, this model provides flexibility to establish a dental practice wherever one chooses. This model rewards efficiency in care delivery by maximizing profits for the dentist/owner, but also confers all financial risk to the dentists. Furthermore, dentists often view service delivery through the lens of a competitive or entrepreneurial model: patients are viewed as customers, and customer satisfaction and retention are critical given the patients/consumers can choose from alternative providers in the marketplace. From a patient/consumer perspective, patients are free to shop for services and select providers using whatever criteria they deem appropriate.

Many dentists in the private delivery system seek to establish long-term relationships with patients and families. Many dentists encourage regular preventive care visits, provide counsel on appropriate oral health and hygiene, and conduct oral cancer screenings. Over 70 percent of the procedures received by patients are either diagnostic or preventive in nature (4).

This model does not guarantee access to those without the resources (out-of-pocket cash or dental insurance) to convert need into effective demand, and consequently, private dental practices may not be distributed to meet all needs. For example, it may not be economically feasible to establish a private practice in sparsely populated rural areas or in other areas where the population has severe financial barriers to purchasing care. The result of all of these factors is that the private practice model cannot guarantee access to all in need.

As many dentists are also business owners, they must manage their practices and employees as such. The overhead for a solo practitioner (before any compensation to the dentist is received) often exceeds 60 percent of gross collections (5), necessitating a substantial need to manage daily cash flow to ensure payroll and personal income requirements. As a result, a dentist in private practice must balance the realities of maintaining a financially sound practice (up-to-date equipment, adequate compensation for employees) with any efforts to address the unmet needs for oral health care in their community. More than 70 percent of dentists in 2007 provided uncompensated or deeply discounted care to those with unmet needs based on American Dental Association (ADA) survey data; nevertheless, many patients will continue to remain outside the reach of a private practice solution (5).

The economy and utilization of dental services

The private delivery of dental care operates within the broader US economy, and as such is sensitive to changes in the US economy. The demand for dental care is elastic. Although the US economy has been in a recession since December 2007, the economy has stagnated for a much longer time period and many have lost ground economically (6). Between 2000 and 2008, the median household, one with an income of approximately $50,000, has lost approximately $2,000 in real income (Figure 1).

Real dental expenditures (2008 = base year) grew from $63.6 billion in 1980 to $90.3 billion in 2000. Real dental expenditures have grown to $101 billion for 2008; but 90 percent of that growth occurred between 2000 and 2004 (7). As shown in Figure 2, real per capita dental expenditures (all measured in 2008 dollars) also grew during this period from $277 in 1980 to $300 in 1990, and peaked at $342 in 2002. The growth has stalled. Real per capita expenditures for dental services (2008 dollars) have declined from their peak of $342 in 2002 to $332 per person in 2008.

In the 1980s and 1990s, there was a steady growth in utilization of dental services, as the percent of the population 2

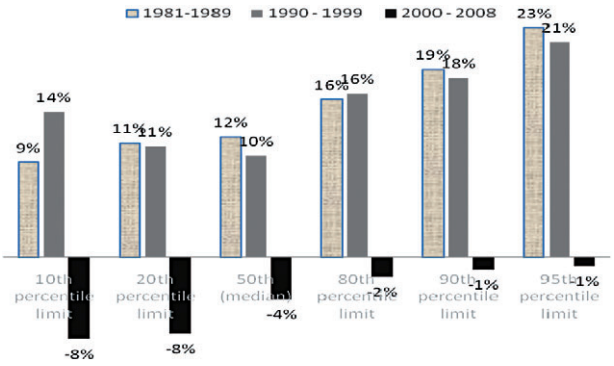

Figure 1 Real income growth by decade by household income percentile. Source: Health Policy Resources Center calculations based upon data from the US Census Bureau, *Current Population Reports*. Household incomes were converted to 2008 Dollars by Census.

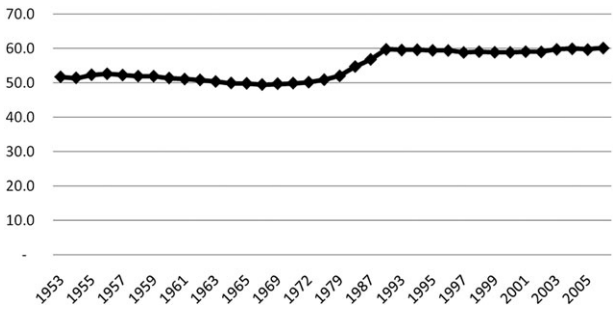

Figure 3 Professionally active dentists per 100,000 resident population. Source: Health Policy Resources Center, 2008 American Dental Association Dental Workforce Model, 2006-2030, American Dental Association, 2009 and Survey Center, The Number of Dentists in the United States, 1900-2000, American Dental Association, 2002. © 2010 American Dental Association. All Rights Reserved.

years of age and older with a dental visit during the previous 12 months grew from 53 percent in 1980 to 65 percent in 1997, and stabilized at approximately 65 percent for several years thereafter. Data from 2008, however, show that this utilization rate has now fallen to 63 percent (2). The reason for this decline is not clear, but is likely related to the recent downward economic trends. The economy is substantially worse now than during much of the 1980s and 1990s, with high employment in the US population likely resulting in less disposable income and dental insurance coverage. Although the presence of health insurance does not indicate the presence of dental coverage, dental coverage is seldom present without health insurance. The percent of the population with employment-based health insurance has declined six percentage points since 2000 (6). Therefore, although we tend to focus on the economic downturn that began in December 2007, there has been longer-term stagnation in the economic

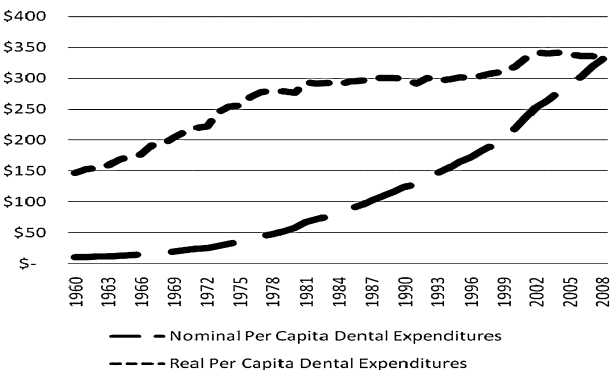

Figure 2 Nominal and real per capita dental expenditures (2008 dollars). Source: CMS, National Health Expenditures, 1960-2008, Downloaded, January 5, 2010, and Health Policy Resources Center calculations using US Bureau of Labor Statistics, CPI Data Tables, Downloaded, January 5, 2010.

wherewithal of the population, which appears to be impacting the effective demand for oral health care.

Trends in the private delivery system

At the end of 2007, there were 181,725 professionally active dentists in the United States of which 166,837 were active in private practice (8). Approximately 84 percent of dentists active in private practice (whose primary occupation is private practice) have an ownership stake in their practice, 13 percent are employees or associates, and the remaining 3 percent are independent contractors. The primary practice form is that of a solo practice, and approximately 60 percent of dentists operate as solo practitioners, approximately 30 percent practice in arrangements with two to four dentists, and the remaining 10 percent are in practices with five or more dentists.

The number of professionally active dentists per 100,000 population is used by many individuals to describe the state of the dental workforce in the United States. As noted in Figures 3 and 4, the number of dentists per 100,000 population has grown from 50 dentists per 100,000 population to 60 dentists per 100,000 population between 1973 and 1991, and has stayed at that level through 2007. The number of professionally active dentists had grown at a much faster rate than the population, and is currently growing at the same rate as the population. The ADA currently projects that the number of professionally active dentists will be approximately 201,453 by 2030 without any additional dental schools coming on line. However, the population-to-dentist ratio is projected to decline to 54 dentists per 100,000 population by 2030 (9). The number of dental school graduates per year is projected to increase from 4,714 in 2007 to 5,968 by 2030, and the number of graduates is projected to be above 5,500 per

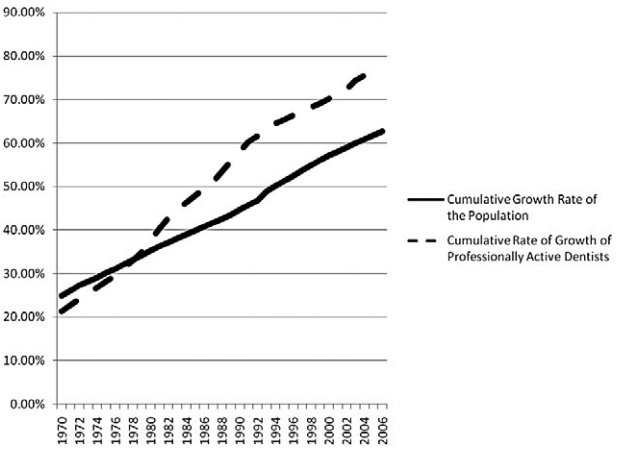

Figure 4 Cumulative growth rates of population and professionally active dentists. Source: Health Policy Resources Center, 2008 American Dental Association Dental Workforce Model, 2006-2030, American Dental Association, 2009 and Survey Center, The Number of Dentists in the United States, 1900-2000, American Dental Association, 2002.

year for each year 2020 and beyond without any additional new dental school opening (10).

Dental students exiting dental school are saddled with substantially greater debt (education debt in excess of $170,000) than in prior time periods. The cost of establishing a practice or purchasing a practice is in excess of $400,000 (11,12). It widely held that these economic realities alter practice choices of new graduates with regard to location of practice and approach to insurance participation. Therefore, without substantial incentives to alter choices, dentists will continue to choose practice locations in which they can make appropriate economic returns.

Females constitute 20 percent of all dentists active in private practice, and they are approximately 36 percent of all new dentists – those dentists who have been in practice for 10 years or less – and they are approximately 45 percent of current dental school students. One definition of full-time work for dentists is to work 32 hours per week or more. However, the full-time and part-time distinction creates more division between the work efforts than is the reality. Patient treatment hours for both male and female dentists are compared in Table 1. Generally, there is less than a 10 percent difference in the average hours spent treating patients between male and female dentists. This pattern holds for general practitioners between the ages of 35 and 54, the prime work effort and earnings ages, as well as for dentists of all ages, as shown in Table 2.

The ADA survey data suggest that dentists are not as busy as they had been during the prior decade. Dentists who are in their prime practice and earning years are reporting a decline in the number of hours treating patients of approximately 3 percent since the 1998-2000 period. There are two measures of workforce effort that are commonly used: total patient treatment hours and total practice hours. The mean number of total practice hours has declined from 1990 per year in the 1981-1985 time period for male owner dentists between the ages of 35 and 54 to 1,796 for the 2004-2006 time period for the same group of dentists. However, the mean number of patient treatment hours grew from 1,604 to 1,628 over these time periods for the same cohort of dentists. The mean number of patient treatment hours reached its peak at 1,695 per year during the 1988-1994 time periods. Patient treatment hours for male owner dentists between the ages of 35 and 54 declined across income levels by an average 2-3 percent for the 2004-2006 period relative to the 1998-2003 periods, based on unpublished data from the ADA Survey Center Consolidated database 1981-2006.

Table 1 Solo General Practitioner Owner Dentists between the Ages of 35 and 54

Average annual patient treatment hours across years			
Years	Patient treatment hours – male dentists	Patient treatment hours – female dentists	Ratio of male to female hours
1981-1985	1,607	1,450	1.11
1986-1988	1,636	1,519	1.08
1989-1991	1,695	1,610	1.05
1992-1994	1,697	1,618	1.05
1995-1997	1,666	1,564	1.06
1998-2000	1,659	1,544	1.07
2001-2003	1,651	1,553	1.06
2004-2006	1,621	1,476	1.10

Source: American Dental Association, Survey Center, *Survey of Dental Practice* 1982-2007.

Table 2 All General Practitioner Dentists between the Ages of 25 and 74

Average annual patient treatment hours across years			
Years	Patient treatment hours – male dentists	Patient treatment hours – female dentists	Ratio of male to female hours
1981-1985	1,564	1,408	1.11
1986-1988	1,597	1,448	1.10
1989-1991	1,645	1,491	1.10
1992-1994	1,639	1,547	1.06
1995-1997	1,613	1,487	1.09
1998-2000	1,602	1,496	1.07
2001-2003	1,585	1,444	1.10
2004-2006	1,558	1,434	1.09

Source: American Dental Association, Survey Center, *Survey of Dental Practice* 1982-2007.

In summary, the dentist workforce is changing and growing, but it will not be growing as fast as the overall population. From the private practice perspective, however, excess capacity may be the problem as patient treatment hours have declined, even after controlling for demographic changes in the dentist population.

Changes and innovations to private practice that could improve access and service delivery

Four types of changes could lead to a substantial decrease in the number of previously disenfranchised patients receiving care through private offices. A first approach to improve access would involve a lowering of the operating costs of a dental office (below the 60 percent overhead), thus making the provision of discounted services (at least to some patients) feasible. One way to lower office overhead is through innovations in the way dental offices are organized, staffed, and deliver care that increase efficiency. Second, improvements in (public) financing of dental care (e.g., increasing reimbursements for Medicaid, Children's Health Insurance Program) could result in greater opportunities for care within private offices by increasing the numbers of dentists that participate in public insurance programs. Third, volunteer efforts by dentists can contribute to improved access, and finally, development of the community dental health coordinator (CDHC) model is being tested as a workforce innovation to improve oral health education and access.

Many innovations have occurred in the last 30 years that have impacted the physical layout and structure of dental offices. As shown in Table 3, the typical solo practice has grown in terms of the number of operatories, staffing, and total patient visits. For example, the average number of operatories and FTE dental hygienists in solo practices in which the owner is a male and between the ages of 35 and 54 grew from 2.9 operatories to 3.8 operatories, and from 0.6 FTE dental hygienists to 1.09 dental hygienists between the early 1980s and the 2000s.

The growth in physical and human capital within the practice creates opportunities to manage practices more efficiently: establishing identical operatory suites within the practice provides greater flexibility in scheduling appointments, sterilization rooms and the use of sterile trays permits quicker room turnaround time, recovery rooms provide patients comfort and permit the operatory to be used for the next patient, practice management software reduces the hours needed to spend managing the practice. In addition, the use of expanded function dental assistants (EFDAs) allows the dentist to supervise and deliver care to more patients.

Table 3 Characteristics of Owner GP Dentists by Gender in Solo Practice between the Ages of 35 and 54

Gender	Grouped years	Total number/ operatories	Total FTE hygienists	Total FTE chairside assistants	Total patient treatment hours	Total annual patient visits	Visits per treatment hour
Male	1981-1985	2.9	0.60	1.20	1,607	3,441	2.14
Male	1986-1988	3.1	0.71	1.29	1,636	3,685	2.25
Male	1989-1991	3.2	0.78	1.33	1,695	3,933	2.32
Male	1992-1994	3.2	0.88	1.33	1,697	3,962	2.34
Male	1995-1997	3.4	0.93	1.42	1,666	3,911	2.35
Male	1998-2000	3.5	0.99	1.44	1,659	4,001	2.41
Male	2001-2003	3.8	1.13	1.46	1,651	4,228	2.56
Male	2004-2006	3.8	1.09	1.46	1,621	3,944	2.43
Female	1981-1985	2.3	0.39	1.01	1,450	2,518	1.74
Female	1986-1988	2.8	0.53	1.29	1,519	2,850	1.88
Female	1989-1991	2.9	0.66	1.14	1,610	3,428	2.13
Female	1992-1994	2.7	0.61	1.23	1,618	3,012	1.86
Female	1995-1997	2.9	0.67	1.32	1,564	3,115	1.99
Female	1998-2000	3.1	0.76	1.56	1,544	3,043	1.97
Female	2001-2003	3.3	0.83	1.19	1,553	3,146	2.03
Female	2004-2006	3.4	0.86	1.19	1,476	3,344	2.27
Total	1981-1985	2.9	0.60	1.19	1,605	3,431	2.14
Total	1986-1988	3.1	0.71	1.29	1,633	3,666	2.24
Total	1989-1991	3.2	0.77	1.32	1,692	3,915	2.31
Total	1992-1994	3.2	0.86	1.33	1,692	3,913	2.31
Total	1995-1997	3.4	0.91	1.42	1,657	3,841	2.32
Total	1998-2000	3.4	0.97	1.45	1,649	3,923	2.38
Total	2001-2003	3.7	1.10	1.44	1,641	4,123	2.51
Total	2004-2006	3.8	1.06	1.42	1,600	3,854	2.41

Source: American Dental Association, Survey Center, *Survey of Dental Practice* 1982-2007.

Table 4 Practice Characteristics of Solo Practice Owners between the Ages of 25 and 74

Grouped years	Number/ operatories	FTE hygienists	FTE chairside assistants	Patient treatment hours	Weekly practice visits	Weeks worked per year	Annual patient visits	Visits per treatment hour
1981-1985	2.9	0.6	1.19	1,605	72	48	3,431	2.14
1986-1988	3.1	0.71	1.29	1,633	76	48	3,666	2.24
1989-1991	3.2	0.77	1.32	1,692	81	49	3,915	2.31
1992-1994	3.2	0.86	1.33	1,692	81	49	3,913	2.31
1995-1997	3.4	0.91	1.42	1,657	80	48	3,841	2.32
1998-2000	3.4	0.97	1.45	1,649	81	48	3,923	2.38
2001-2003	3.7	1.1	1.44	1,641	85	48	4,123	2.51
2004-2006	3.8	1.06	1.42	1,600	80	48	3,854	2.41

Source: American Dental Association, Survey Center, *Survey of Dental Practice* 1982-2007.

The net effect of the growth in the resources available in the practice and management of those resources is that the average number of patient visits per hour has increased from 2.1 to more than 2.4, and the typical solo practice can accommodate between 12 and 20 percent more visits today than 25 years ago, based on the data provided in Table 3. The growth in resources and outputs is not limited to the 35-54 years group, generally the most productive age group, but extends across all age groups of dentists in private practice. As noted below in Table 4, since the 1981-1985 period, the number of patient visits per treatment hour has increased by 12 percent for the typical practice of a solo practitioner, and the number of visits per treatment hour has increased 23 percent for owner dentists across all general practitioner practices. Stated differently, 88 dental practices today, and perhaps even fewer, could serve the same number of patient visits as 100 dental practices during the first part of the 1980s.

Innovation in office staffing also has occurred. The most productive dentists tend to have two hygienists and more than two chairside assistants on their teams, and their practices tend to have between five and six operatories. Changes in office staffing, particularly with regard to dental hygienists, and EFDAs where permitted, will be based on the availability of licensed hygienists and appropriately trained EFDAs interested in employment, which is ultimately a function of the number of training programs.

The advances in practice management are more difficult to quantify, but economics has long recognized the importance of managerial skill needed for the effective combination of capital and human resources. Similarly, changes in office technology (e.g., paperless charting and expert systems) have the potential to improve quality and efficiency of care delivery, but have not been quantified.

However, the stagnation in per capita dental expenditures can be observed in the reduced number of patient treatment hours among dentists across the board. The reduction in treatment hours and total visits, particularly among dentists in the prime practice and earning years, suggests that there is available capacity in the private delivery system. The Michigan Healthy Kids Dental discussed below is one example in which the systems' excess capacity was used to provide care to individuals who had previously been disenfranchised from the system.

The solo practitioner is still the dominant delivery form, but not as dominant as it once had been. The percent of general practitioners not in solo practice has grown from 25 percent of dentists to almost 40 percent of dentists over the past 25 years (13). One possible benefit is that practices are able to offer longer practice and weekend hours, and make more efficient use of the capital investment.

Large group practices are also emerging. Some large group practices are multispecialty arrangements and can coordinate the total care of the patient. Other large group practices look very much like solo practice arrangements with many practice features standardized across locations.

Policy innovations have also the ability to improve access to care within private practice settings. One important example of how policy changes can improve access is the Michigan Medicaid "Healthy Kids Dental" program. This program demonstrated that marked improvements in oral health resource utilization among Medicaid beneficiaries can occur through changes in both remuneration and administrative procedures allow Medicaid coverage through existing commercial insurance programs (14). This is one type of private–public arrangement as the public Medicaid program was delivered on top of the private infrastructure of dentists in private practice and Delta Dental. The utilization of oral health services of children covered under this program started to approximate the utilization of children covered under commercial dental coverage policies within the existing capacity of oral health providers.

Under the Michigan Medicaid "Health Kids Dental," dentists were paid usual Delta Dental fees based upon the type of coverage, and it was administered according to Delta Dental's usual procedures. Children could use any participating provider, and program eligibility was based on the child's county

of residence, not the county of the dentists. Over 2,000 dentists who had not previously participated in Medicaid came into this program in Michigan. One benchmark of the program has been the percent of Healthy Kids Dental children who had been enrolled in the program at least 12 months and who had two preventive visits per year, and this benchmark has been compared to the percent for children meeting the same criteria covered under the standard commercial products (14). By 2003, Healthy Kids Dental achieved 82 percent of the benchmark of commercial products; by 2004, it achieved 83 percent of the benchmark and it rose to 86 percent of the commercial benchmark in both 2005 and 2006. In the first year of the program, it achieved 70 percent of the benchmark. The state of Michigan was experiencing unemployment rates that ranged between 5 and 7 percent for much of the 2001-2006 time periods (15).

Volunteerism and the provision to uncompensated are also another approach to extending care to those without resources to purchase care. The ADA has estimated that dentists in private practice provided $2.16 billion in uncompensated care during 2007. Over 70 percent of dentists provided uncompensated care during the year to targeted populations, which suggests that the value of uncompensated services provided by the typical dentist exceedes $13,000. Uncompensated care delivers substantial amounts of dental service, but is not an effective basis for a comprehensive delivery system.

There are a variety of innovative developments of public and private arrangements to provide discounted care to those with economic barriers. For example, the "125 dentists of the day" effort in Beaumont, Texas, is an example in which uncompensated care of dentists has been combined with economic development funding to create a fully staffed new dental clinic. The Family Dental Clinic will be staffed by a volunteer local dentist for the day from a pool of 125 local dentists. Dental hygiene students are also volunteering at the clinic. The facility and equipment are funded by a foundation and the local planning commission. The clinic is not a free clinic, but the cost of services will be based on the income level of the patient, and the typical cost of a visit will be $20 (16).

Over 250 dental professionals are volunteering their services in Tennessee to an Interfaith Dental Clinic that provides dental services to participants with no dental insurance and incomes that fall below 250 percent of the federal poverty level. In return for highly discounted dental services, the participants must agree to maintain the dental work performed through appropriate oral hygiene (17).

The ADA is conducting two pilot projects, with a third one to begin in early 2010, in which individuals are being trained as CDHCs. The CDHC is a community health worker with dental skills. One of the primary goals for the CDHC is to help individuals understand the importance of oral health care, and to facilitate their access and utilization of services to receive the necessary care. Within the ADA pilot, students are being recruited from the community in which they currently live and to which they will return, trained in community health worker skills and in certain oral health preventive dental services. It is envisioned that some CDHCs will work in schools, others may work in community centers, and others may work with volunteers who live and work in the community.

Conclusion

The private delivery system of dentistry displays many characteristics of a classic competitive market. Dentists must compete for customers, and although many customers view a dentist as a "family" dentist, customers are always free to seek out another dentist. However, dental care lacks some important factors that can alter the efficiency produced by classic market-based forces. For example, there is a lack of readily accessible information about practice characteristics, which can hamper a potential patient from making an effective consumer-based choice of dentists. Additionally, utilization is principally determined by the ability to convert need into effective demand. The net result is a system that provides care to about two-thirds of the population.

The private delivery system also fosters a need to constantly innovate in one's practice in order to retain the customer (patient) base, and innovation has occurred on a regular basis within the private delivery of oral health care. The net result is that the skills of the dentist and the dental team have been leveraged to increase the supply of services and, hopefully, to improve access for some.

Policy changes, volunteerism, and workforce innovations such as the CDHC also offer the potential to improve care delivered through private offices. However, in total, these changes are likely to never meet the complete need for dental services, especially among patients who are geographically isolated, institutionalized, or face other significant barriers. Thus, private practice should be considered as the base from which the vast majority of dental care can and should be delivered within the United States, but it will, if equity in access are to be assured, need to coordinate with other approaches to care delivery.

Conflict of interest

The author is employed by the American Dental Association as the Managing Vice President, Health Policy Resources Center.

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