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Internal conflict in the dental industry: an institutional analysis

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This paper examines the changing nature of the American dental industry and the intensification of conflict among the providers of dental services. In recent years, as competition among dental offices for patients has grown, within them, the relationship between dentists and dental hygienists has become increasingly conflictual. This is in part due to changes in the structure of their relationship and the growing importance of preventive relative to restorative dentistry; it is also due to slower growth in demand for dental services and the existence of overcapacity in the industry.

Historically, dentists have maintained tight control over the supply and distribution of dental services in the United States through the institutional structure of the American Dental Association (ADA), arguing that ADA control is in the public interest. However, while the dental industry was originally established to promote public health by providing care for the mouth and teeth which previously was not available, over time, the industry's focus has shifted to maintaining control over the sources of dentists' revenue and profit, regardless of the public costs involved. This is evident in the fact that a large proportion of the population is barred from access to dental care because they cannot afford it, sparking debate over the effectiveness of the current structure of the industry and the social need for adjustment.

This paper examines the determinants and outcomes associated with conflictual relationships among dentists and dental hygienists in the American dental industry. It examines the roots of the conflict, the underlying political forces holding the current system in place, and the growing pressures for reform. The approach taken is that of institutional economics which seeks to understand the process by which outcomes are realised, and does not presume any optimal outcome. In this paper, the dental case evidence is analysed; conclusions are drawn; relevant policy implications are addressed; and avenues for future research are proposed.

Introduction

During the past decade, industry overcapacity, changes in economic conditions and shifts in demand have contributed to intensifying competitive pressures in the American dental industry. In response, US licensed dentists are attempting to maintain their tight legal control over all aspects of American dentistry and hence to maintain control over the sources of their employment security, revenues and profits. This approach is generating intense conflict between licensed dentists and registered dental hygienists, the two primary dental care providers in the United States, who perform these services together under one roof in the licensed dentist's office.

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There is a vast and growing literature in industrial relations which argues that cooperation, not conflict, is the best approach to solving competitive difficulties. Cooperation is believed to benefit firm performance through improvements in productivity, product quality and organisational responsiveness to changes in the external environment (Konzelmann Smith, 1995; Delaney, Ichniowski and Lewin, 1988; Kochan, Katz and McKersie, 1986). Although most empirical studies examining the relationship between cooperation and firm performance focus on manufacturing, their conclusions are generalisable to service industries. In fact, they are probably even more important in service industries because the production process and delivery of services are not separate. Therefore, the costs of conflict among the producers and deliverers of services are immediately realised. In the dental care industry, for example, the production process takes place in the patient's mouth. Dental patients are often nervous and very sensitive to the environment in which they receive care. They are also likely to harbour mistrust of dentists, who seem to be 'only out for their money' (Dreyer, 1986). Thus, conflict between the dentist and dental hygienist is likely to be perceived by the patient, and to result in the patient's decision *not* to return, particularly if the conflict is perceived during the patient's first visit. Regardless of these potential problems, the American dental industry's approach to competitive pressures is one which continues to precipitate conflict.

This article examines the determinants and outcomes associated with conflictual relationships among dentists and dental hygienists in the American dental industry. It examines the roots of their conflict, the underlying political and institutional structures supporting the current system, and the growing pressures for reform. Section 1 describes the development of dentistry and the technical relations of production. Section 2 discusses the evolution of control in dentistry and the hierarchical system of organisation. Section 3 examines changes in technology and regulation and the increasing relative importance of the dental hygienist. Relationships between dental care providers are traced through history from their origins in the Victorian era when (male) dentists began to delegate tasks to (female) assistants. Over time, conditions in the industry and society generated pressures for change, resulting in conflicts regarding spheres of authority and distributional shares of the proceeds generated by the productive system. Section 4 explores pressures for change in the social relations of production. Section 5 analyses the competitive pressures operating on the industry and its stakeholders, their responses to those pressures and consequent outcomes. Section 6 draws conclusions from the previous discussion, addresses relevant policy implications and identifies avenues for future research.

1. The evolution of dentistry and the technical relations of production

The goal of dentistry is to help individuals attain and maintain oral health. The patient and the oral health-care workers—the dentist, dental hygienist, dental assistant, and dental lab technician—all have a part in achieving this goal. Patients must carry out daily oral health maintenance techniques and regimes and seek regular professional oral health care provided by the dentist and his/her staff. Professional care provided by the dental hygienist is preventive in nature, and includes education in self-care, assessment of oral health, and treatment of the teeth and gums. The dentist provides services which are reparative and/or restorative in nature. With daily home care, coupled with regular preventive and restorative professional services, patients can attain and maintain a healthy mouth.

Historically, dentists have worked alone, providing dental services directly and

personally to the patient. The majority of the dentist's time is spent providing restorative dental services. This reflects the historical perspective that the dentist's role in the office is to 'spend time on restorative work and other complex procedures for which they [are] trained' (Motley, 1986). As a practitioner, he or she is responsible for the diagnosis of dental disease, cavities, oral cancer, malocclusion, and gum disease, as well as for determining the required restorative, reparative and therapeutic services. Dentists' functions include procedures such as drilling and filling teeth; making dentures, partials, and gold crowns; and performing root canal therapy. The average dentist works 48 weeks per year and spends 34 hours per week treating patients. (ADA 1994A, p. 9). Of total dental-office production, restorative procedures performed by the dentist, though less time-intensive than preventive procedures, account for by far the largest portion of office income. As the owner and manager of the dental office, the dentist is also responsible for the operation of the office. While many of the daily duties can be delegated to an office manager, the dentist is still responsible for organisation and staffing. While it is appealing to be one's own boss, most dentists find it difficult to assume the roles of both owner/manager and provider of services.

During the 1800s, dental receptionists may have been present to give the dental office a professional and safe appearance; by the 1900s, duties of the dental assistant were expanded, but limited to the preparation and cleaning of the dental operatories. During the 1950s advances in technology required the use of additional personnel—a 'second pair of hands'—to assist the dentist in completing dental treatment. Dental assistants are generally the first employees to be hired by the dentist. The assistant works directly with the dentist in delivering dental services. In addition, dental assistants are able to perform a limited number of intra-oral procedures such as taking x-rays, placing rubber dams, inserting gingival packs, and in some states filling and carving silver and tooth-colour filling materials. Assistants also set up and clean up the dental operating room to receive patients. Today's dental assistants are an invaluable part of every dental practice, enabling the dentist to provide more treatment per hour by assisting in the provision of direct care and by carrying out procedures delegated by the dentist (i.e., placing fillings or taking impressions). However, dental assistants are legally limited in the types and amount of direct patient services they can provide.

The dental hygienist is the other licensed personnel in a dental office. The regular employment of dental hygienists by dentists developed much more slowly than the employment of dental assistants. Today, however, dental hygienists are employed by more than 75% of general dentists, and the number of dental practices employing more than one dental hygienist is increasing. In order to practise, dental hygienists must be licensed in the state in which they practise. Like the dentist, they deliver direct one-to-one service. The services provided by dental hygienists have always been and remain preventive in nature: educating patients about good home-care habits; cleaning patients' teeth; and applying preventive materials such as topical fluoride or sealants. They are also allowed to take and process dental x-rays. In the typical dental office, the dental hygienist sees one patient every 45–60 minutes. Within this time period, the dental hygienist assesses the patient's oral status, determines the dental hygiene diagnosis, plans dental hygiene treatment, and provides both education and therapeutic services. Of total dental office production, dental hygiene accounts for approximately 82% of average monthly scheduled patient visits (ADA, 1992). While dentists do not regard the services dental hygienists provide as highly as the services dentists provide, most see dental hygiene services as an additional method of generating income.

From the above discussion, it becomes apparent that although each dental care provider has a clearly defined role, there is some overlap in skills and function. For example, both the dentist and dental hygienist can clean teeth and both the dentist and dental assistant can fill teeth and carve restorations. All three can expose dental x-rays. In a technical sense, therefore, the three are complementary and cooperative.

2. Evolution of control in dentistry and the hierarchical system of organisation

Historical social relationships

In general, the working relationship between dentist and dental hygienist is a hierarchical employer/employee relationship; however, there is also a collegial dimension to the relationship because they are members of the dental 'team'. (ADA, 1988*)*. Nevertheless, the hierarchical employer/employee relationship is enforced by law because state dental practice acts require that registered dental hygienists work for and under the supervision of licensed dentists. This relationship is further reinforced (by law) in professional interaction, because the dental hygienist is legally prevented from diagnosing dental disease (cavities or gum disease).

Another important characteristic of this relationship is the sharp gender segmentation of dental-care providers. Dental practitioners have historically been male, and males still represent the vast majority of dentists. In 1992, 93.2% of dentists were male (ADA, 1993A). In recent years, there has been a significant increase in the number of women entering dental school. This change will not be reflected in the data, however, for some years. In contrast, dental hygiene has historically been a women's profession. Rooted in the Victorian era, the first dental assistants and hygienists were often the wives and daughters of dentists, employed to maintain the appearance of 'respectability' for the male dentist's office (Motley, 1986). This gender segmentation was institutionalised by schools of dental hygiene which, until the Civil Rights Act of 1964, were open only to women. Today, less than 1% of practising dental hygienists are male; and most of these move into the field of education where they can assume such roles as administrators.

Regulation and control

The American dental industry is controlled by dentists legally through the institutional structure of the state dental practice acts and organisationally through the American Dental Association (ADA). Each state has a dental practice act, designed to protect the health, safety and welfare of citizens of the state by promulgating laws mandating the qualifications for and the conditions under which dentistry must be practised. The practice act spells out the educational requirements and examinations for licensure, the legal regulations regarding practice location and ownership, and the restrictions on and required duties of each dental practitioner. It also defines the required composition and duties of the state dental board. The composition of board membership varies from state to state. However, in all states a large majority of board members are dentists who are recommended for membership by their state dental association. Non-dentist board members are few in number and are likely to be dental hygienists, recommended by their state dental hygienists' association and consumers. The state's governor selects and appoints members from a list of recommendations. Because the majority of board members are dentists, the board's actions typically reflect the interests of dentists. Required duties of the dental board include writing and overseeing enforcement of the

laws of the practice act. The state dental board also determines who can and cannot be licensed to practise dentistry and dental hygiene in the state; they thus control the supply of new practitioners entering the market.

The ADA is the recognised professional organisation for dentistry. Its goal is to promote the practise of dentistry through education, research and legislative activities. It is a tripartite organisation with national, state, and local societies. While the ADA does not have regulatory powers over the dental industry, it is the united voice of dentists in the United States and a powerful organisation in terms of finance, recognition and position. Of the approximately 140,000 licensed dentists in the US, over half are members of the ADA. The role of the ADA is primarily to represent dentistry in legal and legislative arenas through lobbying efforts in Washington DC, and in individual states. It is also the governing body for dental education. The ADA Council on Dental Education accredits all dental and dental hygiene schools based on the accreditation standards it has developed. In this capacity, organised dentistry determines the curriculum of both dentistry and dental hygiene programmes, and, therefore, what is practised by dentists and dental hygienists in the dental office. While the Council is made up of both dental hygienists and dentists, the majority of its members are dentists.

Dental hygienists also have a professional organisation, the American Dental Hygienists' Association (ADHA). While recognised as the voice of dental hygienists in the United States, the ADHA does not have the same power in terms of recognition, money or position held by the ADA. While engaging in the same political and association activities as the ADA, the ADHA is not as effective in achieving its goals because the ADA (dentists), not the ADHA (dental hygienists) regulates and controls the profession of dental hygiene.

Industrial organisation

The American dental industry is a monopolistically competitive industry, in which many competitors (dental practices/dentists) engage in non-price competition. There is some degree of product differentiation based on the dentist's credentials, variations in skill and quality of workmanship, and reputation; and dental patients are likely to try different dentists until they find one they like and trust.

Within a locality, dental services are typically provided in autonomous dental offices, each of which by law must be owned and controlled by one or more licensed dentists. The vast majority of dental offices are considered general practices, in which the practitioners provide a wide range of services rather than specialise in one area, such as orthodontia (straightening of teeth) or oral surgery (removing of teeth). Of the licensed and practising dentists in the United States, 82% are in general dentistry and 18% are in specialty practices (ADA, 1993A). Of the general practice dentists, 69% are solo practices and 31% are multi-dentist practices (ADA, 1993A).

Managerial structures

As described above, in a general practice dental office, there are three main providers of care: the dentist, the dental assistant and the dental hygienist. Dentists have a dual role in the dental office. They provide direct patient services and they are the owner/manager of the practice. Legally, the dentist is responsible for all the services provided in their office. While the dentist is ultimately responsible for patient care, certain functions can be delegated to dental auxiliaries, thereby increasing the dentist's capacity to provide care. For example, while the dentist is trained to provide preventive services, these duties can

be delegated to dental hygienists. In some states, dental assistants can place filling materials and carve restoration in the teeth. However, dentists must limit the delegation of functions to other office personnel within the provisions of each state practice act. While delegating tasks to either a dental assistant or hygienist, dentists are still legally responsible, and in many states legally required, to inspect the work of their employees before a patient leaves the office.

There is much discussion over who controls the work of the dental hygienists. Clearly, there are generally recognised tasks that the dental hygienist performs, but the differences between dentist and dental hygienist are related to who is responsible for decisions relating to the work. Dentistry controls the functions of the dental hygienist through state dental practice acts, written and enforced by state dental boards composed mainly of dentists. Through licensure, dental hygienists are deemed by state law to be competent to practise dental hygiene. However, it is also legally required that the dentist be present and inspect each patient after treatment. This creates considerable frustration on the part of the registered dental hygienists, who cite lack of ability to do what they have been trained to do as a source of job dissatisfaction (Pritzel and Green, 1990).

Since dental hygienists are legally required to work under the supervision of a dentist, if they are dissatisfied with the dental practices in a given area, they have no alternatives for practise. This creates a job market situation of monopsony, whereby a labour market is dominated by a single employer with considerable ability to control the terms and conditions of employment. Dental hygienists who have sought to change conditions through active participation in the ADHA have experienced employment problems, similar to the problems a worker seeking to unionise might face. Further compounding the problem is the fact that, while dentists endorse the concept of physical presence as essential to quality care, most dental hygienists have been left—illegally—to treat patients while the dentist either went to lunch early or left the office early (personal interviews with registered dental hygienists, South Bend, IN, 1997). It is thus increasingly apparent that the importance of the dentist's managerial and legal control over the work system in American dentistry has effectively downgraded the social relations of production.

Pricing and wage system

Dental performance is recognised and awarded by 'business'—that is, patient flow. The majority of dental services are currently paid for on a fee-for-service basis. Dentists determine the fees they charge patients and the salaries they pay their dental hygienists and assistants. In 1992, approximately 44·2% of general practice gross billings were received as direct payments from patients. While the number of patients covered by dental insurance plans has been increasing, in 1992 only 62·6% of general practice patients were covered by a private insurance programme; 53% were covered by a public assistance programme; and 31·9% were not covered by any insurance programme (ADA, 1993A).

In 1992, the median annual net income of general practitioners was $89,780. This represents gross income minus taxes, overheads and costs. Out of gross income, general practitioners' expenses for materials, office overheads and staff accounted for between approximately 59·7% and 63·4% (ADA, 1993A). In 1992, the average weekly salary for full-time dental assistants was $352·40, roughly $17,000 per year. Full-time assistants were paid an average of $9·70 per hour. Part-time assistants were paid an average of $10·60 per hour; however, they typically received no benefits (ADA, 1993A). According to the ADA, in 1991, full-time dental hygienists earned an average income of $609 per week, or about $30,000 per year if they worked 50 weeks; the average hourly earnings for

dental hygienists working less than 32 hours per week was $28·68, compared with an average hourly wage of $22·09 for full-time dental hygienists (ADA, 1993A). Most dental hygienists are employed part time and therefore receive few benefits (monetary and non-monetary).

3. Change in technology and regulation and the rise of the dental hygienist

The 1950s and 1960s are regarded as the golden years of the American dental industry. At that time, significant gains in technology produced a new generation of dental equipment, such as the air turbine drill and high-velocity evacuation systems, resulting in improvements in both the quality and efficient delivery of dental services. They also allowed for relatively painless dental treatment. New dental materials were being developed routinely which were easier for the dentist to use, enhanced the appearance of the filled teeth and increased the life of the filling. Together with these advances in equipment and materials, strong post-war demand for dental services translated into full appointment books within months of setting up in practice for new dental graduates and continued growth in volume and income for established practitioners.

These advances in technology and materials also changed the way dentists practised their trade: the new technology required a 'second pair of hands' to provide the dental services, so dental assistants began to work side by side with the dentist. No longer were dental assistants present just to give the office a professional look or to make appointments. Someone had to remove the water flowing rapidly into the mouth from the high-speed turbine drills, to mix the materials the dentist would place in the tooth, and to prepare and clean up the room for the next patient. By working directly with the dentist, dental assistants enabled the dentist to produce more dental work and, thus, to generate more income per hour.

Dental hygienists, while not large in number during the 1950s and 1960s, were also becoming an accepted and recognised part of the dental production process. Dental hygienists provided professional teeth-cleaning and evaluation, as well as recommendations for appropriate home-care procedures which were regarded as essential care in order to obtain and maintain good oral health. While the 'preventive skills' of the dental hygienist were not as highly regarded as the 'restorative skills' of the dentists, they were slowly becoming an accepted part of routine dental care. The routine biannual care provided by dental hygienists produced additional revenues for the office, independent of the dentist. It also provided regular opportunities for the dentist to evaluate the patient's need for more fillings.

Several events during the late 1960s and early 1970s signalled the end of the golden years and the beginning of a competitive environment within the dental industry. The event with the most profound impact on the dental industry was the introduction of fluoridation, which dramatically reduced the rate of tooth decay. The results of the 1945 community water fluoridation study in Grand Rapids, Michigan and Newburgh, New York were striking: the decay rate for children aged 5–18 years declined by as much as 50% as a result of water fluoridation. So effective was community water fluoridation in reducing decay that many cities rapidly added fluoridation chemicals to their water systems. By 1975, over 50% of US cities and towns had fluoridated community water. Various studies performed during the 1970s confirmed earlier reports of declining decay rates for children aged 5–18 years, finding reductions of anywhere between 30–60%. As an increasing number of communities added fluoride to their systems, the continuous

decline in decay rates meant that fewer and fewer teeth needed to be filled. Today, over half of the children in the United States reach the age of 18 without any tooth decay.

With declining decay rates, periodontal (gum) disease became the number one oral disease. While periodontal disease had been a recognised oral health problem since ancient times, dentists were not as interested in its treatment as they were in the treatment of tooth decay. Further, treatment for periodontal disease—scaling and polishing the teeth—was historically viewed as 'monotonous and irksome labor, however important it may be' (Motley, 1986). Through advances in research, scientists were learning what caused dental diseases and how to prevent them. At the same time, across all health professions, concern about and efforts aimed at prevention were becoming an integral part of health care. In dentistry, preventive treatment and care include patient education, routine professional cleanings, application of fluoride and application of dental sealants. Preventive services are typically provided by dental hygienists. Therefore, the role of the dental hygienist in the dental office gained in stature and became more directly linked to office productivity and income.

Another event which paradoxically signalled the end of the golden era was the desire of the federal government to ensure health care for all. In the late 1960s, legislators passed several manpower acts addressing the supply of dental and dental hygiene practitioners. Through the mid 1980s, this legislation resulted in increasing enrolments in dental and dental hygiene schools. Between 1960 and 1980, the number of dental hygiene schools more than tripled. As a result, by the late 1970s many dentists felt the impact of the increased number of dental and dental hygiene graduates—they had fewer patients.

In short, by the 1980s, the dental profession faced a decline in the rate of tooth decay; an increase in the relative importance of the dental hygienist's role due to the changes in disease patterns; and an increase in the number of dentists and hygienists per unit of population. Today, these changes continue to impact dentistry. In addition, the 1990s brought Occupational Safety and Health Administration (OSHA) regulations, which increased the costs of practising dentistry. Managed care is also beginning to impact the practise of dentistry in many of the same ways it changed the practise of medicine. In response, dentists, like physicians, are fighting to maintain control over the delivery of dental care—which includes what services are provided and by whom these services are performed.

4. Pressure for change in the social relations of production

Organised dental hygiene/ADHA and dental hygiene practitioners have long advocated the self-regulation of dental hygiene in order to achieve the legal right to operate in autonomous dental hygiene offices, with responsibility to refer restorative care cases to dentists with particular expertise in handling those cases. Currently, however, in all states except Colorado, dental hygienists are legally required to work under the supervision of a dentist. The ADA defines two acceptable levels of supervision for dental hygienists: direct and indirect. Direct supervision means that 'a dentists is in the dental office or treatment facility, personally diagnoses the condition to be treated, personally authorizes the procedures and remains in the dental office or treatment facility while the hygienist performs those procedures. Before the patient is dismissed, the dentist evaluates the hygienist's performance' (ADA, 1987). If the dentist is unable to provide direct supervision, indirect supervision is the second choice. The only difference between direct and indirect supervision is the point at which the dentist evaluates the performance of the hygienist. Under indirect supervision, the performance is evaluated later.

Approximately half of the states permit a looser level of supervision, known as general supervision. The provisions of general supervision are the same as those of direct supervision, in that a dentist must personally diagnose the condition to be treated, personally authorise the procedures, and later evaluate the performance, but the dentist need not be present while the work is being performed. However, the ADA has long regarded general supervision of the dental hygienist as unacceptable (Berry, 1992). In its 1987 *Comprehensive Policy Statement on Dental Auxiliaries*, the ADA 'urged dental societies in states that include the term "general supervision" in their dental practice acts to seek changes in these laws to require that dental hygiene services are performed only under the direct or indirect supervision of a dentist' (ADA, 1987).

Dental hygienists have been seeking looser levels of supervision as well as autonomous control over their profession for many years. However, they have only recently openly sought self-regulation. As the profession of dentistry has evolved over the years, it has become clear that dental boards make decisions that are in the interest of dentists rather than of dental hygiene or the public. The ADA has sought both to tighten the supervision requirements for dental hygiene practice and to decrease the education requirements for dental hygiene, at a time when the need for additional education is growing at a rapid rate. Therefore, in the early 1990s, in an effort to assist the dental hygiene profession in its growth and development, the ADHA went public with its goal of self-regulation and fully discussed the issues with its members, allies, and foes (Gurelian, 1991). In 1992, the then president of the ADHA outlined publicly, for the first time, the dental hygiene profession's goal to deregulate. What dental hygienists are seeking is control over their educational process, licensure, and practice.

The dental profession is clearly against ADHA's moves toward self-regulation, arguing that it puts 'the public's health at stake' (ADA, 1992). Their argument for supervision of dental hygiene is found in the ADA's 1987 *Policy Statement on Dental Auxiliaries*, which says that 'adequate supervision and coordination of treatment by a dentist are essential to the high quality of American oral health care. Unsupervised practice by dental hygienists reduces the quality of oral health care and seriously increases the risks to the patient.'

The emergence of managed care and managed care organisations (MCOs) in dentistry has created more pressure for change and is increasing the conflict between dentists and dental hygienists. MCOs are seeking to contain health care costs while maintaining quality through changes in the delivery of services and emphasis on the prevention of diseases. While dental hygienists view the MCO changes as an opportunity, dentists see them as a threat. With prevention as a key focus of MCOs, dental hygiene is well positioned as the provider of preventive dental care. New practice settings for hygienists, such as nursing homes, Health Maintenance Organizations (HMOs) and research centres, have been created by MCOs. In these new practice settings, dental hygienists will have new career opportunities, for instance, as office managers, quality assurance representatives and utilisation reviewers. In MCOs, dental hygienists have increased benefits and job stability (Wagner, 1996). The ADHA published a position paper supporting managed care because it 'provides a framework in which to maximize and appropriately recognize the role of dental hygienists' (ADHA, 1996).

Dentistry, however, opposes managed care and continues to support the traditional delivery system, a fee-for-service solo practice, as the best method for providing quality dental care. The ADA cites poor quality, lack of provider choice, and discounted reimbursement to providers as reasons for opposing managed care. However, the diminished autonomy of dentists participating in MCOs is perhaps a more important

reason why dentists do not support managed care. As MCOs are 'dismantling the fee-for-service payment system, setting the criteria practitioners must meet in order to participate in an MCO and monitoring the amount and quality of care patients receive' (ADHA, 1996), dentists feel they are 'losing the things they like about their profession—autonomy and control' (Wagner, 1996). In some MCO models, the employer/employee relationship between the dentist and hygienist is eliminated because both are employees of the MCO. The traditional hierarchical relationship is further undermined when dental hygienists working for MCOs are employed as quality assurance representatives, case support associates or credentialing managers, with responsibility for overseeing the work of the dentists.

5. Competitive pressures, industry responses and outcomes

Competitive pressures

Since the 1980s, industry overcapacity, changes in economic conditions and shifts in demand have contributed to intensifying competitive pressures in the American dental industry.

Industry overcapacity. Since the 1980s, there has been a substantial oversupply of dentists relative to demand for their services. During the late 1970s and 1980s, the US government supported the growth of both medical and dental schools in an effort to meet a projected manpower shortage in health-care workers. By 1979, however, dental school enrolments began to decline in response to the market-place competition for patients (*Occupational Outlook Handbook*, 1994, p. 159). Currently, many dentists report that they are not as 'busy' as they would like to be; that is, they could see more patients in their office (*Ibid.*, p. 159). In addition, with declining decay rates and increased emphasis on preventive services, dentists are more likely to hire dental hygienists. Overcapacity has resulted in insecurity among licensed dentists and fear of losing their patients to competitors.

Shifts in demand. Studies of the determinants of demand for dental care consistently identify education, income level, gender and age as factors which most significantly influence the use of dental services (Bader, Kaplan, Lange and Mullins, 1984; Chakraborty, Gaeth and Cunningham, 1993). People with relatively high levels of income and education seek dental care at a higher rate than people with little education and low levels of income; women seek dental care at a higher rate than men. Those excluded tend to be the poor, the young and the elderly. Among those who traditionally seek dental care, dental insurance increases utilisation rates. While insurance coverage is available today, it is generally available only to those with higher levels of education and incomes, reinforcing the pattern described above.

The demand for dental services is vulnerable to changes in the business cycle. Dental care is often viewed as a luxury rather than a health care need. Thus, during hard economic times, patients postpone restorative care because they view most restorative work as elective rather than essential. In contrast, dental hygiene care does not fluctuate with the business cycle owing to the fact that patients believe dental hygiene services are important to their overall dental health and will prevent further problems. According to the ADA, 'Visits to the dentist [are] more responsive to national economic contraction than are hygienist visits. Visits to the hygienist provide the growth factor in total patient visits' (ADA, 1991, p. 11). Since the 1980s, the United States has experienced two

recessions, impacting the higher income groups who are the major consumers of dental services. This has adversely affected dental revenues and private practice volumes.

Since the 1980s, there has also been a shift in demand for the services provided by dental offices. The main stay of the dental industry, the restoration of teeth with silver fillings, is rapidly being replaced by demand for preventive services (cleaning teeth and sealants) and elective procedures (cosmetic dentistry and implants). The shift is attributable to the decline in dental cavities in both children and adults due to fluoride and changing dental disease patterns: a decrease in tooth decay (caries) and increase in gum disease (periodontal disease).

The dental industry's response is driven in part by the development of 'soft tissue management programmes', carried out by the dental hygienist. These programmes reflect new knowledge of the causative factors of gum disease and improve treatment procedures. Another contributing factor is the call for a more complete and systematic approach to the diagnosis and treatment of gum disease. While the basis for these programmes is on solid scientific ground, their use and cost varies widely. Over-treatment is an important concern. Another area of growth is cosmetic dentistry. With the development of new materials, techniques and technology, dentists can easily change the colour and shape of teeth; they can replace missing teeth with various types of removable, permanent, and implanted false teeth.

In short, since the 1980s, changes in environmental factors, competitive pressures and reduced practice volumes have put pressure on the American dental industry, forcing dentists to respond. Slower growth in demand for restorative services, the sensitivity of such services to fluctuations in the business cycle, and industry overcapacity have increased the economic pressures operating on individual dental offices.

Industry responses and outcomes

The monopolistically competitive nature of the industry discourages price competition, so dentists have increasingly tried to differentiate themselves and their product through marketing (Bush and Nitse, 1992; Chakraborty, Gaeth and Cunningham, 1993). With increased economic pressures, dentists also desire control over all sources of dental care income, including dental hygiene, which though a low value added service does not fluctuate with the business cycle (ADA, 1991, pp. 21, 25). Many of these efforts involve employment practices with respect to registered dental hygienists. One is in the area of compensation. Although hourly wage rates are relatively good ($18 in 1991), there are few benefits (monetary and non-monetary). Most dental hygienists are employed part time which allows the dentist to avoid paying benefits. Another way is to control potential competition from registered dental hygienists by fiercely opposing efforts by the ADHA to obtain the legal right to self-regulation. Currently, dental hygienists are the only auxiliary care group whose profession, licensing and service are controlled by their employers (the dentists). This means that dental hygienists can only work under the supervision of a dentist who is physically on the premises when the hygienist is treating patients. In some states, such as Indiana, the dentist must also 'inspect the work' given to each patient. Dentists argue that 'unsupervised practice seriously increases risks to patient' (ADA, 1987) Dentists also desire some degree of control over patients' decisions to purchase restorative care. Control over dental hygiene is a means to that end since the dental hygienist, who has the patient's trust, can shape patients' perceptions regarding their need for restorative care (Dreyer, 1986).

One effect of this strategy has been an intensification of internal power struggles

between dentists and dental hygienists—both in the workplace and at the higher institutional levels of organised dentistry (the ADA and ADHA) and the US legal system—and augmented efforts to gain and maintain control over their respective professions and the sources of their employment and incomes. In the workplace, conflict revolves around practice issues such as involvement in decision-making regarding office policies and activities, patient treatment and diagnosis; issues relating to compensation (including method of reimbursement and benefits); and the nature of interpersonal relationships (i.e., respect and collegiality).

While little information is available on the economic impact of loss of dental hygiene services, 'loss of a dental hygienist from a dental practice influences the continuity of patients' preventive care, with the implication being that the quality of care may be affected' (Boyer, 1988). It has also been demonstrated that the loss of a dental hygienist hurts office production and hence profitability (Bader, 1992). Even with the increased practice income resulting from employment of a dental hygienist, 'some dentists don't hire hygienists because of a lack of availability and a misguided resentment toward them' (RDH, 1993, p. 25). This resentment stems from the frustration dentists feel because they can no longer provide all the services their patients need and they 'resent sharing that position of power' (RDH, 1993, p. 25). It is also related to their concern that dental hygienists will usurp their control over a growing segment of the market—preventive dental care.

Interestingly, many studies find that control over dental hygienists' services is not profitable for the dentist in terms of the rate of return for time spent. (Scheffler and Kushman, 1978; Boulier, 1979; Bader, Kaplan, Lange and Mullins, 1984). Thus, dentists' desire for control is not entirely motivated by short-run economic interests. Further, their efforts to control the industry have served to intensify the pressures operating on dental hygienists, augmenting their desire for the legal right to self-regulation and contributing to increased internal conflicts between dentists and dental hygienists.

While the dental industry was originally established to promote public health by providing care for the teeth and the mouth that was previously not available, over time the industry's focus has shifted to maintaining control over the sources of dentists' revenues and profits, regardless of the public costs involved. Competition and economic pressures provide incentives for dentists to perform unnecessary but highly profitable restorative treatments (Dreyer, 1986; Miller, 1992).

The monopolistically competitive nature of the industry supports non-price competition which, combined with a shortage of dental insurance coverage, effectively prices dental care out of the reach of low-income segments of the population. In 1985, a study by the Research Triangle Institute indicated that only '6% of the population receives hygiene services in any one year...[and that]...the high income group spends four times as much money on dental care and is responsible for three times the mean number of dental visits as the low income population' (Odrich, 1985, p. 65) Part of the problem is poor insurance coverage. In 1993, approximately 150 million Americans and one-third of dental patients had no dental insurance; less than 6% of dental patients had some coverage from public assistance (ADA, 1993A). According to a public health service report in 1993, 'the poor pay 56% of their dental bills out-of-pocket, compared with 19% of their doctor bills' (*New York Times*, 1993, p. C14). Ironically, given the large segment of the population that is barred access to dental care, price competition has the potential to increase demand by making dental services affordable to more people.

6. Summary and conclusions

The efforts of dentists and dental hygienists to gain and maintain control over their respective sources of income and employment security are precipitating intense conflict at all levels, from the highest institutional levels of the ADA, the ADHA and the US legal system, to the lowest level of the private dental practice. The conflict persists because of power asymmetries and dentists' legal and managerial control over the production process of the dental hygienist. This is in large part due to the institutional structure of the relationship in the face of changing industry and economic conditions.

As the profession of dental hygiene has matured and the field of health care has changed, dental hygiene as a profession has sought some autonomy in its education, regulation and practise. However, the right of the profession to set its own education standards, practise regulations and conditions has always been blocked by dentists who control the industry. Organised dentistry and organised dental hygiene have struggled with this issue since the beginning. At the root of this struggle is the dentists' view that dental hygiene services (scaling and polishing the teeth) are important to dental health, but that the skills and knowledge needed to provide the services are minimal and routine. This translates into both the desire of dentists to control the profession and their continued lack of respect for the dental hygienist. Together, changes in dental hygiene and the static view held by dentists contribute to the problem. Trust and respect are important issues here because the ADA's insistence that dental hygienists be directly supervised lest they harm the patient implies that dentists in general neither trust hygienists nor respect what they do. While early dental practitioners are credited with creating the profession of dental hygiene, these same early pioneers feared dental hygiene practitioners. Early dentists feared that 'a partially educated sub specialist would drift into the illegal practice of dentistry' (Motley, 1986, p. 17). This cry is still heard. Another source of conflict is the paternalistic attitude of dentists towards dental hygienists, perpetuated and encouraged by the sharp gender segmentation of employment in dentistry. Dental practitioners have historically been male, and males still represent the vast majority of dentists. In contrast, dental hygiene has historically been a female profession.

The potential costs of conflict are evident when one examines the technical and social relations of production in dentistry. The nature of the continuous production process for dental services and its close proximity to the consumer augments the potential benefits of internal technical and social cooperation, and the potential costs of internal conflict. The production process for dental care is a continuous process that takes place in the patient's mouth. While early dentists provided all dental health-care services (beyond personal oral hygiene), as the industry expanded and practice volumes increased, the more tedious, less profitable tasks (preventive care and cleaning) were delegated to dental hygienists and assistants. Thus, while the production process for dental care remains continuous, over time the structure of work has been segmented into preventive and restorative dental care categories performed by different productive agents.

Nevertheless, the nature of the production process for dental care is such that social relations of production are necessarily diffused throughout. Since dental care is a service that takes place in the patient's mouth, effective social coordination is critical to operational efficiency. In the American dental industry, however, these social relations of production are hierarchical and determined by the legal and political system that grants regulatory responsibility and control to the American Dental Association (ADA), which itself represents and is controlled by licensed dentists. Among office personnel, relation-

ships are also hierarchical. The dentist is ultimately responsible for and controls all decisions regarding the operation of the office and provision of dental care, the price of services rendered by all office personnel, and the terms and conditions of employment for all office personnel. In most cases, dental hygienists are employed part time and work in more than one dental office. Thus, they have little explicit employment security and in most cases receive no benefits or insurance coverage from their employers (*Occupational Outlook Handbook*, 1994–5). Some dental hygienists are represented by the American Dental Hygiene Association (ADHA). However, the ADHA does not share balanced power with the ADA, which regulates both the dental and the dental hygiene professions.

Since the 1980s, the problems associated with equitable delivery of health care in the United States have been widely examined. There is little question that the system is in need of reform; however, the current system continues to elude such efforts. Less publicised, though equally significant, is the degree of effectiveness of the American dental industry in providing dental care to the American people. Although general dental health has improved since the establishment of the dental industry in the mid-nineteenth century, large segments of the population, disproportionately including minorities and the poor, are barred from access to dental care because they cannot afford it (Odrich, 1985; Dunning, 1990; *New York Times*, 1993). But change is slow to come because of the political power of the American Dental Association (ADA), which controls the industry, and the fact that the providers of dental care—dentists and dental hygienists—are involved in internal power struggles of their own, distracting them from the public health implications of their actions.

The case of the American dental industry illustrates the process by which conflict can result from self-interested responses to competitive pressures. Conflict between dentists and dental hygienists is not the objective of either party, but rather the result of their efforts to pursue personal economic interests in response to competitive pressures. Given the competitiveness of the industry, its overcapacity and the nature of the product and its delivery, internal office conflict has the potential to increase costs to the high-conflict office because patients perceiving conflict are likely not to return, unless there is something about the dentist that overwhelms their natural response to conflict (e.g., patient's trust of the dentist based on past experience, perceived skill of the dentist and the quality of his or her workmanship relative to others in the market, etc.). This conflict serves to distract parties from other, more important and far-reaching outcomes of the strategic process.

The focus of dentists and dental hygienists on their own personal interests, and their relative neglect of concern for the public interest, amplifies the problems associated with the existence of suboptimal dental care outcomes in the United States. It is this outcome that is most likely to precipitate reform of the current system as dentists and dental hygienists continue to engage in their own personal power struggles. Their failure to address the public health implications of their actions is likely to result in industry reform, with or without the cooperation of the dental industry.

The acknowledged resentment and tension between dentists and dental hygienists has been well documented. What has not been clearly demonstrated, however, is the effect of poor work relationships on the production of dental and dental hygiene services or the quality of these services. This will be the focus of a future study.

Bibliography

American Dental Association (ADA). 1994A. *The 1993 Survey of Dental Practice: Characteristics of Dentists in Private Practice and their Patients*, February

American Dental Association (ADA). 1994B. *The 1993 Survey of Dental Practice: Employment of Dental Practice Personnel*, January

American Dental Association (ADA). 1993A. *The 1993 Survey of Dental Practice: Income From the Private Practice of Dentistry*, October

American Dental Association (ADA). 1993B. *The 1991 Distribution of Dentists in the United States by Region and State*, February

American Dental Association (ADA). 1992. *Quarterly Survey of Dental Practice*

American Dental Association (ADA). 1991. *Dental Practice and Economic Trends: 1985–1990s*, Chicago, American Dental Association Bureau of Economic and Behavioral Research, October

American Dental Association (ADA). 1988. *Guide for Enhancing the Availability and Retention of Dental Team Members*, October

American Dental Association (ADA). 1987. *Comprehensive Policy Statement on Dental Auxiliaries*

American Dental Association (ADA). 1979. *Dental Habits and Opinions of the Public: Results of a 1978 Survey*, Chicago, American Dental Association Bureau of Economic and Behavioral Research, July

American Dental Hygienists' Association (ADHA). 1996. *Position Paper on Managed Care*

Bader, J. D. and Sams, D. H. 1992. Reasons for changing employment positions among practicing North Carolina dental hygienists, *Journal of the American Dental Hygiene Association*, January, 27–33

Bader, J. D., Kaplan, A. L., Lange, K. W. and Mullins, M. R. 1984. Production and economic contributions of dental hygienists, *Journal of Public Health Dentistry*, Winter, 28–34

Berry, J. 1992. ADA: general supervision of dental hygienists 'not acceptable', *ADA Newsletter*, 23 March

Boulier, B. L. 1974. 'Two Essays in the Economics of Dentistry: A Production of the Effects of Licensure', dissertation, Princeton University

Boyer, E. M. 1992. Job changes by dental hygienists, *Journal of Dental Hygiene*, vol. 62, 136–45

Bush, R. P. and Nitse, P. S. 1992. Retail versus private dental practices: do the patients differ? *Journal of Health Care Marketing*, March, 39–47

Chakraborty, G., Gaeth, G. J. and Cunningham, M. 1993. Understanding consumers' preferences for dental services, *Journal of Health Care Marketing*, Fall, 48–58

Delaney, J. T., Ichniowski, C. and Lewin, D. 1988. Employment involvement programs and firm performance, *Proceedings of the 41st Annual Meeting*, Madison, Wis., IRRA, 48–58

Dunning, J. M. 1990. The future of the dental hygienist, *Journal of Public Health Dentistry*, vol. 50, no. 1, Winter, 3–4

Dreyer, R. 1986. How your hygienist can increase your profits, *Dental Management*, September, 46–9

Gurelian, J. 1991. The self regulation of dental hygiene, *Journal of Dental Hygiene*, March–April, 104–10

Kochan, T., Katz, H. and McKersie, R. 1986. *The Transformation of American Industrial Relations*, New York, Basic Books

Konzelmann Smith, S. 1995. Internal cooperation and competitive success: the case of the American steel minimill sector, *Cambridge Journal of Economics*, vol. 19, no. 2

Miller, L. 1992. Operatory capitalism: how to profit from your hygienist, *Journal of the Greater Houston Dental Society*, November, 38–9

Motley, W. E. 1986. *History of the American Dental Hygienists' Association: 1923–1982*, Chicago, American Dental Hygienists' Association

New York Times. 1993. November 3, C14

Occupational Outlook Handbook. US Department of Labor: Bureau of Labor Statistics 1994–5; 1992–3; 1982–3

Odrich, J. 1985. The dental hygienist: a primary care provider, *Journal of Public Health Dentistry*, vol. 45, no. 2, Spring, 64–8

Pritzel, S. J. and Green, T. G. 1990. Working relationship between dentists and dental hygienists: their perceptions, *Journal of Dental Hygiene*, August, 269–72

Registered Dental Hygienist (RDH). 1993. Registered Dental Hygienist wages and benefits survey results, July

Scheffler, R. M. and Kushman, J. E. 1978. A production function for dental services: estimations and economic implications, *Southern Economic Journal*, April

Wagner, L. 1996. Managed care: the good, the bad, and the uncertain, *Access*, September–October, 40–47