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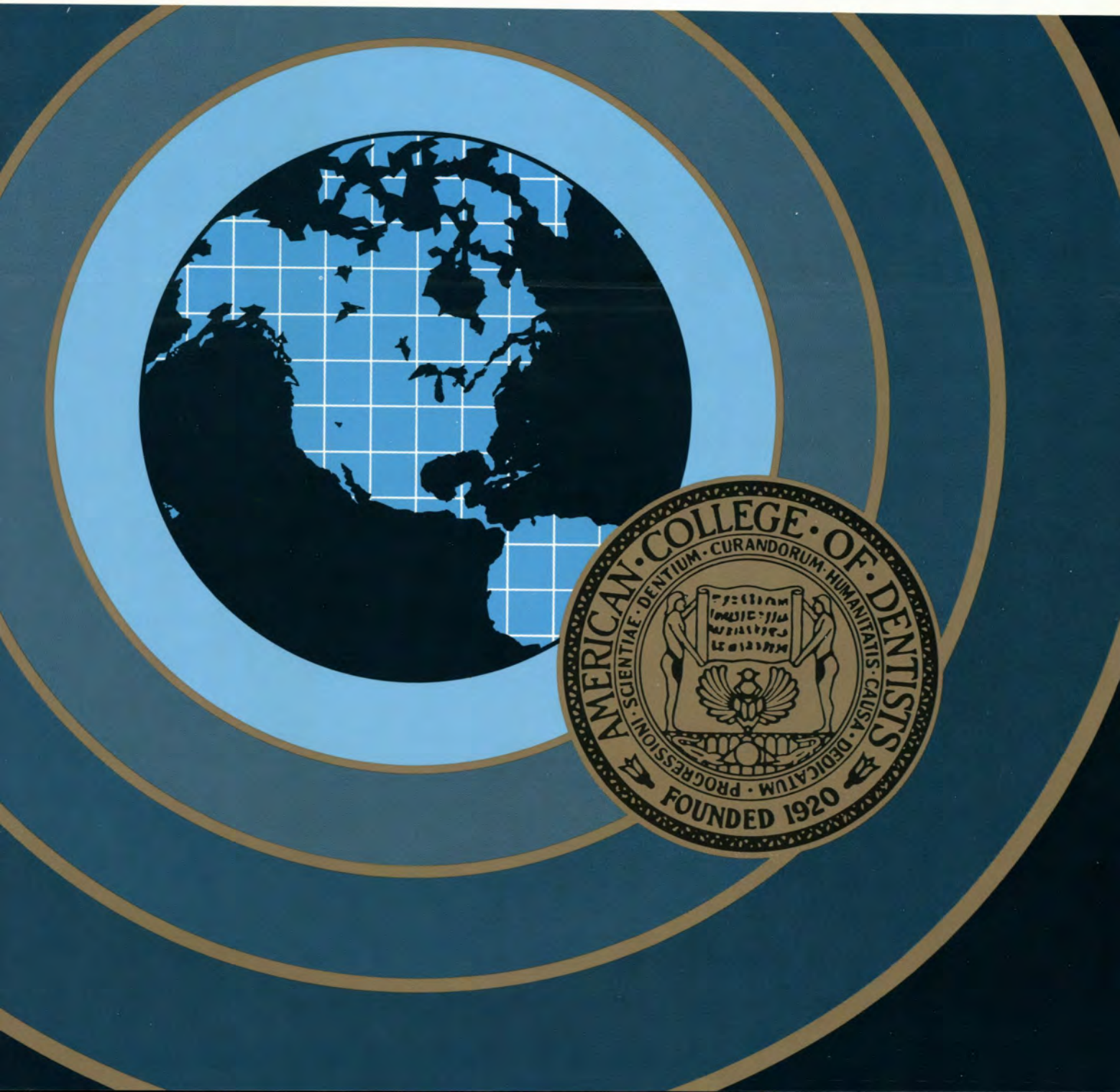
The JOURNAL of the AMERICAN COLLEGE of DENTISTS



OBJECTIVES of the AMERICAN COLLEGE of DENTISTS

The American College of Dentists in order to promote the highest ideals in health care, advance the standards and efficiency of dentistry, develop good human relations and understanding, and extend the benefits of dental health to the greatest number, declares and adopts the following principles and ideals as ways and means for the attainment of these goals.

(a) To urge the extension and improvement of measures for the control and prevention of oral disorders;

(b) To encourage qualified persons to consider a career in dentistry so that dental health services will be available to all and to urge broad preparation for such a career at all educational levels;

(c) To encourage graduate studies and continuing educational efforts by dentists and auxiliaries;

(d) To encourage, stimulate and promote research;

(e) To improve the public understanding and appreciation of oral health service and its importance to the optimum health of the patient;

(f) To encourage the free exchange of ideas and experiences in the interest of better service to the patient;

(g) To cooperate with other groups for the advancement of interprofessional relationships in the interest of the public;

(h) To make visible to professional persons the extent of their responsibilities to the community as well as to the field of health service and to urge the acceptance of them;

(i) To encourage individuals to further these objectives, and to recognize meritorious achievements and the potentials for contributions to dental science, art, education, literature, human relations or other areas which contribute to human welfare—by conferring Fellowship in the College on those persons properly selected for such honor.

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FROM THE EDITOR'S DESK

DESERVING AND QUALIFIED FOR FACD — *NEVER NOMINATED*

There may be over 5000 dentists at this time who are deserving and qualified to be Fellows of the American College of Dentists. However, they are not members of the College primarily because they have never been nominated.

It is unfair to a deserving dentist not to be nominated and it is unfair to the College not to have such a qualified dentist as a member. Certainly, something should be done to help that situation.

Since the only way that a dentist can become an ACD Fellow is to be nominated by an ACD member, it is evident that the present members of the ACD hold the key to future ACD membership. One problem we have is that many Fellows are reluctant to nominate potential candidates, for a variety of reasons, and therefore they never nominate anyone. On the other hand, there are Fellows who regularly nominate at least one new candidate each year, and they are to be commended.

It is obvious that the current members of the College can be either an open door to annually bringing qualified dentists into the College or they can be a perennial bottleneck to future membership.

Judging by the number of deserving dentists who have been "overlooked" through the years, the present nomination system has been, at best, very inefficient and certainly needs to be improved. There must be a better way to go about it to prevent so many qualified people from being missed every year.

Keith P. Blair

It is highly recommended that each Section annually form a committee whose purpose would be to review the dentists in the Section's area who seem qualified to be members of the College. There must be many such dentists in each area who have previously been overlooked and such a committee could point out these apparently well-qualified dentists who have never been previously nominated to be Fellows of the College. Every Section has the responsibility to conduct such a review of potential ACD members and to prevent such deserving dentists from being permanently overlooked, as is apparently occurring at present.

In considering dentists who have the qualifications for ACD membership, we should also recognize the younger dentist who demonstrates great potential for future contribution to the profession and who shows early leadership capabilities. Such people may also be qualified for FACD.

It is essential that the nomination process be assisted in the Sections to assure that, hopefully, all deserving and qualified dentists will be nominated to the College. We must try to eliminate the "never nominated" category. We cannot leave nominations to the *chance* that they will be made. The nomination process is too vital to the future of the College for it to be left to chance.

Nominations are the lifeblood of the College. △

Keith P. Blair

DENTISTS AND DENTISTRY CHANGED IN THE 1980S

H. Barry Waldman*

Undoubtedly, each generation of dentists has viewed its period of pre-eminence as particular and somehow different from those that preceded it. Yet, it would seem that dental practitioners in the 1980s are justified in emphasizing the singularity of events that shaped their profession in this decade. Consider but a few of the developments which occurred during (or affected) this period and shaped dental practice and the dental profession.

1. The nation's economy went from a recession to economic revival.
2. We entered the decade with cries for reduction in the "production" of dentists and now as we reach the 1990s, there are projections that a shortage of practitioners will develop in the not too distant future.
3. The decline in the number of applicants to schools of dentistry has become so serious about all that one needs for admission to some schools of dentistry is a "passable transcript, a heart beat and a checkbook."
4. Advertising by professionals has transformed the fabric of dental practice.
5. Women now represent one third of the entering classes of schools of dentistry.
6. The feared "L" words have reached dental practice—Lawyers, Litigation and Law suit.

In these final days of the 1980s, it would seem appropriate to review the changes in the dental profession in this past tumultuous decade and consider their effects in the 1990s and beyond.

Need for Dental Services

The adjustment of the fluoride content of community water supplies as a method to prevent tooth decay began in January 1945, in Grand Rapids, Michigan. By 1980, over 106 million individuals in more than 8,000 communities throughout the nation were receiving adjusted fluoridated water. An additional 9.8 million people in 3,000 communities were using water with naturally occurring fluoride levels of 0.7 parts per million or higher. In 1985, 61 percent of the U.S. population, drinking from public water supplies, received fluoridated water.[1]

In addition, millions of youngsters are involved in fluoride rinse programs; receive topical applications of fluoride; consume fluoride supplements in their vitamins; and brush with fluoridated tooth paste. And further, sealants, acid etching technics and increased public knowledge and understanding of prevention (e.g., well over 90 percent of the adult public is aware of the need to brush and floss teeth and to visit a dentist regularly) have added greatly to programs to prevent and/or limit the consequences of dental disease.[2]

The substantial decrease in the prevalence of dental caries in children has been reported repeatedly in lay and professional publications.[3] And there have been numbers of reports forecasting eventual variations in the need and demand for dental services in middle age and older population groups as a result of this dramatic decrease in the rates of decay in children.[4]

Nevertheless, dental treatment needs still remain. In the most recent national study on dental treatment needs (1979–1980) almost a quarter (24 percent) of white children (ages five to seventeen) and a third of nonwhite children required restorations in their permanent teeth. In addition, extractions, crowns replacements and pulpal treatment were required. (Table I) And further, treatment needs were greater for residents of nonstandard metropolitan statistical areas. (Table II)

The 1985–86 national survey on the oral health of U.S. adults provides the latest information on the periodontal status of the adult

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Table I. Percent of children needing treatment in the primary and permanent dentition by race: 1979-80 (3)

	Primary Dentition		Permanent Dentition	
	Whites	Blacks & all others	Whites	Blacks & all others
Restorations	30%	40%	24%	33%
Extractions	6	8	1	4
Crowns	5	7	2	5
Replacements			2	6
Pulpal treatment			1	4

Table II. Dental treatment needs per 100 children by residence: 1979-1980 (3)

	SMSA*	Non-SMSA	Total U.S.
Primary Dentition (Ages 5-9)			
Restorations	112.2	154.9	124.4
Extractions	9.2	18.6	11.9
Crowns	6.5	10.7	7.7
Permanent dentition (Ages 5-17)			
Restorations	66.6	81.3	70.8
Extractions	1.9	3.8	2.4
Replacements	3.5	6.1	4.3
Crowns	2.5	3.6	2.8
Pulpal treatment	1.7	3.0	2.1

*Standard Metropolitan Statistical Area

population.[5] Survey results indicate that "... some forms of periodontal disease may no longer be the nearly universal phenomena we thought (it) to be ... and that dentate elderly people are not ravaged by serious periodontal disease.*[6] Some of the findings included:

1. 40 to 50 percent of the individuals had gingivitis (although at relatively few sites per individual),
2. the extent of gingivitis for males was significantly greater than for females,
3. the reported prevalence of gingivitis was somewhat higher than in the previous national study,[8]
4. periodontal attachment loss was more prevalent and more severe in male working adults and seniors of all age groups than in females. Attachment losses ranged from 73 percent for working women and 80 percent for working men; 94 percent and 98 percent of senior women and men, respectively. Even in the youngest age group (18–19 years), 52 percent had experienced significant levels of attachment loss.[7]

The evolving needs for periodontal services may be associated closely with the decrease in edentulism.

> "... it would seem that a decline in edentulism and an increase in number of teeth per person (reported between the early 1960s and mid 1970s) may well contribute to circumstances that will lead to greater, not lesser, risk of advanced periodontal disease problems in the later decades of life."[8]

And the decrease in edentulism continues into the mid 1980s. Between the early 1970s and 1986, in age groups over 45 years (except those 75 and over) there has been a progressive decrease in the number and percent of the population that is edentulous. (Table III)

An exhaustive listing of dental services could extend to include the continuing need (and increasing demand) for orthodontic treatment,[12] implant services and well beyond. But no general, listing can overlook the needs of special population groups—the developmentally disabled, the chronically and acutely ill, the hospitalized and the high risk patient.

Demand for Dental Services

The continuing need for dental services in the 1980s, has been translated into a growing demand for dental care. During the 1980s, there has been an increase number of dental visits per person and the percent of the population that visited a dentist in the past year. This increase has been by all age groups, by both males and females, white and nonwhites, all income categories, all geographic regions and in both metropolitan and nonmetropolitan areas. (Table IV) It should be noted that the increase in the use of services in 1980s in

*Unfortunately, the findings from this national study can not be compared directly to previous national studies carried out during the 1960s and 1970s. The 1985–86 study provides data *only* for employed adults and an older population which attends senior citizen centers. The study represents 59 percent of all adults. It does *not* represent the unemployed, homemakers, the elderly who do not attend senior citizen centers, mining and agricultural workers, home service workers and some minority and ethnic groups may have been under represented.[6,7]

Table III. Number and percent of the population that is edentulous by age 45 and over: 1971, 1983, 1986 (9-11)

Age	Number Edentuous			Percent Edentulous		
	1971	1983	1986	1971	1983	1986
	(In thousands)					
45-54	4,015	3,091	2,647	17.3%	13.9%	11.7%
55-64	5,707	4,904	4,771	30.8	22.4	21.7
65-74	5,448	5,459	5,048	45.2	34.1	29.7
75+	4,371	4,449	4,887	59.8	45.1	46.3
75-84			3,791			44.3
85+			1,096			54.8
Population 45+	19,541	17,897	17,354	31.9%	25.5%	24.0%

Table IV. Dental visits per person and percent of population with a visit in the past year: 1981, 1986 (13)

	Dental visits per person		Percent with visit in last year	
	1981	1986	1981	1986
Age				
Under 5 years.	0.5	0.4	14.9%	18.7%
5-14 yrs.	2.0	2.3	64.6	70.7
15-44 yrs.	1.8	2.0	54.8	60.4
45-64 yrs.	1.8	2.2	49.6	54.6
65-74 yrs.	1.6	2.4	38.6	46.2
75 yrs.+	1.3	1.6	27.9	34.4
Total	1.7	2.0	49.9	55.1
Gender				
Male	1.6	1.8	47.9	52.8
Female	1.8	2.1	52.0	57.3
Race				
White	1.8	2.1	52.2	57.3
Black	1.1	1.3	35.5	41.1
Family income				
Less than $10,000	1.1	1.3	37.0	40.4
$10,000-$14,999	1.3	1.3	37.3	42.3
$15,000-$19,999	1.4	1.6	42.3	48.6
$20,000-$34,999	1.7	2.2	50.1	58.3
35,000 +	2.2	2.7	63.5	70.8
Geographic region				
Northeast	2.0	2.2	55.2	59.9
Midwest	1.7	2.0	52.2	58.6
South	1.5	1.6	44.7	48.3
West	1.7	2.2	50.3	57.8
Location of residence				
Within MSA*	1.8	2.0	52.0	56.4
Outside MSA	1.4	1.7	45.9	51.1

*Metropolitan Statistical Area

non-metropolitan areas has been greater than the rate of increase for metropolitan areas. This pattern of use has continued a trend that began more than twenty years ago. (Table V)

Producing Dentists: Some Changes

The decrease in the number of entering places in schools of dentistry that began in the late 1970s is continuing through the 1980s. Between 1980 and 1988, there was a 30 percent decrease in entering places (1,834 places). By 1988, the number of entering places per million population had reached the lowest level in 40 years, *and* it will continue to decrease in the 1990s. (Table VI)

However, as a result of the major increases in the number of entering places in dental schools throughout the 1970s, the number of dentists and dentists per 100,000 population increased during the 1980s (both general practitioners and in each category of specialist). During this same period, there was a slight increase in the percent of dentists that were specialists (from 13.6 percent to 14.9 percent). (Table VII)

The increase in the absolute number of dentists is expected to continue through 1996. However, during the 1990s and beyond, the general population will continue to increase while the size of dental school entering classes will decrease. It is projected that by the mid 1990s, dental schools will reduce the total entering class size by more than 550 additional places.[18] As a result, the number of dentists per 100,000 population which reached a peak of 56.6 active dentists per 100,000 population in 1987, will continue to decrease through the year 2000 and beyond; decreasing to 43.5 active dentists per 100,000 population in the year 2020—the levels of the 1910–1915 era.[19]

The dramatic numeric changes in the "production" of dentists during the 1980s, is matched only by

Table V. Percent of the population with a dental visit in the past year and the percent increase by place of residence: 1963/64, 1980, 1986 (13, 14)

				Percent change	
	1963/64	1980	1986	1963/64 to 1980	1980 to 1986
Metropolitan Stat. Area	44.7%	51.9%	58.6%	16.1%	12.9%
Non-Metro Stat. Area	37.0*	45.5	52.3	23.0	14.9

*Represents the average of:
Non-farm 38.1%
Farm 35.9%

Table VI. Dental school entering places and places per million population, selected years 1950-1996 (15-17)

	Year	Number Entering places	Entering places per million pop.
	1950	3,226	20.3
	1960	3,616	19.0
	1974*	5,617	25.1
	1978**	6,301	26.8
	1980	6,030	26.6
	1988	4,196	17.1
Projected			
	1990	4,059	15.8
	1996	3,630	13.6

*Year of the most applicants to schools of dentistry (14,970)
**Year of the most entering places in schools of dentistry

Table VII. Number of active dentists and dentist to population ratios by general and specialty practice, December 31, 1980 and 1986 (18)

	December 31, 1980		December 31, 1986	
Type of practice	Number	Dentists per 100,000 population	Number	Dentists per 100,000 population
Total	126,200	55.2	143,000	58.9
General practice	109,050	47.7	121,700	50.2
All specialties	17,150	7.5	21,300	8.8
Orthodontics	6,560	2.9	7,150	2.9
Oral & Max. Surg.	3,960	1.7	4,730	1.9
Periodontics	2,240	1.0	3,030	1.2
Pediatric Dent.	2,060	0.9	2,600	1.1
Endodontics	1,170	0.5	1,900	0.8
Prosthodontics	950	0.4	1,560	0.6
Public Health	110	0.1	170	0.1
Oral Pathology	100	<0.05	160	0.1

the increase in the number of female practitioners. During the 1980s, there was more than a 400 percent increase in the number of female dentists. By 2000, there will be more than 24 thousand female dentists representing more than 15 percent of total number of dentists in this country.* (Table VIII)

Overall, as a result of the marked increases in the number of recent graduates, three fifths (59.8 percent) of current private practitioners graduated from dental school since 1965. And 18.7 percent of all private practitioners are under the age of 35; more than half (52.1 percent) are under age 45. In 1987, the average age of solo practitioners and non-solo practitioners was 47.5 years and 42.8 years, respectively.[21]

Dental Auxiliaries

The growth in the number of dental hygiene, dental assistant and dental technician programs, and numbers of entering places and graduates mirrored developments in schools of dentistry. There were major increases through the late 1970s and early 1980s and then a leveling off; followed by decreases. Between 1980 and 1987, there was a 21.8 percent decrease in dental assistant graduates and a 25 percent decrease in the number of dental hygienist and dental technician graduates.[22]

But these decreases came at a time when dental practices have been increasing their employment profiles and more services are be-

*These data from the "Sixth Report to the President and Congress" do not reflect the latest 1989 information from the American Dental Association and the American Association of Dental Schools' Manpower Report which document marked decreases in the number of dentists (and associated projections) since the last ADA 1982 manpower report. Thus, there are some numeric inconsistencies in the projected overall number of practitioners and the number of practitioners by gender. Future federal agency reports (which, to some extent rely on ADA survey information) no doubt will revise these projections.

Table VIII. Number and percent male and female dentists: selected years 1979–2000 (18, 20)

Year	Number Male	Number Female	Percent female of all dentists
1979	115,289	1,934	1.6%
1986	134,000	9,000	6.3
1990	150,300	13,500	9.0
2000	131,700	24,600	15.7

ing delegated to dental hygienists and other personnel. Between 1980 and 1986, overall personnel employed in dental offices increased by 82 thousand employees (almost 20 percent). Throughout the 1980s, (except for 1982—during the last economic recession) there was an overall annual increase in employment in dental offices and an increase in the number of dental hygienists and dental technicians per 100 dentists. (Tables IX and X)

Table IX. Personnel employed in offices of dentists: selected years 1980–1986 (13)

Year	Number of persons (in thousands)
1980	415
1981	423
1982	415
1984	468
1986	497

But the changing pattern of dental practice during the 1980s has altered dramatically the employment pattern in dental offices. Between 1980 and 1986, there was a 16.7 percent increase in the total number of dental establishments* in the United States. In 1986, dental establishments that employed less than five individuals still represented 60 percent of all dental establishments. However, between 1980 and 1986, there was only a 1.4 percent growth in these smaller facilities. (Between 1985 and 1986, there was an actual numeric decrease of the smaller facilities from 60,444 to 60,037 establishments.) But during the same period, establishments with greater number of employees increased as much as 80 percent. By 1985 and 1986, one dental establishment had more than 250 employees. (Table XI)

*An *establishment* is a single physical location at which business is conducted. It is not necessarily identical with a *firm*, which may consist of one or more establishments.

Table X. Estimated number of active dental hygienists, dental assistants and laboratory technicians, and number per 100 active dentists: 1980, 1986 (18)

	Dental Hygienists		Dental Assistants		Dental Technicians	
Year	Number	Number per 100 dentists	Number	Number per 100 dentists	Number	Number per 100 dentists
1980	38,400	30.4	155,500	123	52,600	41.7
1986	47,700	33.3	174,900	122	62,900	44.0

Overall, in 1980, the average dental establishment had 3.98 employees. By 1986, the average increased to 4.65 employees.[23] In 1986, 96 percent of independent dentists** employed some full or part-time staff; 43.8 percent had 1 to 3 employees; 52.2 percent employed four or more staff members.[21]

And projections from the U.S. Department of Labor forecast a continued increase in the number of job opportunities for dental auxiliaries. Between 1984 and 1995, it is projected that there will be between a 1.9 and 2.4 percent annual increase in the number of job openings for dental auxiliaries.[24]

As a result of the 1) increasing demand for dental services, 2) changing patterns of dental practice employment and 3) decreases in the production of dental auxiliaries, a developing problem in dental practice is the unavailability and/or inability to retain needed and qualified auxiliary staff members.

More than half of the dentists queried (51 percent) in Dental Management's 1987 Survey reported that they managed to hire and retain personnel, *"but doing so hasn't been easy."*[25] (emphasis added) There are increasing demands for higher salaries and greater fringe benefits, including paid vacations, holidays and sick leave, free dental care for employees and the employee's family, continuing education allowances, medical insurance, uniform allowances, retirement plans, life and disability insurance and automobile allowances.[25]

From the employee's perspective, weekly salaries and commissions in terms of constant dollars (i.e., removal of the effects of inflation) during the late 1970s and 1980s mostly *decreased*. (Table XII) And this was at a time when dental

**An independent dentist can either be a solo practitioner in an unincorporated dental practice, a partner in a complete or limited partnership, or a shareholder in an incorporated practice.

Table XI. Number of employees in dental establishments and percentage change: 1980–1986 (23)

Number of employees	Number of dental establishments 1980	1986	Percent change
1–4	59,207	60,037	1.4%
5–9	21,877	31,270	42.9
10–19	4,000	7,603	70.8
20–49	548	985	79.7
50+*	59	96	62.7
Total	85,691	99,991	16.7%

*In 1986, one establishment had 250 or more employees

practice activity and dentist income have improved (see below).

Changing Practice Arrangements

In addition to the marked increases in the number of larger dental establishments in the 1980s, there have been significant developments in practice ownership arrangements. Between 1980 and 1986, there was a small decrease (2.3 percent) in the number of sole proprietorships. However, during this same period, there was a 29 percent increase in the number of professional corporations and a 126 percent increase in the number of partnerships. (The actual number of partners per partnership remained relatively constant.) (Tables XIII and XIV)

In addition to these developments in practice arrangements, the 1980s brought us a new innovation in the marketing of dental services—dental franchises. The lead article in a 1984 issue of Barron's National Business and Financial Weekly, on "Investing in Storefront Dentistry," informed the readership that, "making a profit in it is clearly, well, like pulling teeth" and "it turns out that teeth are different from hamburgers."[32] One viewpoint presentation on why dental franchises fail,[33] attempted to debunk the "myths" associated with the favorable potential for franchises—reduced overhead, increased numbers of patients resulting from advertising, and the importance of name recognition, marketing techniques and financial backing.

Nevertheless, dental franchising firms continue to proliferate—but hardly at the rate which seemed destined to overshadow traditional forms of practice. Between 1981 (the first year in which dental franchises were listed in the U.S. Department of Commerce's "Franchise Opportunity Handbook"[34]) and 1987, a total of 17 business firms (which deliver dental services) are recorded as involved currently (or were involved) in dental franchising operations. While a few dental firms reported 70 and 80 plus franchises, (which later decrease in number) for the most part, parent firms tended to have far fewer franchises. (Table XV)

Table XII. Current and constant dollar full-time dental auxiliary average weekly salary or commission by practitioners: selected years 1978–1987 (21, 25, 26)

Year	Dental Hygienist Current Dollars	Dental Hygienist Constant Dollars	Dental Assistant Current Dollars	Dental Assistant Constant Dollars	Dental Technician Current Dollars	Dental Technician Constant Dollars
			Independent Practitioners			
1981	$356	($131)	$259	(95)	$346	($127)
1984	391	(126)	241	(77)	327	(105)
1986	453	(138)	223*	(68)	360**	(109)
			216–300***	(66–91)		
1987			228–327***	(67–96)		
			*Solo Practitioners***			
1978	270	(138)	174	(89)	268	(137)
1981	345	(127)	238	(87)	321	(118)
1984	383	(123)	238	(77)	295	(95)
1986	435	(132)				

Note: All data, unless otherwise specified, are from the ADA Surveys of Dental Practice. In some cases, the data presentation varied from ADA Survey to Survey. For example, the most recent Survey did not collect data on the salaries of the dental assistants and dental technicians

*Median figure for employment by all dentists (Dept. of Labor)

**Approximate mean figure; employment location not specified

***Represents mean entry level salary and mean experience level salary for employment by all dentists (Dental Management)

****A solo dentist, as well as being the only owner of a practice, is the only dentist working in the practice.

The Economics of Dental Practice

Any effort to describe the development in dental economics is complicated by complex business accounting procedures.

> "The dental profession has learned some valuable lessons

Table XIII. Tax return information: Dental practice ownership arrangements: selected year 1975–1986 (27–31)

Year	Sole Proprietorship	Partnerships	Partners	Corporations
	NUMBER			
1975	82,735	2,241	4,863	15,029
1980	82,265	3,609	8,722	32,179
1982	78,468	5,757	14,979	39,732*
1984	77,439	6,499	16,151	40,451**
1986	79,904	8,158	19,234	41,411***

Fiscal Years

*July 1981–June 1982
**July 1983–June 1984
***July 1985–June 1986

Table XIV. Number of partners per partnership (30, 31)

Year	Number
1980	2.4
1982	2.6
1984	2.5
1986	2.4

Table XV. Dental franchise firms, data when incorporated or franchised, last available equity requirements for a franchise, and number of franchises as listed in federal directory (34)

Name of firm	In business since*	Equity required	Number of franchises 1981	1982	1983	1984	1985	1986	1987
Dental World Center	1978	$250,000		3	4	5	4		
Dentanomics	1978	55,000					32	33	
Dentcare Systems	1978	20,000	35	35	No longer in business				
Health-Tech Management	1978	45,000				32			
Nu-Dimensions Dent. Serv.	1978	50,000				8	9	9	9
Omnidentix Systems	1979	50–100,000		7	15	15			
Amdent	1980	500 +			15	15	15		
American Dent. Council	1980	50,000				3	3	2	3
Jonathan Dental	1980	14,500					14	12	17
RDH	1980	25–50,000				19			
United Dental Network	1980	50,000/region		70	70	41			
Dental Health Services	1981	50,000				7	12	15	15
Dwight Systems	1982	95–185,000			45	86	86	9	20
General Health Systems	1982	10–15,000			4	4	3	3	
Smiles	1983	6,000				30	49		
Capitation Systems	1984	15,000				31	31		
Consumer Dental	1984	125–225,000				14	16	20	
Dental Power Internat.**	1984	20,000					12	25***	30***

Note: Includes only those franchises reported in the 1981 through 1988 annual publication, "Franchise Opportunities Handbook." A blank for a year does not indicate that the franchise did not exist.

*Date when incorporated or franchised. Some companies may have started business at earlier dates in different forms

**A personnel placement service—not a dental practice arrangement

***Includes United States and Canada

from corporate America. The name of the game is get money *into* (sic) the overhead of practice—health benefits, vacations, the company car, tax shelters, IRAs, Keogh Plans. Dentists have learned to place these items into overhead and make it tax deductible."[4]

However, Internal Revenue Service (IRS) reports on dental practice, Health Care Financing Administration (HCFA) overall national expenditure data, and survey reports on business receipts that appear in professional and proprietary publications do permit a review of the evolving economics of practice. However, one must consider the reality that business receipts may be under-reported or over-reported in some reports. For example in 1986, the following business receipts per sole owner were reported:

—Internal Revenue Service—$114,623[31]
—Dental Management—$186,797[35]
—American Dental Association—$198,490[21]

In addition, the Health Care Financing Administration reported that 1986 national expenditures per dentist were $218,210.[36]

In an attempt to overcome these difficulties, data from the different studies were considered separately. The assumption was made that the rate of under-reporting and/or over-reporting in a particular report did not vary significantly from one year to another.*

Despite the increase in the number of dentists, between 1980 and 1988, current and constant dollar national expenditures per dentist (as reported by HCFA) increased annually. The single exception was the decrease that occurred in constant dollar expenditures per dentist in 1981—the period of the last economic recession. (Table XVI)

Table XVI. Number of dentists and current and constant dollar national dental expenditures per active dentist: 1980–1988 (19, 20, 36, 38, 39)

Year	Number of dentists*	Total dental expenditures**	Current dollar expenditures per dentist	Constant Dollar expenditures per dentist
1980	120,240	$15.4	$127,825	$51,792
1981	123,731	17.3	139,819	*51,328****
1982	126,985	19.5	153,561	53,116
1983	129,151	21.7	168,020	56,306
1984	131,317	24.6	187,332	60,216
1985	133,482	27.1	203,023	63,011
1986	135,649	29.6	218,210	66,446
1987	137,817	32.8	237,996	69,916
1988	138,749	37.0*****	266,668	75,329

* Number of dentists is based on ADA data for 1979, 1982 and 1987. Data for all other years are estimated based on prorating these ADA figures.
** In Billions
*** Note decrease during the period of the economic recession
**** Preliminary expenditure data

Internal Revenue Service data for the 1980s indicate that increases in current dollar business receipts were reported by sole owner practices and corporations. Although there was a general increase between 1980 and 1986 in partnership business receipts, variations occurred during intervening years. (Table XVII) Constant dollar IRS business receipt reports were varied. Overall, sole owner practice receipts changed little; partnerships receipts decreased and corporations receipts increased. (Table XVIII)

But it is the increasing cost of delivering dental services (essentially the difference between gross and net income) that raises signifi-

Table XVII. Tax return information: CURRENT DOLLAR business receipts per sole owner, per partnerships, per partner and dental corporation: selected years, 1980–1986 (27–31)

Year	Sole Owner	Per Partnership	Per Partner	Corporation
1980	$85,768	$211,844	$87,657	$241,042
1982	96,693	244,312	99,244	287,469*
1984	110,796	228,321	91,874	313,031**
1986	114,623	232,098	98,443	332,609***

Fiscal Years

* July 1981–June 1982
** July 1983–June 1984
*** July 1985–June 1986

*For a more detailed discussion on the difficulties in determining practitioner income, see an earlier presentation by this writer in the Journal of the American College of Dentists.[37] (Fall, 1988)

Table XVIII. Tax return information: CONSTANT DOLLAR business receipts per sole owner, per partnerships, per partner and dental corporation: selected years, 1980–1986 (27–31, 38)

Year	Sole Owner	Per Partnership	Per Partner	Corporation
1980	$34,737	$85,836	$35,503	$97,627
1982	34,209	78,540	34,400	99,642*
1984	36,370	73,391	30,152	102,734**
1986	34,903	70,680	30,262	102,247***

Fiscal Years

*July 1981–June 1982
**July 1983–June 1984
***July 1985–June 1986

cant concerns. The days are long gone when professional expenses averaged less than half of practice gross receipts. Specifically in 1970, overhead expenses represented 48.1 percent of gross income for independent dentists.[21] By 1986, overhead expenses increased to almost two-thirds (64.7 percent) of gross receipts. Nevertheless, based upon Health Care Financing Administration national expenditure data per practitioner and ADA Survey of Dental Practice gross receipt data, *constant dollar dental practitioner net income increased during the 1980s*. Constant dollar net income, based on IRS reports, did show an increase and then return to the 1981 level. (Table XIX)

Finally, during the 1980s, private dental insurance continued to provide an increasing share of dental expenditures; from 20.7 percent in 1980 to 33.6 percent in 1987. On the other hand, government program share of national dental expenditures decreased from 3.8 percent to 2.1 percent.[36,40]

Table XIX. ADA net income figure as a percent of gross receipts, and CONSTANT DOLLAR NET income based on national expenditures per practitioner, and IRS and ADA gross receipt data: selected years, 1981–1986 (21, 29, 31, 36, 38)

Year	(ADA) (Solo Pract.) Net income as a percent of gross receipts	Constant Dollar Net Income (HCFA) expenditures per dentist	(IRS) Gross receipt data	(ADA) Gross receipt data
1981	40.1%	$20,582	$12,334	$20,046
1983	37.4	21,058	13,424	19,770
1985	36.1	22,746	12,969	20,149
1986	35.3	23,455	12,320	21,345

Beyond the 1980s

In many ways the 1980s have been a roller coaster ride for the dental profession. But just as roller coaster rides progressively modulate the rises and falls after the initial shocking descent, developments in dentistry appear to be on the right track. The production of providers is under control. The public has recognized the continuing need for dental care and is demanding increased services. The overall economics of dental practice is favorable. Many of the worst fears of commercial dentistry have not materialized.

Yes, there are a host of problems; including the "L" words (i.e., lawyers and litigation), demands for independent practice by various auxiliaries, third party review and who knows what else the morning newspaper will bring. But in general, it just seems that as we enter the 1990s, we can be more optimistic about the future of the dental profession than we were when we entered the 1980s.

> "Certainty, is not the name of the game, when projecting future economics. Nevertheless, current indicators for the economics of the dental profession through the year 200 are positive."[41] △

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EVALUATING DENTAL FACULTY PERFORMANCE

Perceptions of United States and Canadian Dental School Faculty

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In this study, 342 full-time dental faculty in 67 United States and Canadian Dental Schools ranked, in decreasing order of importance, 12 performance criteria and then ranked the same 12 criteria as they perceived those who evaluate faculty (chairpersons/administration) would rank them. Agreement between faculty's global ranking gave a positive rho of .74. Ranking agreement in 9 of 11 clinical departments were significant and ranged from .58 to .86. Although the global ranking was significant, an important discrepancy in rank-order was noted. Faculty perceived that those who evaluate performance would rank the number of publications number one while faculty ranked classroom, clinical and laboratory teaching number one and the number of publications number six. Implications of the discrepancy between the perceived importance of research productivity and teaching in faculty evaluation were discussed with respect to the increasing emphasis placed on research for dental faculty within the university.

Introduction

Academic dentistry is experiencing change in response to recent trends in dental education. Since 1975 the number of applicants to dental schools have decreased from 15,734 to 6,216 in 1986, a 60 percent decline. Additionally, first year student enrollment has fallen from 6,301 in 1978 to 4554 in 1986, a 28 percent decline.[1] Projections indicate that first year enrollment will fall to 3,170 in 1996, a 50 percent decline from 1978.[2] The reduction in student numbers, combined with increasing fiscal austerity and a 64 percent tenure rate among clinical faculty, places increasing importance on effective faculty evaluation in this changing educational environment.[3]

Although problems in faculty evaluation have centered on questions of instrument validity and methods used in evaluation, the focus of most controversy rests on weights of specific criteria.[4,5,6] As in many disciplines within higher education, dental faculty perceive an emphasis on scholarly activity, especially in the form of number of publications, as a dominant factor in evaluation of faculty performance.[7,8,9] This may be because it is easier for promotion and tenure committees to evaluate quantiatively an individual's success in publishing.[10] A recent study at a large midwestern dental school demonstrated that faculty feel that research resulting in publication should be of relatively low importance in the evaluation of performance.[11] If this belief is true within the discipline, it would seem to be at odds with traditional concepts of the academic within the university.

If effective evaluation of faculty's performance is an issue of increasing importance in today's dental schools, two questions arise concerning this process: (1) do faculty, as a group and across departmental boundaries, perceive and rank performance criteria the same as they perceive those who evaluate performance (chairpersons/administration)? and (2) are criteria receiving emphasis in performance evaluation facilitating career and discipline advancement in today's research-oriented university environment?

Method

During the fall of 1987, the authors conducted a mail survey to dental faculty in all 67 dental schools in the United States and Canada. A stratified random sample, consisting of 517 faculty, was obtained from the 1986–87 Directory of Dental Educators.[12] The sample included only faculty who: (1) possessed a dental degree and were employed on a full-time basis; (2) were teaching in a clinical department of a dental school; and (3) were not departmental chairpersons or a member of the school's administration. A covering letter, addressed to each individual faculty member, explained the purpose of the study and sought their participation. Faculty were re-

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quested to complete the survey and return it within four weeks. After two mailings, 342 of 517 faculty (66 percent response rate) completed the survey. This response rate has been reported acceptable for mail surveys used for a professional population.[13]

The 12 faculty performance criteria were adapted from Centra.[5] They included (1) personal qualifications (academic degrees, personal experience), (2) classroom, clinical and laboratory teaching, (3) research and/or creative activity (independent of publication), (4) campus committee work, (5) number of publications, (6) supervision and service on student research committees, (7) quality of publications, (8) student advising, (9) public or community service, (10) activity in professional societies (hold office, edit journal), (11) personality factors (relates easily to students and fellow faculty), and (12) consultation (government, business).

Faculty were asked to rank, in decreasing order of importance, the 12 performance criteria as to their importance to them in performance evaluation and then to rank the same 12 criteria as they perceived individuals who evaluate faculty performance (chairpersons/administration) would rank them. A Spearman's correlation was computed between the two perceptual rankings.

The 342 faculty were divided into 11 clinical departments for the purpose of clarifying a particular department's preference. The departments, as well as the number of responding individuals in each, were as follows: Oral Pathology (N = 22), Periodontics (N = 41), Pediatric Dentistry (N = 22), Oral and Maxillofacial Surgery (N = 29), Endodontics (N = 19), Orthodontics (N = 23), Prosthodontics (N = 63), Restorative/Operative Dentistry (N = 53), Diagnostic Sciences/Radiology (N = 21), Oral Diagnosis/Oral Medicine (N = 24), and Preventive Dentistry (N = 25).

Results

The faculty's global ranking (all departments, rho of .74, $p < .01$) and all but two individual departments (ranging from rho of .58, $p < .05$ to .86, $p < .001$) were significantly correlated with the way faculty rank performance criteria and the way they perceive those who evaluate faculty performance ranking the same criteria. (Table 1) In rank order, as shown in Table 2, the top six criteria for faculty's perceived chairperson/administrative ranking of performance criteria were Number of publications; Research and/or creative activity (independent of publication); Personal qualifications; Classroom, clinical and laboratory teaching; quality of publications; and campus committee work. With few exceptions, all departments followed this general trend. The ranking sequence of remaining criteria, all of which showed strong interdepartmental rank-order correlation, are presented in Table 2.

In evaluating faculty's own ranking of performance criteria, as shown in Table 3, the top six criteria in rank order were classroom, clinical and laboratory teaching; personal qualifications; research

Table 1. Spearman's Correlation for Perceived Administrative Ranking and Actual Faculty Ranking of Performance Criteria

Clinical Department	Spearman's rho	N
Global Ranking	.74**	342
Oral Pathology	.86*	22
Periodontics	.83**	41
Pediatric Dentistry	.78**	22
Oral and Maxillofacial Surgery	.79**	29
Endodontics	.79**	19
Orthodontics	.58***	23
Prosthodontics	.56	63
Restorative/Operative Dentistry	.67***	53
Diagnostic Sciences/Radiology	.77**	21
Oral Diagnosis/Oral Medicine	.54	24
Preventive Dentistry	.74**	25

*Significant at the $p < .001$ level.
**Significant at the $p < .01$ level.
***Significant at the $p < .05$ level.

Table 2. Faculty's Perceived Administrative Rankings of Performance Criteria: Global and Departmental Rankings

Evaluation Criteria	Global Rankings	Clinical Department Rankings*										
		A	B	C	D	E	F	G	H	I	J	K
Personal Qualifications	3	3	3	3	1	4	1	3	3	3	3	4
Classroom, Clinical, Laboratory Teaching	4	5	5	5	4	5	3	5	5	5	4	3
Research and/or Creative Activities	2	2	2	2	3	2	4	2	2	2	2	2
Campus Committee Work	6	7	6	6	6	8	6	7	7	6	7	6
Number of Publications	1	1	1	1	2	1	2	1	1	1	1	1
Supervision and Service on Student Research Committees	7	6	7	7	7	10	5	6	9	10	6	9
Quality of Publications	5	4	4	4	5	3	8	4	4	4	5	5
Student Advising	11	10	10	12	10	9	12	11	12	11	11	11
Public or Community Service	10	11	11	9	11	11	11	12	10	9	12	12
Activity in Professional Organizations	8	8	8	8	9	7	9	9	6	7	8	8
Personality Factors	9	9	9	10	8	6	7	8	8	8	9	7
Consulation	12	12	12	11	12	12	10	10	11	12	10	10

*Department Designations

A. Oral Pathology
B. Periodontics
C. Pediatric Dentistry
D. Oral and Maxillofacial Surgery
E. Endodontics
F. Orthodontics
G. Prosthodontics
H. Restorative/Operative Dentistry
I. Diagnostic Sciences/Radiology
J. Oral Diagnosis/Oral Medicine
K. Preventive Dentistry

and/or creative activity (independent of publication); quality of publications; personality factors; and number of publications. The ranking sequence of remaining criteria, all of which demonstrated strong interdepartmental rank-order correlation, are presented in Table 3.

When comparing global rankings of performance criteria in Tables 2 and 3, several important factors become evident. Faculty perceived that chairpersons/administration would rank number of publications first, research and/or creative activity (independent of publication) second, and personal qualifications third. This ranking is different from faculty's actual ranking of classroom, clinical and laboratory teaching first, personal qualifications second and research and/or creative activities (independent of publication) third. The remaining global ranking of performance criteria for both groups documents close rank-order correlation. The discrepancy in the ranking of number of publications (perceived ranking = 1 and actual faculty ranking = 6) is cause for concern if effective performance evaluation is desired.

Discussion

This study focused on faculty's perceptions of chairperson/administration rankings of specific performance criteria and not through actual rankings. The significance of obtaining only faculty's perceptions was to assess any difference between their own perceptions of criteria and their perceptions of those responsible for performance evaluation by the same criteria.

It is apparent from this study that faculty express a significant overall level of agreement on these 12 performance criteria. In an earlier study using these same 12 criteria, 388 departmental chairpersons in schools of dentistry also ranked teaching as the most important factor in performance evaluation,

Table 3. Faculty's Actual Ranking of Performance Criteria: Global and Departmental Rankings

Evaluation Criteria	Global Rankings	Clinical Department Rankings*										
		A	B	C	D	E	F	G	H	I	J	K
Personal Qualifications	2	5	2	4	2	4	2	2	2	2	2	2
Classroom, Clinical, Laboratory Teaching	1	1	1	1	1	1	1	1	1	1	1	1
Research and/or Creative Activities	3	3	3	2	3	2	4	3	3	3	3	3
Campus Committee Work	9	8	8	6	7	10	8	7	8	7	9	6
Number of Publications	6	4	5	5	8	6	9	9	6	5	8	7
Supervision and Service on Student Research Committees	7	6	6	8	6	7	5	8	9	8	7	9
Quality of Publications	4	2	4	3	4	3	7	4	4	4	5	4
Student Advising	8	10	9	9	9	8	6	6	7	9	6	8
Public or Community Service	11	11	11	11	11	11	10	11	11	10	10	10
Activity in Professional Organizations	10	9	10	10	10	9	11	10	10	11	11	11
Personality Factors	5	7	7	7	5	5	3	5	5	6	4	5
Consulation	12	12	12	12	12	12	12	12	12	12	12	12

*Department Designations

A. Oral Pathology
B. Periodontics
C. Pediatric Dentistry
D. Oral and Maxillofacial Surgery
E. Endodontics
F. Orthodontics
G. Prosthodontics
H. Restorative/Operative Dentistry
I. Diagnostic Sciences/Radiology
J. Oral Diagnosis/Oral Medicine
K. Preventive Dentistry

number of publications ranked fifth.[14] The emphasis on teaching has also been found to dominate performance evaluation among 57 dental school deans in which teaching was ranked first and number of publications ranked fourth.[15] The question of whether the emphasis on teaching is in the best interest of the faculty, university and ultimately the profession is a topic of increasing importance for academic dentistry.

Within a university framework, the matching of faculty need and enterprise goal attainment is essential in reducing conflict.[16] Although many dental faculty have, in the past, been primarily rewarded for excellence in classroom, clinical and laboratory teaching, the changing educational environment demands that the profession become more responsive to the academic realities of the present.[17] Research activity resulting in publication has been demonstrated to be higher educations primary criterion for promotion, tenure and salary increases.[18,19] University administrators are clarifying missions and planning long-term directions for their institutions with faculty research productivity playing an increasingly important role. For dental faculty to indicate that teaching should be the most important factor in performance evaluation, although perhaps appearing proper, may seem inappropriate within the scope of the research university. Bawden,[20] in discussing modern dentistry's place within the university, stated:

> Schools of dentistry in the United States are university-based institutions and therefore expected to be full partners in the broad spectrum of activities and obligations embraced by their respective universities. Foremost among these activities and obligations is the conduct of an ongoing research program of reasonable scope and quality. A dental school that does not meet that obligation bears the name of its university under false

> pretenses and is a second-class citizen in the university community. A dental school is either a real part of the university or not—a distinction made primarily on the basis of its research. Thus, from the standpoint of university relations, the research priority is of extreme importance (p.289).

The question of improving research productivity within academic dentistry has been the focus of discussion within the profession. Sinkford and Boyd[21] emphasized the recruitment and retention of a "critical mass" of career faculty with special interests and skills in research. The development of research centers for clinical specialties that combines clinical training and research has been advocated by Proffit and Vig.[22] They stated:

> At least three reasons can be given for the incorporating of research experience into advanced dental education programs: (1) to meet the specific need for individuals trained in clinical research; (2) to improve the quantity and quality of clinical research in dentistry; and (3) to improve the quality of the educational process by adding an extra intellectual dimension, even to highly clinical environments (p.313).

Although the preceding programs are of importance to individuals preparing to enter academic dentistry, effective development programs are essential for current faculty who may have not been educationally prepared to function competitively within the academic community. An institution must have a plan to develop and retrain high-quality faculty grounded in those activities that most benefit advancement in today's educational environment. These activities must have strong, realistic administrative support which focus on the ability to enhance the ability to obtain external funding, develop research skills, and conduct and report quality research. △

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CLINICAL MICROBIOLOGY IN THE DIAGNOSIS AND TREATMENT OF PERIODONTAL DISEASE

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Of the two to three hundred different bacterial species which can be present in the human oral cavity, there are only a small number which normally cause disease. *Streptococcus mutans* and Lactobacilli, for example, are important in causing dental caries while *Actinobacillus actinomycetemcomitans, Bacteroides intermedius,* and *Bacteroides gingivalis* and several other subgingival organisms have been associated with discrete types of periodontal disease. Most studies relating to etiology show that certain species can cause dental caries and periodontal disease, hence the use of clinical microbiological and immunological assays to detect these microorganisms might become a reasonable and, possibly, a necessary part of dental practice. This paper describes principles behind the diagnosis and treatment of infectious diseases and the methods which are currently used.

In general, there are a number of important factors to consider in treating bacterial infections. First, the identity of the infecting microorganism(s) should be ascertained. This is a key step in the diagnosis of an infectious disease which enables the clinician to arrive at a diagnosis based on the microbial etiology of the disease rather than on clinical appearance. Identification of the infectious agent also leads to the second step—appropriate therapy—which may entail the administration of an antibiotic or the use of mechanical means to remove the infectious agent. The choice of appropriate therapy should be based on the susceptibility of the infecting organism(s), and the nature of the infection (i.e., whether it is treatable with debridement or topical application of broad spectrum germicides or is invasive and requires systemic antibiotics). Finally, a series of host factors must be taken into consideration to choose the optimal anti-infective drug therapy. These include considerations of allergy and other possible adverse reactions to the chemotherapeutic agents contemplated. For many forms of periodontal disease, initial treatment will consist of mechanical debridement or topical broad spectrum antimicrobial agents. This then limits the necessity for antibiotic susceptibility testing to those circumstances where antibiotics are necessary for therapy. Antibiotic susceptibility testing will not be necessary where mechanical debridement or topical broad spectrum germicidal therapies are effective.

Indications for the Use of Microbiological Assays

The use of microbiological tests in periodontal disease can be considered in two broad categories: (a) use in individual patients, and (b) use in groups of subjects or patients. Indications for the use of microbiological assays in individual patients are listed in Table 1 and include:

1. *Diagnosis in determining the causative agent.* Clinical studies show that most adult periodontitis patients can be successfully treated by mechanical debridement or topical antimicrobials applied at the time of therapy. There are certain patients, however, who present with a clinically distinct group of signs and symptoms suggestive of periodontal disease other than chronic adult periodontitis. These patients include those with refractory periodontitis, localized juvenile periodontitis, generalized juvenile periodontitis, rapidly progressing adult periodontitis, and pre-pubertal periodontitis. Microbiological assays are indicated in these patients as an adjunct to the usual clinical and radiographic examinations in the formulation of an etiology-based diagnosis. The underlying need for such microbiological assays is that the detection of certain subgingival periodontal pathogens may indicate the need for systemic antimicrobial or surgical procedures to eliminate the infected periodontal tissues—a goal which likely cannot be achieved by the usual treatment regimen. For example, effective eradication of *A. actinomycetemcomitans* in localized juvenile periodontitis often requires a combination of mechanical debridement, surgery and systemic antibiotic agents since *A. actinomycetemcomitans* can invade the gingival tissues. Systemic antibiotics are also effective in treating

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Table 1. Proposed use of microbiological tests for specific periodontal pathogens in individual patients

Indication	Sampling method	Test		
		Rapid[a]	Serum[b] antibody	Culture and antibiotic sensitivity
1) To determine the causative agent	Single site if tooth or area in question, pooled or multiple if diagnosis of oral infection required.	x	x	
2) To assess disease "active" sites	Single site, or relevant	x		
3) For treatment planning, new patients	As for No. 1	x		
4) For treatment planning, "refractory" patient	Single site, or relevant sites.		x	x
5) To monitor the effects of treatment	Pooled plaque samples, saliva or mouthrinse	x		
6) To decide on recall interval	Pooled plaque samples, saliva or mouthrinse	x		

[a] Rapid test to include those non-cultural tests which require a modest amount of time in sampling the site or patient (eg. minutes). They may require a day or more of testing in a reference laboratory (eg. immunologic test such as immunofluorescence, ELISA, or DNA probes, or enzyme tests).

[b] Serum antibody determination to organism which is statistically most likely to be found in that clinical situation (eg. *A. actinomycetemcomitans* in juvenile periodontal diseases, and *B. gingivalis* in adult periodontitis).

(adapted from Genco, R.J., et al Oral Biology and Immunology 1:73, 1986)

refractory or recurrent periodontitis in both adults and juveniles.

2. *To determine sites of "active" tissue destruction.* Clinical examination may show evidence of periodontal destruction, however, both cross-sectional and longitudinal epidemiological studies indicate that destructive periodontitis in a population with untreated periodontal disease is cumulative. Therefore, loss of periodontal attachment and alveolar bone does not necessarily indicate active disease and current infection. Subgingival plaque samples from the site or sites where active tissue destruction is suspected can be analyzed by rapid microbiological assays since therapy in adult periodontitis patients is not likely to involve the use of antibiotics initially. If a causative agent is present in sufficient numbers, the disease may be active in those specific sites or those sites may be "at risk" for loss of attachment, and directed antimicrobial therapy may be instituted for these sites.

3. *Treatment planning for new patients.* In mild adult periodontitis, several studies have shown that thorough scaling and root planing alone, or mechanical debridement of the root surface with topical germicidal or antimicrobial agents is generally adequate. In unusual cases, microbiologic tests are useful to determine the causative agent which may, in turn, determine the best mode of therapy. For example, in localized juvenile periodontitis, effective eradication of *A. actinomycetemcomitans* requires a combination of mechanical debridement and systemic antibiotic agents.

The sample site for initial diagnosis and treatment planning should be representative of the whole mouth. Samples from sev-

eral teeth, or samples pooled from several teeth, or salivary samples may give a good measure of the nature and level of infection of the patient. A rapid microbiological assay is useful at this stage since only identification of the causative agent is necessary.

4. *Treatment of "refractory" patients.* Patients with refractory or recurrent periodontitis present a special problem. These patients have received extensive treatment, often surgery, and sometimes multiple courses of systemic antibiotics and have failed to respond. It may be that these patients were not completely treated or that their home care was inadequate. It is convenient, however, to refer to them as "refractory" patients. The periodontal site or sites at which inflammation persists are sampled. It is most likely that culture and antibiotic susceptibility testing will be necessary in "refractory" patients since another course of antibiotics will probably be needed, and the organism likely to be responsible for the continuing periodontal destruction may be resistant to previously used antibiotics.

5. *To monitor treatment efficacy.* The treatment of an infectious disease such as periodontitis may necessitate the use of microbiological assays after the initial diagnosis and treatment in order to assess the efficacy of the therapy. The clinician is looking for objective measures of the success of treatment in addition to clinical indicators such as reductions in probing pocket depths and decreases in the number of bleeding points. Microbiological assays can tell the clinician if his mechanical and chemotherapeutic approach has been effective in eliminating the microbial etiology identified initially. Appropriate samples for monitoring treatment include pooled plaque. If therapy has been directed to one or several involved and critical teeth, then specific sites are sampled. Reduction of inflammation coupled with suppression or elimination of specific periodontal pathogens, such as *A. actinomycetemcomitans* and the black-pigmented *Bacteroides*, is a convenient, meaningful endpoint for therapy.

6. *To select an appropriate recall interval.* After periodontal therapy has been completed, microbiological tests again using pooled plaque samples can be useful in determining the rate of reinfection by periodontal pathogens. This is an additional parameter in determining an individual patient's optimum recall interval. If a patient is found to become infected with high levels of periodontal pathogens such as *A. actinomycetemcomitans* at one recall interval, then more frequent recall may be necessary; if inflammation is present, retreatment may be necessary. Conversely, if a patient does not exhibit re-infection over several recall visits, then longer recall intervals may be appropriate.

Another indication for microbiological tests in periodontal disease is examination of groups of individuals such as institutional clinical populations and large group practices, as well as for research purposes (Table 2). The indications for these types of microbioligical assays include:

1. *Epidemiologic studies of the prevalence of pathogens in various populations.* The sample indicated here is most likely a pooled plaque sample, saliva or mouthrinse, examined by a rapid assay, which preferably can be automated. Rapid microbiological tests, along with serum antibody determinations will be effective if the suspected pathogen is known. However, if the pathogen(s) are unknown, bacterial culture of patient samples will be necessary on a representative subset to identify the candidate pathogens which then could be assessed in the remainder of the group by rapid microbiologic tests.

2. *Longitudinal studies to assess the importance of various microorganisms in the initiation and progression of periodontal disease.* Here, single sites, multiple sites, pooled plaques, saliva or mouthrinse samples can be utilized depending upon the specific purposes of the study. Rapid tests and serum antibody determinations are likely to give meaningful information and be applicable to large numbers of individuals. Since these tests are rapid, large numbers of samples can be examined and repeated testing can be performed over time in the same group of individuals. This can provide longitudinal information regarding microbial acquisition or changes in the levels of specific periodontal pathogens which can in turn be correlated to clinical changes. If the pathogens are unknown, however, culture will

Table 2. Proposed use of microbiological tests for specific periodontal pathogens in groups of persons

Use	Sampling method	Test		
		Rapid[a]	Serum[b] antibody	Culture and antibiotic sensitivity
1) For epidemiologic purposes to determine prevalence of pathogens in various populations	Pooled plaque samples, saliva or mouthrinse to determine oral infection level.	x	x	x (if pathogens unknown)
2) In longitudinal studies, to assess the importance of various microorganisms	Single sites, or pooled plaque, saliva or mouthrinse	x	x	x (if pathogens unknown)
3) To identify persons at risk: a) for initial onset b) for recurrent disease	Pooled plaque samples, saliva or mouthrinse	x	x	x (if pathogens unknown)

[a]Rapid test to include those non-cultural tests which require a modest amount of time in sampling the site or patient (eg. minutes). They may require a day or more of testing in a reference laboratory (eg. immunologic test such as immunofluorescence, ELISA, or DNA probes, or enzymes tests).
[b]Serum antibody determination to organism which is statistically most likely to be found in that clinical situation (eg. *A. actinomycetemcomitans* in juvenile periodontal diseases, and *B. gingivalis* in adult periodontitis).
(Adapted from Genco, R.J., et al Oral Biology and Immunology 1:73, 1986)

be a necessary first step.

3. *Prevention of periodontitis in persons "at risk" for either the initial onset of periodontal disease or for recurrent disease.* Patients in certain categories may be especially at risk for the development of periodontitis. For example, 30–50% of pre-pubertal siblings of localized juvenile periodontitis patients either have incipient signs of periodontal disease or will develop periodontal disease. Also, treated juvenile periodontitis patients or refractory periodontitis patients are at increased risk for subsequent periodontal disease than other patients. Patients with certain systemic disease including diabetes mellitus, Down's syndrome, Papillon LeFevre Syndrome, and neutrophil disorders are also at high risk for developing periodontal disease. Microbiological tests for periodontal pathogens may be useful in designing preventive or treatment regimen for these patients. Microbiological monitoring of the subgingival flora in high risk subjects may be useful in preventing initial or recurrent disease. A positive microbiological test may indicate the need for antibiotic therapy to eliminate periodontal pathogens prior to signs of probing attachment loss. Here, pooled plaque samples and rapid microbiological tests are likely to be useful.

Sampling Dental Plaque for Microbiological Analysis

A key step in the analysis of dental plaque in the diagnosis and treatment of periodontal disease is

sampling. The goal in taking a patient sample is to provide a specimen for analysis which is representative of the area in question. In the case of plaque samples, subgingival plaque is most appropriate for analysis since it is in close contact with the gingiva and epithelial attachment and since it is more likely than supragingival dental plaque to contain higher numbers and proportions of those microorganisms which are etiologic in periodontitis. Other material which has been used as patient samples in determining periodontal status include supragingival dental plaque, scrapings from oral soft tissue surfaces, saliva, and gingival crevicular fluid.

Subgingival dental plaque can be sampled in several ways. One relatively expeditious and atraumatic method for sampling subgingival dental plaque is by means of sterile endodontic paper points. Sites of interest are selected. They may be of interest by virtue of being representative of the entire mouth as, for example, the "Ramfjord" teeth. Such site selection may be useful during initial diagnosis of a new patient or during epidemiologic screening of large patient groups. Or, a site may be of interest by virtue of its failure to respond to conventional periodontal therapy as seen by continued loss of attachment. Sample sites are isolated with cotton rolls to prevent contamination of the sample with bacteria in saliva and the teeth are air dried. Supragingival plaque is removed using either a sterile cotton pellet or a sterile scaler or curette. The instrument is moved in a coronal direction to avoid pushing supragingival plaque into the subgingival space. Three fine sterile paper points are then sequentially inserted to the depth of the gingival sulcus/periodontal pocket using firm pressure. If an interproximal site is being sampled, the paper points are directed in such a way so that the tip of the paper points come to rest in the deepest point directly under the contact area. Ten seconds from the time the last paper point is placed, they are all removed together and then placed into media for shipment to the laboratory or testing in office. Samples intended for analysis using DNA probes do not require the use of a transport medium.

Alternatively, subgingival plaque can be routinely sampled using a sterile curette. Again, after isolating the sample site and removing the supragingival dental plaque as described above, a curette is placed to the depth of the gingival sulcus/periodontal pocket and moved coronally with firm lateral pressure against the root surface. The material is then shaken from the curette tip into the transport medium, the instrument is re-sterilized as in a salt sterilizer, and it can then be used again to sample the next site. Some investigators advocate the use of nickel-plated curettes as a means of avoiding oxidation within the sample and the loss of anaerobic microorganisms which may be present.

Clinical Microbiological Assays

Bacterial Culture

The definitive microbiological assay is bacterial culture. If a species can be cultured from a lesion, there can be little doubt that the microrganism infects that site. For this reason, bacterial culture can be considered to be the "gold standard" against which other methods are compared. Bacterial culture also affords the opportunity to determine the antibiotic susceptibility of a patient sample and, hence, which antibiotic is most useful in treating the patient. Bacterial culture is, however, time-consuming, expensive, and it requires considerable technical expertise. Certain pathogens such as spirochetes cannot be cultured or can be cultured only with great difficulty. To culture, for example, *Bacteroides gingivalis* from a patient sample, approximately one week is required for the initial or "primary" culture. The agar plates must then be examined and the black-pigmenting colonies must be subcultured. These subcultures must then incubate anaerobically for five to seven days and may often require re-streaking in order to achieve a pure culture. This pure culture is then inoculated into broth medium and subjected to several biochemical tests and analysis of metabolic acid end products by gas-liquid chromatography. The definitive identification of a single colony of *B. gingivalis* can, therefore, require three weeks or more from the time of initial sampling. All of the steps in the culture are performed by highly-trained laboratory personnel and the entire procedure is relatively expensive. There are also technical difficulties associated with the anerobic culture of patient plaque samples including the loss of bacterial viability and overgrowth dur-

ing transport of the patient sample to the laboratory, especially in samples shipped to a distant laboratory.

Phase Contrast or Darkfield Microscopy

In these assays, a sample of the patient's plaque is taken and examined using a microscope especially suited for examining living bacterial cells. These microscopic assays are often targeted toward detecting certain indicator microorganisms such as motile rods and spirochetes. The presence of these indicator microorganisms in a patient plaque sample points to the presence of a pathogenic microflora in the sample site and the need for therapeutic intervention aimed at eliminating the microbial pathogens. Clearly, phase contrast or darkfield microscopy can detect motile rods and spirochetes and these species are often associated with periodontal disease, particularly chronic adult periodontitis, but they are also found at high levels in gingivitis, and do not readily allow the differentiation between simple gingivitis and periodontitis. Furthermore, phase contrast or darkfield microscopy does not give information as regards particular bacterial species. Neither light microscopy nor phase contrast microscopy is able to give information beyond the size, shape, and motility of the bacterial species in patient plaque samples. There are, for example, at least three genera of spirochetal-shaped microorganisms and a large number of defined and undefined species within each genera. Microbiological assays should be used which identify bacterial species rather than bacterial morphotypes.

Antibody-based Assays

While bacterial culture is the "gold standard," non-culture techniques of microbiological analysis can be very useful in identifying the microorganisms present in a patient sample. These non-culture techniques include immunological methods based on specific antibodies, DNA probes, or assays for specific bacterial enzymes. Each of these methods can provide rapid identification of both cariogenic and periodontopathic microorganisms and they can be used to screen large numbers of subjects. In clinical practice, they can be used to more thoroughly characterize individual patients—to diagnose disease, to monitor the course of therapy, to detect previously treated subjects who have become re-infected, and to distinguish disease from carrier states.

All rapid tests are generally developed in comparison to bacterial culture which serves as the gold standard. It should, however, be remembered that bacterial culture does not exhibit 100% sensitivity or specificity. Bacterial culture, especially for anaerobic microorganisms such as *B. gingivalis*, may yield significant numbers of false negative results, especially when the organisms are present in small numbers. False positive results, although less likely, can also occur due to misidentification or cross-contamination. Hence, correlations of rapid tests with culture methods as gold standard must be interpreted with caution.

Immunological techniques such as immunofluorescent microscopy rely on antigen-antibody reactions and are often more likely to detect specific microorganisms in clinical samples than bacterial culture since these methods do not require cultivable (viable) bacterial cells. In addition to detecting the bacteria themselves, antibody-based assays can also be used to detect bacterial virulence factors such as toxins. In contrast to bacterial culture, rapid methods cannot currently be used to determine antibiotic susceptibility or resistance.

Among immunological methods, there are several which can be utilized for the detection of microbial pathogens including immunofluorescence microscopy, latex and other particle agglutination assays, and enzyme-linked immunosorbent assays. Each of these methods utilize polyclonal antisera or monoclonal antibodies specific for bacterial antigens or for microbial virulence factors and each method offers certain advantages and disadvantages (Table 3). Latex agglutination, for example, is a rapid method requiring little equipment or technical expertise and which is useful in the examination of individual patient samples in a clinical setting. Similarly, membrane based techniques such as ELISA, which are configured for in-office use, have great potential since they are sensitive, specific and easy to use and interpret.

Table 3. Comparison of Immunological Techniques for the Rapid Indentification of Periodontal Pathogens

Method	Performance Site	Time Required	Comments
Latex agglutination	Office	5-10 minutes	Does not require any instrumentation and only minimal technical expertise
Enzyme-linked immunosorbent assay	Reference Laboratory or Office	1-2 hours	Requires instrumentation but only minimal technical expertise
Immunofluorescence microscopy	Reference Laboratory or Office	1-2 hours	Less expensive instrumentation but requires significant technical expertise

All immunological methods require serological reagents, either polyclonal antisera or monoclonal antibodies, which react only with the "target" bacterial species and not with the myriad of other bacteria which may be present in the same patient sample. The specificity of these reagents lies in the inherent specificity of antigen-antibody reactions. These serological reagents can be utilized singly or in combination in various immunological assays. Monoclonal antibodies, unlike polyclonal antisera, can be obtained in potentially unlimited amounts making it possible to standardize immunological tests. Presently, most kits for home or office detection of bacterial pathogens are antibody based, using agglutination or membrane techniques.

Immunofluorescence Microscopy

Immunofluorescence microscopy for the detection of periodontal pathogens, particularly *Actinobacillus actinomycetemcomitans* and *Bacteroides gingivalis,* has been used for the past several years for the routine clinical detection of these species in patient plaque samples. Using this method, patient samples are transported to the laboratory and placed on glass slides. The patient sample is then reacted with species-specific antisera or monoclonal antibody which is labelled with a fluorescent compound. The slides are then examined using a fluorescence microscope and the presence of the target bacteria in the patient sample can be seen as a green fluorescing bacterial cell.

ELISA

Enzyme-linked immunosorbent assays (ELISA) for bacterial species involves binding the species-specific serologic reagent to the wells of polystyrene plates. The bacterial plaque sample is dispersed in a buffer with the addition of a detergent and an aliquot of the bacterial suspension is added to the antibody-coated wells. Binding of the target microorganisms to these wells can then be detected by the addition of a second antibody conjugated to an enzyme and the enzymatic substrate. Adaptation of this procedure to office tests has been successful for many bacterial, fungal and viral pathogens.

Latex Agglutination Assays

Latex agglutination assays have great potential for widespread use in the clinical detection of periodontal pathogens. These assays have been long used in both reference laboratories and clinics for the routine detection ofa number of different bacterial pathogens. For example, traditional culture of throat swabs from pharyngitis patients has been supplanted by latex agglutination assays for streptococcal species. These assays involve the

use of latex beads coated with the species-specific antibody. When these beads come in contact with microbial cell surface antigens or antigen extracts, cross-linking occurs and visible clumps of beads are formed, usually within 2 to 5 minutes. Latex agglutination assays, however, suffer from low sensitivity and difficulty in interpretation of results. They are likely to be supplemented by membrane based technologies.

DNA Probes

Techniques of molecular biology have been adapted to the diagnosis of infectious disease. There are currently available reference laboratory services which utilize DNA probe technology to detect certain bacterial species in patient plaque samples. The key to these assays is the use of a probe DNA—a piece of DNA which will hybridize specifically to the target species in a manner analogous to antibody-antigen reactions in serologic assays. Patient samples are sent to a reference laboratory where the DNA in the subgingival plaque bacteria is extracted and then bound to a filter. The probe DNA is applied and allowed to hybridize. If the target species is present in the patient sample, then hybridization of the probe DNA can be detected by autoradiography. DNA-probes to bacterial RNA offer the possibility of increased sensitivity. Also, the polymerase chain reaction, where the DNA of the test organisms is amplified by three orders of magnitude, offers hope of detection of very low numbers of a pathogen. The DNA probe techniques are presently only reference laboratory procedures, however, considerable effort is being expended to make them useable as in-office tests.

Enzyme Assays

One factor in the pathogenesis of periodontitis is the production of various bacterial enzymes by the periodontal pathogens. These enzymes include collagenase and hyaluronidase which can destroy gingival connective tissue, acid and alkaline phosphatase, RNAase, and DNAase. Some of these enzymes are produced specifically by certain periodontal pathogens. For example, collagenase is produced by *A. actinomycetemcomitans* and *B. gingivalis*. *B. gingivalis* also produces trypsin-like enzymes and a specific peptidase which may be useful markers in detection of this organism in plaque samples. Using these enzymatic markers as a key to the presence of these species, the corresponding bacteria can be detected in the patient sample by assaying for the specific enzyme. Toward this end, several methods are available to examine a patient sample for the presence of specific enzymes. A major drawback to the enzyme techniques is that they do not directly measure the organism, and often the enzymes detected are also produced by the host, especially during inflammation.

The Future

Microbiological and immunological assays have reached a level of development where they should be incorporated into clinical dental practice. This is an excellent example of the fruits of basic and clinical research being applied to the improvement of clinical practice. Presently available procedures for the culture, immunologic detection, and DNA probe assessment of *A. actinomycetemcomitans*, *B. intermedius*, and *B. gingivalis* are useful in dental practice. Future improvements in immunologic tests, especially improvements which would enable clinicians to perform these tests in their offices, as well as the further development of tests based upon DNA probes will enable clinical microbiology to become an integral part of clinical dentistry for the benefit of both the patient and the dental profession. Clinical microbiology offers the possibility of identifying the causative agents of caries and periodontal diseases, which can then lead to their elimination or suppression as definitive cures for these diseases. △

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THE DENTISTS INSURANCE COMPANY: THE FIRST TEN YEARS

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The Dentists Insurance Company (TDIC) was the first dentist-owned and dentist-run insurance subsidiary of a State Dental Association, the California Dental Association (CDA). The CDA Board of Trustees authorized the formation of a "Captive" insurance company on March 15, 1979, in San Francisco.

The Company was formed to provide a permanent source of professional liability insurance for dentists at the lowest actuarially sound premium that could be charged and still be consistent with the growth of surplus to meet the various financial requirements stipulated by the insurance commissioner for the State of California. The basic premise was that TDIC was to be not-for-profit, with each policyholder able to participate by means of a dividend in years of profitable underwriting. Prior to 1980 the commercial market was made up primarily by the Chubb Companies (Chubb P.I.) and several small carriers (Fremont, PSIE, Farmers). The dental community did not feel that the commercial carriers were acting in their best interests, that they charged too much, and did not adequately share data with dentistry so that programs could be instituted to combat losses. The term "Risk Management" had not yet been invented, but the need was there and there was a perception that it was not being adequately met.

To set up the new company, the CDA Council on Insurance chose Johnson and Higgins of California as its broker administrator on June 30, 1979, and a "Formation Committee" of nine dentists began a study to determine the best corporate form for the new company. A stock company, with all of the stock owned by the CDA was chosen. The company was incorporated on November 7, 1979, and was funded by a $50.00 assessment of all CDA member dentists (raising $575,000), along with a bank line of credit guaranteed by the CDA of 5 million dollars advanced by the Crocker Bank (now Wells Fargo).

1979 and 1980 were bitter, contentious, competitive years, with much rancor persisting between the commercial carriers and the CDA leadership. The Chubb Company was displaced in 1980 by CDA in favor of TDIC as the official CDA sponsored professional liability carrier, and immediately started a period of competitive premium discounting that fragmented the dental professional liability market in California. That fragmentation is still present 10 years later. TDIC represents over 50% of the dentists and the remainder are divided unequally by at least 13 entities; some are insurance companies, some are Risk Retention Groups (RRG's) and some are Risk Purchasing Groups (RPG's).

In 1981 the Federal Government legislated the Risk Retention Act (to meet a perceived lack of competition and capacity), which allowed Risk Retention Groups to organize in various tax free overseas havens such as the Cayman Islands, Bermuda and French Polynesia (hence the new term "Offshore Insurance"), and enabled them to sell insurance in the USA with little or no regulation. Many of these companies were underfunded "shell corporations" which then created large scale consumer losses. This abuse led to the Revised "Risk Retention Act of 1986" which provided more regulation by requiring the Risk Retention groups to be domiciled in the continental USA (hence the new term "Onshore Insurance"). There have been a large number of companies formed under the 1986 Risk Retention Act as Risk Retention Groups or as Risk Purchasing Groups. The majority of these groups are based in states that have very lenient capital requirements, poor regulation and little public disclosure or protection to the consumer in case of insolvency. The adage "let the buyer beware" was never more pertinent.

During the 1980's decade at least 22 competitors to TDIC have come and gone in California. The small ex-competitors became insolvent and have been taken over by the California Department of Insurance. The larger ex-competitors have just decided to leave the California market due to adverse financial reports due to losses. At the present time (1989) the California dentist has a choice of three established, solvent, insurance companies (TDIC, CNA, Safeco) and several risk retention groups on risk purchasing groups.

1984 was a historic year for dental professional liability insurance. The traditional occurrence-type of insurance policy was replaced by

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the claims-made type of policy which is easier to price in a fluctuating insurance market due to its ability to better adjust to the yearly changes in the trend rate (trend of frequency of loss and severity of loss). The dentists were at first resistant to such change, but now have adjusted. The change has required the California dentist to learn about insurance anatomy. This involved "nose" coverage (coverage for prior acts) and "tail" coverage (coverage for subsequent reported claims).

The decade of the 1980's was turbulent as to losses in dental professional liability insurance. The plaintiffs bar found dentistry to be a lucrative field, primarily due to poor record keeping, poor case analysis, lack of informed consent and improper referral of cases. TDIC suffered heavy losses, requiring recapitalization by means of Certificates of Contribution by CDA and the participating dentists. The storm has abated and these promissory notes are being gradually redeemed. The company has gone from nothing to an 110 million dollar company, of which 32 million dollars represents surplus and the balance is reserves for incurred or anticipated loss. The company is very conservative and has adequately reserved all claims. In 1989 the company distributed its first policyholder dividend of 2 million dollars, indicative of good underwriting results of year 1986. It is hoped that the increased emphasis on Risk Management by loss prevention will continue to be reflected by good underwriting results.

In 1987 the company became free standing and responsible for its own management. Johnson and Higgins remained as a management consultant. TDIC also has independent auditors, actuaries and legal counsel for the corporation.

The dentists on the TDIC Board of Directors gradually were changed as members fulfilled their obligations and new board members, all CDA dentists, were elected to take their place. The board members are elected for a one year term each year by the CDA House of Delegates (200 CDA member delegates) sitting as representatives of the one end only stockholder, the California Dental Association.

The overall purpose of TDIC has never changed and there is a constant effort to make the policy the most competitive in the market and continue to make the company most responsive to the needs of the practicing CDA dentist.

By having the CDA be the sole stockholder, TDIC has maintained close communication with the leadership of CDA and the CDA practicing dentists.

During the decade, in 1983 the CDA moved its corporate offices from Los Angeles to Sacramento. TDIC could not be housed in the CDA Los Angeles offices and had been located in the Johnson and Higgins offices in San Francisco but, in 1983, TDIC was relocated to the new CDA building in Sacramento.

Growth of staff to manage the company has grown to 35 persons who are in the fields of management, underwriting, claims and finance. Satellite claims offices are located in Oakland and Long Beach. All legal defense is handled by six independent legal firms in strategic locations in Southern and Northern California. At any given time there are approximately 800 lawsuits being litigated. The defense legal firms have done a commendable job in winning over 75% of all cases going to trial. In an effort to better analyze and administer claims TDIC will explore and implement the concept of in-house legal counsel which will work with our hired independent counsel in claims defense.

TDIC has processed over 8,000 dental claims and by computerizing the claims as to cause of loss, outcome, cost, geographic location and specialty of the defendant dentist, a large data bank has resulted and is actively used to design risk management seminars to educate participant dentists, raise the overall awareness to conditions of the real world in which we practice dentistry, and resultantly to lower the legal losses of dentistry through upgrading the overall standards of care in the dental profession.

It is conceivable that other states could set up and run their own companies and supply various insurance needs to their members. The only requirements are adequate potential numbers of participants, adequate provision for initial funding and a dedicated core group of dentists to see that the business plan is followed through to completion. △

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DENTAL STUDENTS' CLASS ATTITUDES: A FOUR YEAR STUDY

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Students in a professional school develop class attitudes that may differ from their individual attitudes and from the educational ideals of faculty. They may be affected positively through the cooperation engendered by the shared attitudes. However, the shared attitudes may be detrimental to student learning. Peer pressure may encourage average performance and unacceptable methods of acquiring information.

A survey of class attitudes was designed and administered to the Class of 1988 at Louisiana State University School of Dentistry during each of their four years of training. Percentages of agreement were calculated for each item and chi square analysis was used to compare differences over the four years. Fifty-six students completed the initial administration and 30 of the 50 seniors completed the last administration.

The results suggest that although many class attitudes remained stable over the four years, there were some significant changes. The students indicated that as a class they became more likely to take short cuts, to cheat on exams, and to get by with as little effort as possible. As seniors the students showed more positive class attitudes than they had as juniors, but there was a steady deterioration of class attitudes toward the school and faculty over the four years.

Introduction

Previous research among medical and dental students has demonstrated that although these professional students matriculate with highly individual attitudes, they soon begin to develop attitudes that conform to the group.[1–6] Becker and Geer (1966) examined the formation of class attitudes among medical students at the University of Kansas.[1] They found that medical students conformed readily to class attitudes that varied widely from faculty expectations and that were often at variance with sound educational principles. For example, the practice of cheating became more prevalent and accepted by the classes over time. Becker and Geer's study was a seminal investigation of class attitudes, but was a cross-sectional study with no long term follow-up.

Similar research in nursing,[7] pharmacy,[8] law,[9] and graduate schools[10] has shown that where student groups progress through training in relatively intact cohorts, they tend to adopt many collective attitudes. Most often these attitudes are positive and reflect the attitudes of the instructors. However, just as with medical and dental students, the attitudes may be at variance with those of the instructors. Ondrack[7] found that students in nursing school shifted the orientation of their values from those exhibited by academic instructors, to those of the clinical instructors and finally to those of the hospital nursing staff. Kleiman[9] studied graduate sociology students and found that a collective student culture developed even though faculty encouraged students toward independent scholarship and research.

Lancaster et al. (1985) conducted research among the four classes of dental students at Louisiana State University School of Dentistry (LSUSD) using a questionnaire derived from the Becker and Geer study.[11] The results, published in the *Journal of the American College of Dentists* in 1986, indicated that classes did tend to develop unique attitudes. The attitudes varied among the four classes, but juniors expressed the most negative attitudes of all. At that time it could not be determined whether this finding was an idiosyncracy or whether it

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was related to characteristics of the junior year. The purpose of the present study was to follow the Freshman class through four years of dental school to track the evolution of class attitudes.

Methods

For purposes of this study, an attitude is defined as "a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner."[12] The attitude survey was based on the findings of previous research with medical students and areas which were considered important to dentistry. Survey development included a review process and modification of the items which resulted in the final set of forty items.[13] The same items were administered in each of the four years. A five point Likert type item format provided the measure for response to the statements.[14] This format allows the respondent to indicate the degree of agreement with or approval to all items on a five point scale. For each attitude item, five response categories are provided: strongly agree, agree, neutral, disagree and strongly disagree.[15] Each category may be assigned a numerical value from 1 to 5. However, for the present attitude survey only the response categories were provided and no numerical values were assigned.

The survey was administered to the Class of 1988 in the spring of each year from 1985–1988. Fifty-six freshmen, 47 sophomores, 36 juniors, and 30 seniors completed the survey. Six students were lost from the class over the four years. Instructions for completing the survey stressed that responses were to be based on each student's perceptions of class attitudes, and not the individual's attitude. This was done to encourage the students to think in terms of the attitudes of the class as a whole, although such a distinction is not entirely possible. The survey administration was anonymous to encourage honesty in responding, however, this method prevented any follow-up of those who did not complete the questionnaire.

Percentages of agree, neutral, and disagree were computed for each item and each year.[16] The attitude scale was combined as follows: strongly agree and agree were considered agreement, neutral remained a separate category and disagree and strongly disagree were combined. Chi square analysis was used to determine if there were significant differences in percentage of agreement over the four years. Each attitude item was analyzed separately.

Results

The percentages of agreement with the survey items for each administration are reported in Table 1. Those items which showed significant changes based on chi square analysis are noted. The items are grouped according to general topics for purposes of reporting the results. The topics are leadership, faculty and administration, study habits, laboratories and clinics, information and social life and class unification.

Leadership

Agreement generally remained high that the class made decisions democratically. There was consistently low agreement that the elected leaders are not the real leaders, that the class selects a serious and scholarly leader and that dental fraternity members make the important decisions. Two items showed significant changes. There was a significant increase in agreement with the statement that class decisions are left to class leaders. There was a significant difference in response to the statement that it is unimportant whether the class leader is liked by faculty. The juniors had the highest agreement with that item.

Faculty and Administration

There was consistent agreement that the class likes teachers who get the point across quickly, who are relaxed and who are easy graders. There was consistently low agreement that the class believes faculty dislike students. The juniors had the lowest agreement with the statement that it is important to be liked by faculty. The differences in responses to that item were significant.

Study Habits

There was consistently low agreement that the class encourages students who want to do exceptionally well in their studies. The freshmen had the highest percent of agreement that the class did not cheat on exams. The sophomores had the highest agreement that they developed ways of sharing information and that they think it is important to get by with as little effort as possible. As juniors the class had the lowest percent of agreement that it is important to do one's own work and that it is important to do one's best work.

Laboratories and Clinics

The percentage of agreement remained high over the four years with the statement that the class enjoys clinics related to practice. By the sophomore year, agreement increased significantly with the statement that the class developed shortcuts in laboratories and clinics.

Information

Over the four years, there was low agreement that the class be-

Table I. Percentages of Agreement for Each Item by Class

		Fr N=56	So N=47	Jr N=36	Sr N=30
Leadership					
The elected leaders of our class tend to influence the attitudes of the class more than other class members.*	Agree	36	65	39	33
	Neutral	18	13	33	23
	Disagree	46	22	28	44
Our class is likely to select as a leader someone who can stand up to faculty.	Agree	66	83	75	69
	Neutral	16	7	17	10
	Disagree	18	10	8	21
Most class decisions are left to class leaders.*	Agree	23	25	47	50
	Neutral	18	11	28	17
	Disagree	59	64	25	33
The elected leaders of our class are not the real leaders; the real decision makers often are not known to faculty.	Agree	18	13	25	27
	Neutral	36	21	22	23
	Disagree	46	66	53	50
Our class is most likely to select as a leader someone who is serious and scholarly.*	Agree	14	17	17	28
	Neutral	23	17	47	28
	Disagree	63	66	36	44
Most class decisions are made democratically; we vote on most issues.	Agree	88	87	69	73
	Neutral	5	6	20	20
	Disagree	7	7	11	7
Whether our class leader is well liked by the faculty is unimportant to us.*	Agree	20	19	42	20
	Neutral	11	15	25	23
	Disagree	69	66	33	57
Our class is most likely to select as a leader someone who likes to have fun.	Agree	59	65	56	57
	Neutral	23	33	33	30
	Disagree	18	2	11	13
Dental fraternity members make the important decisions in our class.	Agree	2	15	19	0
	Neutral	9	6	19	0
	Disagree	89	79	62	100
Faculty and Administration					
Our class likes teachers who get the point across quickly and with little or no extraneous material.	Agree	91	100	92	87
	Neutral	9	0	3	10
	Disagree	0	0	5	3
Our class encourages individuals who are having trouble to go to faculty with their problems.	Agree	62	41	42	33
	Neutral	27	35	33	54
	Disagree	11	24	25	13
Our class believes that it is important to be liked by teachers and administrators.*	Agree	84	62	46	47
	Neutral	11	19	34	33
	Disagree	5	19	20	20
Our class as a whole likes teachers who are relaxed and easy to follow.	Agree	96	96	83	83
	Neutral	4	2	14	14
	Disagree	0	2	3	3
Our class believes that faculty members in general like students and hope they do well.	Agree	62	51	44	60
	Neutral	20	21	28	30
	Disagree	18	28	28	10

Table I. Percentages of Agreement for Each Item by Class (continued)

		Fr N=56	So N=47	Jr N=36	Sr N=30
Faculty and Administration					
Our class as a whole likes teachers who are easy graders.	Agree	88	96	94	84
	Neutral	11	4	3	13
	Disagree	1	0	3	3
Our class as a whole is well liked by faculty.	Agree	66	53	50	57
	Neutral	18	30	33	33
	Disagree	16	17	17	10
Our class believes that faculty teach at dental school because they can't or won't practice real dentistry.	Agree	34	62	64	53
	Neutral	36	21	25	30
	Disagree	30	17	11	17
Our class believes that faculty members in general dislike students and don't care how they do in school.	Agree	20	26	33	27
	Neutral	16	28	28	20
	Disagree	64	46	39	53
Study Habits					
Our class encourages those students who want to do exceptionally well in their studies.	Agree	38	17	25	27
	Neutral	34	36	33	37
	Disagree	28	47	42	36
Our class believes it is important to do your own work.*	Agree	88	36	25	29
	Neutral	7	21	22	36
	Disagree	5	43	53	35
Our class as a whole does not cheat on exams or in clinic.*	Agree	82	30	40	38
	Neutral	7	25	23	28
	Disagree	11	45	37	34
Our class has developed ways of sharing information to ease the load of examinations.*	Agree	75	91	81	67
	Neutral	11	2	11	23
	Disagree	14	7	8	10
Our class thinks it is important to get by with as little effort as possible.*	Agree	36	66	64	53
	Neutral	18	25	19	40
	Disagree	14	7	8	10
Our class believes it is important to do one's best work at all times.*	Agree	79	47	42	50
	Neutral	11	25	39	33
	Disagree	10	28	19	17
Laboratories and Clinics					
Our class has developed ways of cooperating to ease the load of labs and clinics.	Agree	55	64	66	50
	Neutral	29	23	11	37
	Disagree	16	13	23	13
Our class enjoys clinics which relate to the practice of real dentistry.	Agree	80	89	91	97
	Neutral	15	4	3	3
	Disagree	5	7	6	0
As a class we develop short-cuts in lab or clinic whether the faculty approves or not.*	Agree	43	83	83	83
	Neutral	30	11	11	13
	Disagree	27	6	6	4
Our class in general dislikes courses which do not provide technique experience.	Agree	51	47	58	43
	Neutral	38	36	25	33
	Disagree	11	17	17	24

Table I. Percentages of Agreement for Each Item by Class (continued)

		Fr N=56	So N=47	Jr N=36	Sr N=30
Information					
As a class we believe there is too much information to be learned in dental school.	Agree	29	56	39	27
	Neutral	29	13	22	20
	Disagree	42	11	39	53
Our class thinks it is important to gain all the knowledge and clinical skills necessary to be a good dentist.*	Agree	86	77	56	67
	Neutral	7	6	28	30
	Disagree	7	17	16	3
Our class believes that theoretical material and research findings which are not practical are a waste of time.	Agree	59	74	61	60
	Neutral	21	13	28	17
	Disagree	20	13	11	23
Our class believes that lectures which do not follow a text book are a waste of time.	Agree	14	17	22	10
	Neutral	32	30	36	30
	Disagree	54	53	42	60
Our class tends to decide as a group what is important to learn and what is not.*	Agree	27	49	61	43
	Neutral	39	25	31	30
	Disagree	34	26	8	27
As a class we view dental education less positively now than when we entered school.*	Agree	36	48	56	27
	Neutral	11	17	25	23
	Disagree	53	35	19	50
Social Life and Class Unification					
Our class tends to socialize together because we believe that outsiders don't understand our problems.	Agree	31	30	42	34
	Neutral	29	24	30	38
	Disagree	40	46	28	28
Our class is very well unified on the whole.*	Agree	55	45	30	39
	Neutral	27	13	42	32
	Disagree	18	42	28	29
Most people in our class participate in class social functions.	Agree	70	45	58	50
	Neutral	20	28	25	20
	Disagree	10	27	17	30
Our class has clearly known cliques (small groups).	Agree	77	94	86	83
	Neutral	18	4	14	17
	Disagree	5	2	0	0
Belonging to a dental fraternity is important to most of my classmates.	Agree	0	23	31	50
	Neutral	20	19	30	0
	Disagree	80	58	39	50
As a class we like each other and get along very well.*	Agree	89	55	60	53
	Neutral	11	28	34	33
	Disagree	0	17	6	14

*Significantly different a $p < .05$ based on $\chi^2 = 12.59$ at $df = 6$.

lieves lectures which do not follow a textbook are a waste of time. The juniors had the lowest agreement with the statement that it is important to gain knowledge and skills necessary to be a good dentist. They had the highest agreement with the statements that they decide as a class what is important to learn and what is not and that they view dental education less positively than when entering school.

Social Life and Class Unification

There was high agreement during all four years that the class had clearly known cliques. There was consistently low agreement that belonging to a dental fraternity was important. The freshmen had the highest percentage of agreement that as a class they got along well. The juniors had the lowest agreement with the statement that the class is well unified and the seniors had the lowest agreement that they liked each other and got along well.

Discussion

The results suggest that a number of the class attitudes remained relatively stable over the four years. The items which received the consistently highest agreement were those which indicated positive attitudes towards clinics related to practice and relaxed, to the point, and easy-grading teachers. It is interesting to note that the class reported the existence of cliques throughout the four years. It was somewhat discouraging to note that the classes did not encourage those who wanted to do exceptionally well.

The nature of the class also seemed to change over the years with the freshmen exhibiting the most desirable educational characteristics. The freshmen were also the most cooperative in completing this survey; each year the class became less compliant and fewer people participated. However, as the survey was anonymous, no data was collected as to the characteristics of those who did not respond. By the sophomore year, the class developed ways of sharing information, and increased in their likelihood of cheating and getting by with as little effort as possible. As juniors, the class displayed the most negative attitudes; this result may coincide with the difficulty of their clinical requirements. By the senior year, their attitudes had improved but were not as positive as in the first year. The most dramatic changes appear to occur between the freshmen and sophomore years. The upper classmen conform less to desired educational practices than the lower classmen.

It is encouraging that the seniors had the lowest agreement with the statement about viewing dental education less positively than when entering school. This may be related to the fact that they were about to graduate and were feeling more confident about their skills.

In conclusion, students appear to develop some attitudes about their education that educators view as less than desirable. As the group begins to conform to the prevailing view, attitude appears to shift from idealism to cynicism. This process may be unavoidable in the professional school setting. However, faculty who are aware of this attitudinal evolution can take steps to counter or mitigate undesirable educational consequences. △

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A TREASURY OF DENTISTRY

DENTIST-MUSICIANS

Gardner P. H. Foley

One of the greatest figures in the early history of American dentistry is Edward Hudson (1772–1833). He was born in County Wexford, Ireland. At Trinity College in Dublin he was a classmate of Robert Emmet, the martyred patriot, and Thomas Moore, the famous poet. As a participant in the conspiracy of 1798, Hudson was imprisoned with many of his comrades for several months in the Killmainham Jail. After his release he emigrated to Philadelphia where he became a recognized leader in the dental profession. Thomas Moore said of his friend: "He was the first who made known to me the rich mine of our country's melodies—the working of which my humble labors as a poet have since derived their sole luster and value" and "He had with great industry collected and transcribed all our most beautiful airs and used to play them with much feeling on the flute."

Dr. William C. Shirley (Maryland, 1904) practiced in New Market, Va. As a member of the Stonewall Jackson Brigade Band of Staunton he marched in every presidential inauguration parade from Taft to Truman.

Dr. Forrest C. Castle had acquired a reputation as a band director before he entered the Kansas City-Western Dental College. He was the director of the 89th Division's musical organizations in World War I. Later he played with Sousa's and other bands of national reputation.

Dr. Francis P. Hamlet (Baltimore C.D.S. 1884), of Hempstead, N.Y., played cornet and organ and composed several songs. He was the organist of churches in Hempstead, Garden City, Babylon, and Brooklyn.

Dr. Louis S. Field (Iowa 1887) practiced in Sugar City, Colorado, and also served as justice of the peace. In his boyhood in Iowa Dr. Field learned the art of making Italian harps under the tutelage of a veteran harp maker. He continued the making of harps after he had begun his practice. Dr. Field's instruments were pronounced by experts to be equal in tone and finish to those produced in Italy.

Dr. William B. Richter (Temple 1925) practiced in Philadelphia. He wrote many songs for his alma mater. Certainly he is widely known for his "Miss America" chosen by Atlantic City as the official overture and closing song for its famous pageant. Dr. Richter's song "I Love America" won the Freedom Foundation Award in 1958 and was selected by the Philadelphia Board of Education for official use in all the city's public schools.

Dr. Geoffry C. Buehrer (Maryland 1918) was born in Switzerland; he also lived in France, Italy and Germany. He received a degree in music from Columbia University; he studied voice, piano, and organ under distinguished teachers in this country and abroad. He sang many operatic roles and wrote much church music. During one period he was the organist at St. Patrick's and St. Bernard's churches in Baltimore.

Dr. Gerald W. Collins (Michigan 1894) practiced in Vermillion, South Dakota, the home of the University of South Dakota. For many years he was the director of both the city and University bands. Under his leadership the University Band toured the state with great success.

Dr. Julius Peters (1858–1932) was graduated from the New York College of Dentistry in 1883. He toured the country as a boy prodigy with the violin.

Dr. Albert M. Bradner (Pennsylvania 1895), who practiced in Philadelphia, was the flute soloist in the Philadelphia Symphony Orchestra.

Dr. Adelard J. Harper (Maryland 1898), of Worcester, Mass., had an amazingly productive combination of dental and musical careers. He was president of the Harmony Club. For 50 years he was a choir director in Worcester churches. He was the organizer and director of the famous Gounod Male Quartette and director of the Philharmonic Choral Society of 450 members. Dr. Harper also sang in all the principal cities of the United States and Canada.

Dr. Royce Swain, of Omaha, Neb., wrote a song titled "Twice as Much" that sold 500,000 copies.

Dr. H. D. Christensen, of Provo, Utah, had the hobby of violin making. He copied the blueprints of some famous violins. His first good violin was designed from a plan he based on a photographed reproduction of a Stradivarius.

Dr. James C. Van Orman, of Murphysboro, Illinois (d. 1925) was the director of Van's Band for 20 years. The band played at many places such as the Illinois State Fair and the Mardi Gras of Mobile, Ala.

In 1948 Dr. Daniel Gober, a 76-year-old retired New York dentist, was recognized as the oldest member of the ten-year-old Doctors' Orchestral Society of New York composed of 60 physicians, dentists and pharmacists. Dr. Gober had formerly played cello in the Metropolitan Opera Orchestra for eight years.

Dr. Louis M. Solomon (Tennessee) was an accomplished violinist who played in the Memphis Philharmonic Orchestra.

Dr. Louis M. Halsey (N.Y. College of Dentistry 1869) practiced in Brooklyn. He received wide recognition as a member of the choir of the Tabernacle of the famous Dr. Talmage. His bass solos attracted the presence of visitors from New York and other Eastern cities.

In 1941 the National Music Festival, meeting in St. Paul, paid a special tribute to Dr. Earl H. Crary, of Cando, North Dakota: "He has been one of the pioneer school and band directors in his state for thirty years."

Dr. C. S. Harris (Pittsburgh 1916) wrote the music of three Pitt songs: the Panther Song, the Battle Song, and the Chant. To Dr. Harris, music was an important hobby from the age of seventeen, when he began the study of the violin. For four years he played the cello in the Pittsburgh Symphony Orchestra.

Dr. B. Merrill Hopkinson (Baltimore C.D.S. 1880), of Baltimore, had studied music during the eight years he worked in Boston before entering the B.C.D.S. He possessed a magnificent baritone voice and gave concerts in nearly every large city east of Chicago.

Dr. William F. Larkin (Northwestern 1905) because of the reputation he had gained in the Chicago area for his fine singing voice attracted the interest of the Victor Recording Company. His first two songs for Victor were "Take Me Back to Babyland" and "If I Were King of Ireland."

Dr. Milo Sweet, of Altadena, Cal., for a number of years before entering dental school toured as a member of a quartette, including the Lyceum and Chautauqua Circuits in its itinerary. Dr. Sweet is best known for composing "Fight On," the well-known football song of the University of Southern California. Written in 1923 it was recorded by over 15 name bands, and it was used in 16 movies.

Dr. J. H. Dickey, of Decatur, Ill., is the father of a family that probably can claim to be the most musical family of an American dentist. Dr. Dickey played the violin and as a hobby made violins. His daughter, Anna Marie Dickey, became a Metropolitan Opera star; his youngest daughter played in an orchestra; and his wife and another daughter were well-known piano teachers.

Dr. Klaypool (Clay) A. Boland (Pennsylvania 1926) was given the Alumni Award of Merit in 1946. His career as an outstanding dentist-musician began in 1924 when his school offered a prize for an original prom song. Boland won the prize with "Dreary Weather." This song, like many other Boland songs, became nationally popular and was recorded by Fred Waring and His Pennsylvanians. Dr. Boland wrote and directed the 1926 Mask and Wig Show, the first of many such shows in his long list of accomplishments. Soon after that production he was featured on the Studebaker Champions radio show, playing and singing his own compositions. In the 1930s Clay published several successful songs including "Stop Beatin' Round the Mulberry Bush"—a song sensation of 1938; "The Gypsy in My Soul," which made the Hit Parade; and "Havana," a popular rumba number. He was especially proud of his achievement in having 125 of 500 songs published. △

NEW FELLOWSHIPS CONFERRED

Fellowships in the American College of Dentists were conferred upon the following dentists at the annual convocation in Honolulu, Hawaii on November 3, 1989

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Richmond, Virginia

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Portugal

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Seattle, Washington

JOHN A. BOGERT
Chicago, Illinois

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Mt. Clemens, Michigan

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Erie, Pennsylvania

LATHE L. BOWEN
Potomac, Maryland

FRANKLIN M. BOYAR
Delray Beach, Florida

ROBERT L. BOYD
Mill Valley, California

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Dusseldorf, West Germany

MICHAEL R. BREAULT
Schenectady, New York

MICHEL BURDIN
Nice, France

GILBERT LEE BUTTON
Richmond, Virginia

THOMAS H. BYAS
Rochester, New York

WILLIAM M. CARPENTER
San Francisco, California

HAROLD G. CARTER
Jefferson City, Missouri

JOSEPH R. CARUSO
Auburndale, New York

RICHARD F. CEEN
Dallas, Texas

RICHARD J. CHICHETTI
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*Posthumously

American College of Dentists Foundation Report

The American College of Dentists Foundation was formed by the American College of Dentists and the first meeting of the members of the Foundation was held on March 31st, 1973, in Bethesda, MD. At this meeting the Articles of Incorporation were presented and the Bylaws were adopted. The first Directors were elected and they included: Ralph A. Boelsche, Walter H. Mosmann, Joseph B. Zielinski, Gordon H. Rovelstad, and Robert J. Nelsen. Ralph A. Boelsche was subsequently elected to be the first President and presided over the first Board meeting. Thus, the Foundation as an organization to carry on educational, literary, scientific and charitable purposes both directly and by the application of assets to the use of the American College of Dentists, for charitable, scientific, literary or educational purposes or to any other corporation, trust, fund or foundation whose purposes and objectives are charitable, scientific, literary or educational was launched. Original pledges received at that meeting amounted to $12,505.00.

Dr. Ralph A. Boelsche, as the first President, was instrumental in organizing the Foundation as well as collecting the original contributions in order to establish this new venture for the College.

A major gift to the Foundation was made by Dr. Samuel B. Harris in 1986 and another in 1987, the earnings of which are to support the Distinguished Service Award of the American College of Dentists. This Award, presented every year, honors the Fellows with fifty years of Fellowship who have made significant contributions to the College and to the profession.

A list of contributors to the Foundation during the 1988 year are listed on the next pages.

1988–1989 Foundation Officers

President Robert W. Elliott, Jr.

Vice President James A. Harrell, Sr.

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PURPOSES AND OBJECTIVES OF THE FOUNDATION

TO CARRY ON THE FOLLOWING:

EDUCATIONAL, LITERARY, SCIENTIFIC AND CHARITABLE purposes or any of them, both directly and by the application of assets to the use of the American College of Dentists, for charitable, scientific, literary or educational purposes, or to any other corporation, trust, fund or foundation whose purposes and operation are charitable, scientific, literary, or educational.

(a) TO FOSTER and maintain the honor and integrity of the profession of dentistry;
(b) TO STUDY, improve and to facilitate dental health care;
(c) TO PROMOTE the study of dentistry and research therein, the diffusion of knowledge thereof, and the continuing education of dentists;
(d) TO CAUSE to be published and to distribute addresses, reports, treatises and other literary works on dental subjects;
(e) TO PROMOTE suitable standards of research, education, communication, and delivery of dental health care.

PROVIDED, HOWEVER, that no part of the net earnings of the corporation shall inure to the benefit of any *private member* or *individual*, and provided further that no substantial part of its activities shall involve the carrying on of propaganda, or otherwise attempting to influence legislation.

ALL CONTRIBUTIONS ARE TAX-DEDUCTIBLE.

1. All contributions to the American College of Dentists Foundation are tax-deductible as charitable gifts.
2. Individuals, Associations and Foundations are all eligible to support the work of the Foundation through tax-deductible gifts.
3. The American College of Dentists Foundation is classified as a *Section 501 (c) (3)* organization under the Internal Revenue Code.
4. The Foundation has material available to substantiate the tax-deductibility of your contribution.

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DENTISTRY AND HEALTH POLICY

Stephen Wotman*

Views expressed from several quarters of the health care system suggest that a reexamination of health policy concerning how health care is organized is likely in the next few years. The last time that a reorganization of health care occurred in the United States, dentistry was not included in a major component (Medicare). A review of the profession's stand at that time, and changes in demography of the elderly population since then, suggests that the position of the profession arrived at in the 1960's needs to be reexamined. The time to discuss what the position of dentistry should be in a new policy debate is now. Alternative approaches responding to economic considerations in the oral health care of the elderly are presented to stimulate discussion about the role of dentistry in health advocacy, both for the elderly and the population at large.

For over ten years the landscape was quiet. There was little stirring in the area of health care reorganization. No new proposals for restructuring the health care system, such as rationalization of health services, national health insurance, or public and private coordination of health care emerged during the Reagan years.

The late eighties, however, have seen a reviving interest in the reorganization of health care. Both presidential campaigns last year reflected a resurgence of health issues as part of the public debate.[1] Action by the Congress concerning care for catastrophic health events suggests reviving Congressional interest in the organization of care that goes beyond a policy of simple cost containment. Of greatest significance is a groundswell of concern emanating not only from the health consumer but also from groups of health professionals. These concerns center around waste in the current system, the changing role of the health professional, and the need to recognize the stifling effect of bureaucracy, which inhibits the rational distribution of care not only in public programs but also in care funded through private insurance.

The stage is set for a new discussion of rationalization of health care, but this time the discussion will take place in a climate of austerity, due to the accumulated budget deficit and deficit in the balance of trade. How will dentistry fare in this discussion? How is it likely to be affected by the outcome?

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The Ailing Health Care System

During 1988 The New England Journal of Medicine published numerous articles dealing with the changing forces affecting the organization of health care. Five of these articles highlight specific elements of the health care system as it is now functioning. A review of the current system seems highly relevant to a new discussion of the rationalization of health service, especially since an entire generation of dentists has graduated since the last discussion, many of whom question why dentistry got left out of Medicare.

In an article entitled "An End to Patchwork Reform of Health Care," Dickman et al. examine the effectiveness of the current system and new expectations regarding the potential for change.[2] The authors argue that "although superb care has been delivered to some persons in some places, the free market system has never delivered good health care to everyone at a reasonable cost." They acknowledge improvement in access to care due to Hill Burton hospital construction, Medicare, Medicaid, health maintenance organizations and other partial measures. They assert, however, that "the system during the last few years has shown signs of destabilization. We think a unitary system—that is, a national health insurance program or national health service—ought to be seriously considered."

These same authors offer three major factors for the current rise of sentiment that rationalization of the system is needed. First, no one sought the current system, it just grew. Second, the erosion of autonomy of the physician in the current free market system is seriously affecting the doctor-patient relationship. The abhorrence of required paper work and the increased importance of economic factors in medical decisions is at least partially responsible for increasing physician dissatisfaction. Third, the political wind is shifting. We have moved from an environment where basic change was not politically feasible to an environment with so many dissatisfied constituencies that basic reform may indeed take place no matter what administration is in office.

The influence of large institutions on physicians and patients is addressed in an article entitled "Transformation of American Health Care, The Role of the Medical Profession."[3] This article, authored by administrators of the Health Care Financing Administration and the American College of Physicians, discusses health care as a commodity, payment for and financing of services, sources of power, and values and priorities of the system. The authors conclude that "changes currently transforming American health care have important implications for many groups and individuals, but especially for physicians and patients. The ascendancy of large institutions of health care, paralleled by dramatic changes in organization, financing and payment systems could alter values and commitments long held by the medical profession and supported by much of the public."

Rising public dissatisfaction with health care is examined in "The Paradox of Health."[4] The authors caution that despite the indices of improvement of health in the last thirty years, longer life and rising expectations of medicine have increased health care consumers' dissatisfaction with the protection of their individual health and, by extension, their health care.

Problems of financing health care are discussed in an editorial entitled "Solving the Medical Care Dilemma."[5] This editorial defines the problems of insured medical care as, again, a patchwork of health care financing mechanisms and inefficient delivery systems. It proposes remedies that are akin to the rationalized system developed by our Canadian neighbors.

The effect of the changing health care system on hospitals is described in an article analyzing one of the major attempts to control hospital costs, Diagnostic Related Groupings (DRGs).[6] In this work entitled "DRGs—Five Years Later," the author concludes: "In sum five years into the DRG prospective payment system, reform is essential. Concept must merge with reality; incentives for the efficient delivery of care must be coupled with fair reimbursement. . . . Since the elderly are the fastest growing segment in our society and their use of the hospital system is the principal determinant of the overall viability of hospitals, inaction carries too great a price."

Samuel Whitman, Associate Dean Emeritus of Case Western Reserve University, School of Medicine has reviewed extensive literature reflecting growing discontent by the participants in the health care enterprise. Many articles deplore the millions of underserved, urge an end to the current chaotic patchwork of health care and recommend restructuring and reform, including financial support to provide comprehensive care for all Americans.

What does all this have to do with dentistry? Why can't dentistry simply go its own way and remain uninvolved with medical care problems that may or may not be reflected in the dental care scene? In answering these questions, we must remember that dentistry is now commonly viewed as an essential element in maintaining the quality of life for a large variety of populations, and it is unlikely that any major reform of the health care system stimulated by patient and practitioner concerns will leave dentistry unaffected. If dentistry is left out of the reform, there will be diminished resources for oral health care. If it is included, dental practice may be changed in basic ways. It seems prudent, at the very least, for dentistry to become involved in the coming debate.

Dentistry, Medicare and Medicaid

The last time a major reformulation of the health care system took place, dental health was not included as a primary element. Those helping to formulate legislative positions in the 1960's felt convinced that they were doing the best possible thing for the oral health of the elderly by taking a position in opposition to health care legislation. It is time to reassess the positions of those days and see if there is anything to be learned before a new health care debate gets going in earnest.

The last discussion occurred during the Johnson administration. The result of that discussion was the enactment of Medicare and Medicaid. The competing bills in the Congress were the King-Anderson proposal, which would provide hospital care for those over 65, and the Kerr-Mills bill, which proposed health care assistance for the poor only, at the option of each state. Organized medicine, which had previously opposed all proposals for national health care assistance, promoted the Kerr-Mills bill as a compromise position. The development of these two proposals reflected a long legislative history going back to the Truman administration.[7]

The public position of the American Dental Association can be traced through a series of editorials and Washington Reports published in the Journal of the American Dental Association. An editorial appearing in July, 1963 urged the profession to oppose legislation.[8] The editorial concluded with the

following statements:

> It therefore behooves the health professions and others who oppose the King-Anderson bill to renew and continue their efforts to persuade their fellow citizens and members of Congress that the health care problems of the aged can be met by less drastic and irreversible programs.
>
> During the coming months the Association's council on legislation will hold regional conferences . . . with special emphasis on the reasons for the profession's opposition to the King-Anderson approach to aged health care.

The ADA further explained its position in a "Report from the Washington Office" published in December.[9]

> The dental profession's opposition to the King-Anderson bill results from a fundamental view of the proper role of government in health matters. The association has frequently pointed out that the enactment of King-Anderson would likely lead to progressive extension until the federal government becomes the sole purchasing agent for health care . . . (enactment would) lead to the neglect of children's needs . . . (government would) tend to neglect its traditions and recognized role in support of research, education, and public health.

In 1964 President Johnson was elected by a landslide. In his message to Congress he called for the enactment of a health care program for the elderly. As the new Congress convened and got down to work, it appeared that a health care bill might pass, and the ADA renewed its discussion in a March, 1964 editorial.[10]

> No notice is taken of the vast body of evidence showing that the aged health care problem is transitional in nature . . . The ADA's firm opposition to King-Anderson is based on these and other facts . . . for those diminishing numbers of people who still cannot afford adequate health care, the Association supports efforts by all levels of government to extend it to them. ADA backing of Kerr-Mills is an example of this.

A year later the bill, incorporating the King-Anderson and Kerr-Mills proposals, was in final form in the Senate. The July "Report from the Washington Office" published in the Journal reported:[11]

> . . . dental amendments offered by Senator Ribicoff . . . (the) first one would recognize the right of dentists to perform oral surgical services under the so called "supplementary health benefits" section of the bill . . . the second amendment requiring dental care for indigent children under the Kerr-Mills portion of the bill . . . Both amendments were recommended by the ADA in its testimony . . .

During the summer of 1965 the legislation was passed and signed into law by President Johnson. The final bill reflected the legislative skill of Representative Wilbur Mills, who was able to affect a compromise between the two bills and also to expand the legislation to include physicians' fees.[12] The King-Anderson portion provided health benefits for all over 65 and was known as Medicare. The Kerr-Mills section provided health benefits for indigent individuals and required both financial contribution and action by the individual states. It was dubbed Medicaid.

In an editorial in its October issue, the Journal described the new law to the dentists of the nation.[13]

> . . . provisions for health insurance for the aged . . . now Public Law 89-97, specifically exclude dental services, except oral surgical benefits . . . Three dental programs are included in other parts of the law . . . training of personnel including dentists in the treatment of crippled children . . . provides health care, including dental care of needy children under a five year special projects grants program . . .
>
> The third of these provisions is the inclusion of dental care of needy adults and children as an optional benefit of the expanded Kerr-Mills type of aid to the states on a matching fund basis.
>
> Common to all three provisions is their optional nature.

Organized dentistry worked hard to be included in Medicaid (Kerr-Mills), and succeeded in staying out of Medicare (King-Anderson). As for Medicaid, the optional nature of this program, the need for State participation, and recent efforts towards cost containment have severely limited its potential to provide for the oral health of the indigent. Thus dentistry's participation in Medicare has been virtually nonexistent, and in Medicaid far less than needed.

More than twenty years later Medicare has been deemed a success.[14,15] According to Brown, the compromises that resulted in financing (rather than subsidizing) medical care for the elderly "have remained remarkably stable over two troubled decades."[16]

Initially it was thought that Medicare would serve the aged while Medicaid would predominately help the younger poor. But as America has grayed (a development amazingly unforeseen in the 1960s), the limitation on Medicare coverage to acute illness has made Medicaid the primary finacing mechanism for nursing home care. Not only has nursing home care

diverted Medicaid dollars from the poor, but the federal–state structure of Medicaid allows eligibility criteria to vary from state to state, permitting different benefit limits. As a result, Medicaid today covers less than half the poor.[17]

Medicaid as a mechanism to assure the oral health of the poor has also fallen short. The published record of the provision of dental care under Medicaid in New York State shows an originally ambitious program that over the years severely restricted eligibility and maintained an extremely low fee scale.[18] The support of hospital dental activities through Medicaid, however, allowed the development of some important examples of effective dental service. Since New York has one of the more liberal Medicaid programs and only 37 states provide dental care under Medicaid, it may be assumed that most other areas have done less well in providing oral health care for the indigent under Medicaid.

Under Medicare and Medicaid, the federal government now provides over forty cents of every dollar spent for health care. The Medicare program, along with third party insurance, has effectively insulated the physician's income from swings in the business cycle. It is very clear in Ohio that this is not the case for dentists. The large out-of-pocket cost, still a part of most dental treatment, insured or non-insured, creates the perception that dentistry is a very expensive service. This perception remains despite the fact that increases in the cost of medical care have outpaced increases in the cost of dental care. Demand for dental care is quickly affected by an economic downturn, and the consequences for dental practice have caused dentists to be extremely protective and cautious concerning changes of any sort.

The oral health of the indigent and the elderly has improved less under Medicare and Medicaid than would have been possible if dentistry had been fully included in both programs. Many dentists, though concerned about the oral health of underserved populations, find no way to provide care for them while maintaining their own economic viability. Meanwhile, the burgeoning elderly population has brought the inadequate dental care of older Americans into sharp focus.

Leave Dentistry Out Again?

As a result of renewed discussion of the rationalization of health care, dentistry will likely be faced with this question: Should it be an integral part of a new publicly or privately sponsored system, or should it seek once again to stay out of any new scheme? If dentistry is to be included, what are some of the ideas that might be discussed in arriving at a position for the profession?

The major impediment to the inclusion of dentistry in any new health care scheme is the large potential cost, especially when dealing with older populations who may have both unmet needs and complex dental problems.

Disaggregation: Splitting the Cost of Care

The fastest growing population underserved with regard to dental care are the elderly. Adelson, at a recent conference concerning the financing of oral health care for the elderly, suggested that one approach to seeking resources for the care of the elderly is disaggregation of that care.[19] He suggests redefining care in terms of acute needs, primary care, and rehabilitative services, in order to be able to address dental needs in manageable economic segments and to more closely parallel the way that medical care is financed. Perhaps acute dental needs for the elderly should be provided with public funds while primary care is provided with a combination of private and public insurance. Perhaps rehabilitative care should be left to the private sector. Obviously the definition of these terms is critical. The pros and cons need to be carefully assessed. Will disaggregation of care negate the efforts of the profession to provide comprehensive care for all individuals?

Sonkin, on the other hand, advocates experimentation with organizational forms for the delivery of care and points to the Health Maintenance Organization demonstrations sponsored by the Health Care Financing Administration.[20] Clearly many dental professionals feel uneasy with this form of practice. One concern is an ethical one: the potential for undertreatment. It seems probable, however, that the problem of undertreatment can be addressed as effectively as the problem of overtreatment in fee-for-service has been, through experience.

Reynolds has indicated how dental care can become a part of the nursing home experience through state action.[21] His experience in requiring dental care in nursing homes in New York State suggests an important policy direction aimed at institutions to insure oral health care for this population (although nursing home residents represent only 5% of those over 65).

The need to look at the population as a series of groups with different kinds of oral health needs, who therefore require different marketing approaches, is underscored by Douglass.[22] He identifies the epidemiological cohorts of the population that pose vastly different dental health problems and needs. He defines the cohorts as the Iwo Jima generation, the Pepsi generation, the baby boomers and the Atari youngsters. One has to think of the progression of the attitudes of these generations from resignation to the loss of teeth (Iwo Jima), to replacement of teeth (Pepsi), to repair of teeth (baby boomers), and finally now for the youngest cohort

(Atari), the protection of teeth against disease. The epidemiology discussed is no longer of individuals susceptible to dental disease, but of teeth. Dr. Douglass estimates the number of teeth to be maintained in the population twenty years from now to be five billion, up from two billion in the recent past.

Recent data from the National Institute of Dental Research emphasizes the reduction of edentulousness in the working population under sixty, reinforcing Douglass' conclusion that more teeth will be retained as people age. If care is financed for these persons, the dental market may be significantly expanded.[23]

Advocacy and Financial Health of the Dentist

As disease diminishes in the population, through the aging of the Ataris and the development of new cohorts resistant to dental disease, the economic viability of the dentist will depend on maintenance of existing dentistry in the older generations. The impetus for continued oral health is likely to be related to efforts at health promotion by the profession, so that people will know how to, and want to, maintain their dentitions in a healthy useful form that meets both functional and cosmetic needs. In order to expand the market and not limit dental services only to the people now getting them, the profession may need to be involved in health advocacy, stimulating mechanisms to reduce barriers to care—physical, psychological and economic. The involvement of the profession in policy activities that help to finance care for the underserved (the poor, the elderly, and handicapped) can be an important element in providing markets that support the dentist financially in the future.

The Cleveland conference (1988) provided policy recommendations concerning the financing of oral health care in nursing homes, exploration of the disaggregation of care and the need for the profession to be involved not only in health promotion but also in health advocacy.[24]

Only Dentists Can Make the Case

The purpose of this paper is to suggest that this is the time to initiate a discussion within the profession, to explore the pros and cons of ideas for including dentistry in a national discussion of the rationalization of health care. Both the future health of the profession and the oral health of the society are related to our ability and willingness to do this. Only dentists can make the case for oral health. It is imperative that the future of our profession be influenced by conscious decisions based on the best professional opinions.

If the practice of dentistry is construed to include all activities that protect and improve the oral health of individuals and the society, it follows that part of that practice involves the advocacy of public positions that the profession feels will help to accomplish this mission. In order to arrive at positions in a fashion timely enough to influence the debate, we must begin now to explore a variety of options involving populations at risk for dental disease and the rationalization of oral health care. △

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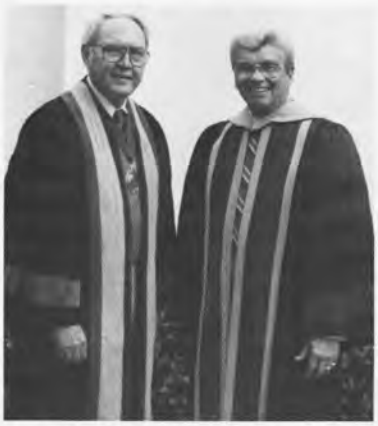
NEWS OF FELLOWS



Paul H. Loflin on the left with W. Robert Biddington.

W. Robert Biddington, Dean of the West Virginia University School of Dentistry and **Paul H. Loflin** of Beckley, West Virginia, 1948 classmates of the Baltimore College of Dental Surgery, University of Maryland, were installed Presidents of the American College of Dentists and the International College of Dentists, respectively this year.

Dr. Biddington has served as President of the American Association of Dental Schools, as well as of the Supreme Chapter of Omicron Kappa Upsilon. He was recently appointed Chairman of the Dental Health Committee of Council on Sports Medicine of the U.S. Olympic Committee, and is a Fellow of the International College of Dentists.

Dr. Loflin is in the private practice of dentistry in Beckley, West Virginia, and has served as President of the U.S.A. Section of the International College of Dentists, of the West Virginia Dental Association, and of the Academy of Operative Dentistry. Dr. Loflin is a Fellow of the American College of Dentists.

J. Bernard Machen

J. Bernard Machen has been appointed Dean of the University of Michigan School of Dentistry. A Diplomate of the American Board of Pedodontics, Dr. Machen served as President of the American Association of Dental Schools in 1987 and was an Associate Dean at the School of Dentistry, University of North Carolina at Chapel Hill, until his appointment as Dean.

Wallace Mann

Wallace Mann was recently appointed Provost at the University of Louisville. Dr. Mann has served as Dean of the School of Dentistry at Louisville, as well as at the University of Mississippi Dental School, prior to his being named Acting Provost at the University of Louisville last year.

John A. DiBiaggio, President of Michigan State University, received honorary Fellowship in the Academy of General Dentistry for his exceptional contributions to the art and science of dentistry and to the promotion of the objectives and goals of the Academy. Author of a book on Practice Management, as well as many other scientific articles, Dr. DiBiaggio has been the recipient of numerous awards for his service to the profession.

John A. DiBiaggio

Charles H. Smith, Chairman of the Department of Orthodontics at Emory University School of Dentistry, recently received the Georgia Dental Association's First Award of Merit. Dr. Smith is first vice-president of the American Dental Association and a past president of the Georgia Dental Association and the American Board of Orthodontics.

Charles H. Smith

H. Curtis Hester

H. Curtis Hester, of Upper Montclair, New Jersey, recently received the American Association of Orthodontists James E. Brophy Distinguished Service Award for his contributions to Orthodontics and for his devoted service to the association and its membership. Dr. Hester has served as President of the American Society of Dentistry for Children and of the American College of Dentists. He also served as the President of the New Jersey State Board of Dentistry in 1977 and was elected First Vice President of the American Dental Association in 1985.

William F. Stutts, of Dallas, Texas, recently assumed the presidency of the American Association of Orthodontists. A Diplomate of the American Board of Orthodontics, Dr. Stutts is a co-founder and charter member of the College of Diplomates of the American Board of Orthodontics.

William F. Stutts

Lois K. Cohen, Assistant Director for International Health, and Chief, Planning, Evaluation and Communications, National Institute of Dental Research, is the recipient of an honorary degree of Doctor of Letters from Purdue University, her Alma Mater. A leading proponent of the need for behavioral and social science research related to oral health, Dr. Cohen was honored for her achievements and research and a commitment to public service. During the past year, the American Dental Association made Dr. Cohen an honorary member and the American College of Dentists conferred an honorary Fellowship upon her.

Lois K. Cohen

Michael D. L. Weisenfeld

Michael D. L. Weisenfeld, of Farmington Hills, Michigan, was re-elected to a second term as Speaker of the House of the Academy of General Dentistry. Dr. Weisenfeld is a past president of the Detroit District Dental Society and the Michigan Academy of General Dentistry. He has also served as Secretary of the Michigan Dental Association.

Isadore L. Voda

Isadore L. Voda, of Albuquerque, New Mexico, recently received the New Mexico Dental Association's Medal of Distinction, as well as proclamations from the Governor of New Mexico and the Mayor of the City of Albuquerque, New Mexico. Dr. Voda was recognized for his over 50 years of outstanding service to dentistry. A recipient of many other awards, he has served as President of the New Mexico Dental Association, as well as of the New Mexico unit of the Society of Dentistry for Children and the American Cancer Society.

Henry John Van Hassel, Dean of the Oregon Health Sciences University School of Dentistry, was recently the recipient of the Academy of General Dentistry's Borish Award. Dr. Van Hassel, who is the editor of the Journal of Endodontics, has also been honored by the Association of Military Surgeons of the U.S. for his outstanding contributions to dental teaching and research.

Henry John Van Hassel

R. Chester Redhead, of New York, was recently elected President of the Howard University Alumni Association. Dr. Redhead has served as President of the First District Dental Society of New York and as honorary Police Surgeon and honorary Fire Department Medical Officer for the City of New York and as dental consultant to the New York State Boxing Commission.

R. Chester Redhead

Warren A. Parker

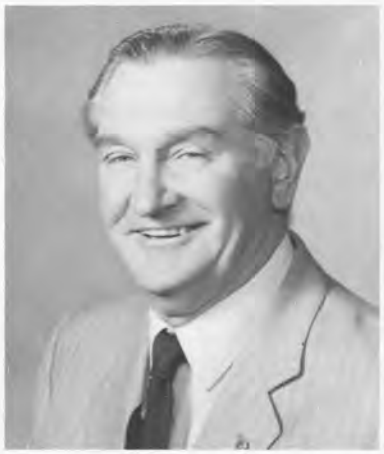
Warren A. Parker was recently named Chairman of the Department of Community Health and Preventive Dentistry at Baylor College of Dentistry. A Diplomate of the American Board of Dental Public Health, Dr. Parker previously had served on the faculty of the U.S. Army Academy of Health Sciences at Fort Sam Houston, Texas, and earlier as Assistant Chief, Division of Preventive Dentistry, U.S. Army Institute of Dental Research, Washington, D.C.

Samuel S. Wald, Rear Admiral, USNR (retired), has been appointed to charter membership on the Republican Presidential Task Force by President George Bush. Admiral Wald is the first dentist to serve on a presidential task force, and to commemorate his appointment he received the Presidential Medal of Merit. Admiral Wald is Clinical Professor of Oral Medicine and Pathology at New York University College of Dentistry and has been the recipient of the U.S. Coast Guard's Distinguished Public Service Award and the New York State Conspicuous Service Medal.

Samuel S. Wald

Michael Balbo

Michael Balbo, Associate Dean, University of Medicine and Dentistry of New Jersey, was the recipient of the 1989 Faculty-Advisor Award from the Alumni Association of Student Clinicians-American Dental Association. Dr. Balbo was honored for his decade of service in directing the UMDNJ-New Jersey Dental School's Student Clinician Program.



Robert Y. Norton

Robert Y. Norton, of Sidney, Australia, was recently elected President of the Australasian Section of the International College of Dentists. The recipient of the order of the British Empire, Dr. Norton has served as President of the Australian Dental Association, as well as of the Australian Dental Board.

D. Walter Cohen, President of the Medical College of Pennsylvania, was recently awarded Doctor of Humane Letters from the University of Detroit School of Dentistry. Widely recognized for his achievements in dental education, Dr. Cohen was honored for demonstrating excellence in his professional career.

D. Walter Cohen

SECTION ACTIVITIES

European Section

The European Section of the College held a luncheon meeting in conjunction with the Federation Dentaire Internationale World Congress held in Amsterdam recently. The meeting was also attended by Dr. James A. Harrell, Sr., President of the College, and Mrs. Isabel Harrell.

Photographed on the left, Dr. Donald D. Derrick of England, the Secretary-Treasurer, and on the right, Dr. Pierre Marois of France, Chairman of the European Section with ACD President, James A. Harrell, Sr.

Fellows of the European Section and their guests photographed with Dr. James A. Harrell, Sr., President, ACD and Mrs. Harrell.

Potential for a Canadian Section Being Considered

Twenty-five Canadian Fellows of the American College of Dentists, held a meeting in Vancouver, British Columbia, August 26, 1989, during the Annual Session of the Canadian Dental Association to discuss the possibilities of forming a Canadian Section of the College. Letters announcing the meeting were sent to all 87 Canadian Fellows under the signatures of Dr. Arthur Schwartz, Dr. Kenneth Pownall and Dr. Marcia Boyd. Dr. Schwartz served as Chairman Pro Tem of the meeting and Dr. Prem S. Sharma, Regent, Regency 5, explained the benefits, as well as the procedures, that need be followed should a decision be made to petition for the formation of a Canadian Section. Dr. Charles Farrell, Regent, Regency 8, also addressed the meeting. Dr. Donald Derrick, Secretary-Treasurer of the European Section, who was present at the meeting, described the benefits that they had obtained by forming a European Section.

The Canadian Fellows at the meeting voted to proceed with the necessary steps to petition for the formation of a Canadian Section. A five member committee was named to prepare a proposal for consideration by the Canadian Fellows at a meeting to be held in conjunction with the Canadian Dental Association's Annual Session in Ottawa in August, 1990. The Committee members are: Dr. Ian C. Bennett, Dr. Marcia A. Boyd, Dr. Herbert Caplan, Dr. Kenneth F. Pownall, Dr. E.J. Rajczak and Dr. Arthur Schwartz.

Dr. Donald Derrick, Secretary-Treasurer of the European Section, on the left, photographed with Regent Prem Sharm and Dr. Basil M. Plumb, past Chairman of the Washington-British Columbia Section.

Photographed at the Meeting of Canadian Fellows in Vancouver are from the left Dr. Kenneth Pownall, Regent Charles Farrell of Regency 8, Dr. Marcia Boyd, Regent Prem Sharma of Regency 5, Dr. Ian Bennett and Dr. Arthur Schwartz.

Photographed at the Nebraska Section's meeting are from the left Dr. Robert E. Sullivan, Dr. Harold P. Kreski, Dr. Max Martin, Jr., Dr. Bryce W. Bonness and Dr. Stephen H. Leeper.

Upper Midwest

The Upper Midwest Section, which encompasses Minnesota, North Dakota, South Dakota and Manitoba, elected the following officers for 1989–90 year: Chairman, Dr. George L. Humphrey (Minnesota), First Vice-Chairman, Dr. Paul R. Abrahamson (North Dakota), Second Vice-Chairman, Dr. Douglas A. Nelson (Minnesota), Third Vice-Chairman, Dr. Kenneth J. Buechele (Minnesota). Secretary-Treasurer, Dr. Odin M. Langsjoen (Minnesota), and Chairman-Nominating Committee, Dr. Gordon C. Amundson (Minnesota).

The new officers were installed at a recent meeting of the Section and a program on "Section Unification" was held by having three Fellows from various geographic areas of the Section participate. Dr. William E. Dunn, South Dakota, discussed the views and attitudes of the 8 ACD Fellows from South Dakota. Dr. George Humphrey gave a report on a "Pre-Dental Cooperative Education Course" designed to provide a means for pre-dental students to better understand the many facets of dentistry. The course which has been offered for nearly a decade at the Concordia College in Moorehead is currently offered for college credit and taught by Fellows of the Upper Midwest Section. Dr. Paul Abrahamson of North Dakota called for ideas and mechanisms to vitalize the purpose and objectives of the College among young dentists entering the profession.

Maryland

The Maryland Section held its annual meeting earlier this summer and has the following officers serving the section: Chairman, Dr. J. Richard Crouse, Vice-Chairman, Dr. Don-Neil Brotman, Secretary, Dr. W. Michael Kenney, Treasurer, Dr. Frank N. Romeo and Editor, Dr. Harry W.F. Dressel, Jr.

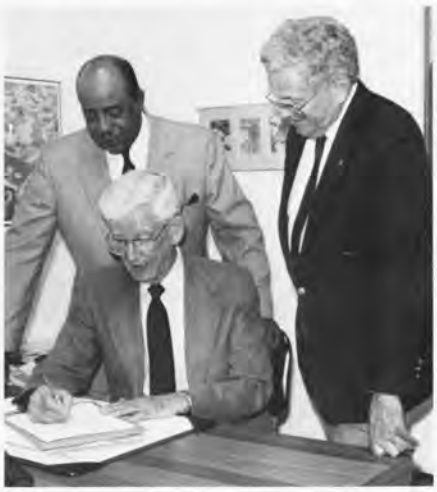
The Maryland Section conducted its annual University of Maryland Student Activities Day when senior dental and dental hygiene students attended a luncheon and a program of table clinics on a variety of subjects related to dental practice.

Nebraska

The Nebraska Section held its Fall meeting recently in Lincoln, which was attended by a large number of Fellows from Nebraska, as well as Regency 5 Regent, Prem S. Sharma. Dr. Max M. Martin, Jr., of Lincoln, gave the Secretary-Treasurer's report at the meeting, chaired by Section Chairman, Dr. Harold P. Kreski of Omaha. Dr. Benton Kutler serves as the Vice-Chairman of the Section.

The Nebraska Section works closely with the two dental schools in the State and annually presents an award to a graduating senior student at each of the schools for academic excellence and leadership.

Michigan



The new officers who were installed at a recent meeting of the Michigan Section are Chairman, Dr. Melvin A. Noonan, seated, Chairman-elect Dr. Robert L. Moseley, left, and Secretary-Treasurer Dr. Edward D. Barrett. The Michigan Section voted to donate $500 to the American College of Dentists Foundation and $2,500 to the Campaign for the 90's.

Photographed from the left are Oklahoma Section's Immediate Past-Chairman, Dean L. Johnson and Chairman James A. Thomas, Sr. with Regent Prem S. Sharma.

Oklahoma

The Oklahoma Section held its Fall meeting recently in Oklahoma City in conjunction with the annual session of the Oklahoma Dental Foundation. The Section meeting was attended by Regent Prem S. Sharma, Regency 5, who discussed the role of the American College of Dentists in helping maintain world leadership for American dentistry.

The Oklahoma Section has an innovative Senior Dental Student Work/Study Program and provides funding for the selected student to visit University campuses in the State to meet with pre-dental students. The officers of the Oklahoma Section are Chairman, Dr. James A. Thomas, Sr., Vice-Chairman, Dr. Robert E. Hess, Secretary Treasurer, Dr. E. Van Greer, and Immediate Past Chairman, Dr. Dean L. Johnson.

Some of the Fellows of the College from Oklahoma who attended the meeting are from the left Dr. Herman D. Tow, Dr. Jerome B. Miller, Dr. Russell J. Stratton, (Dean of the University of Oklahoma College of Dentistry), Dr. Dean L. Johnson, Dr. James B. Roane, Dr. French E. Hickman, Dr. Manville Duncanson, Dr. Dean Robertson, Dr. Frank J. Miranda, Dr. Earl W. Collard, Dr. Robert J. Rowan, Dr. William C. Hopkins, Dr. James A. Thomas and Dr. Colin C. Woods.

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Name _____ F.A.C.D.

Address _____

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Signature

A nomination portfolio to be used in nominating to Fellowship is obtained from the Executive Office upon the signed request of any Fellow in good standing.

February 1, — Closing Date for Nominations. Send the form to the American College of Dentists, Suite 352N, 7315 Wisconsin Ave., Bethesda, MD 20814-3202.

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The Journal of the American College of Dentists is published quarterly in order to promote the highest ideals in health care, advance the standards and efficiency of dentistry, develop good human relations and understanding, and extend the benefits of dental health to the greatest number. It is the official publication of the American College of Dentists which invites submission of essays, editorials, reports of original research, new ideas, advances and statements of opinion pertinent to dentistry. Papers do not necessarily represent the view of the Editors, Editorial Staff or the American College of Dentists.

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Papers should be in English, typed double space on white 8-1/2 × 11 paper. Left hand margins should be at least 1-1/2 inches to allow for editing.

All pages, including Title Page, Tables and Figure legends, should be numbered consecutively in the top right-hand corner. The first page should list title of manuscript with the first letters of the main words capitalized (do not use Part I, etc.), author's (or authors') initials and name(s) in capitals (no titles or degrees), complete professional address(es) (including ZIP or Postal Code), a short title of NOT more than 45 characters in block capitals, and, as a footnote, any change in corresponding author's address since the paper was submitted. With multiple authors, relate them to their respective institutions by superscript numbers. The first author is assumed to be the one to whom correspondence and reprint requests should be directed unless otherwise stated.

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Dorland's Illustrated Dictionary will be used as the authority for anatomical nomenclature. The American Heritage Dictionary will be used as the authority for spelling nonmedical terms. The American English form of plurals will be used where two are provided. The Index Medicus and Index to Dental Literature serve as authorities for standard abbreviations.

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1. Smith, J.M., Perspectives on Dental Education, Journal of Dental Education, 45:741–5, November 1981.
2. White, E.M., Sometimes an A is Really an F. The Chronical of Higher Education, 9:24, February 3, 1975.

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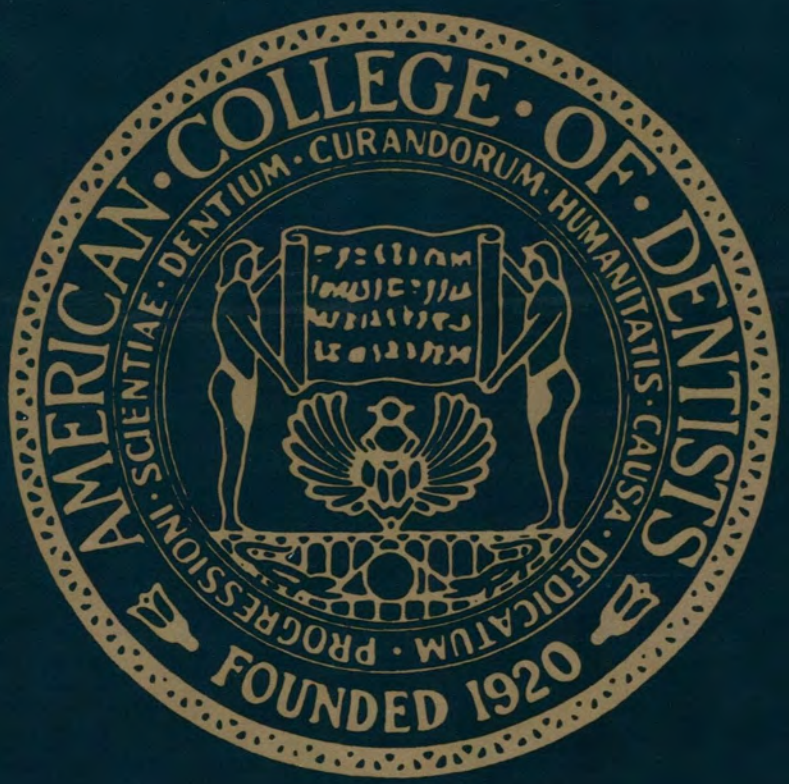

New Fellowships Conferred

Clinical Microbiology

Dentistry Changed in the 1980's