Professionalism
Realistic Expectations for the New Dentist
Motivating Dental Auxiliaries
Assessing Clinical Judgement
BOARD ACTIONS

At the Spring meeting of the Board of Regents in Bethesda, the following actions were taken:

— Approval was given to lease Executive office space in a new building in Bethesda, beginning in November 1979.

— Procedures for the establishment of new Sections were discussed and adopted.

— The Board authorized Student Awards and certificates and directed that their format be prepared by the Executive office.

— The establishment of an annual award for the Outstanding Section, on the basis of activity, was approved.

— The Self-Assessment and Continuing Education program is to be evaluated for future use.

— The Board voted to appoint a new Search Committee to find a successor for the Executive Director. The new committee will consist of past-presidents Frank P. Bowyer, Louis G. Terkla and James L. Cassidy.

— The auditors report was approved.

— The Regents and the Commissions of the Board presented reports.

— A Select Committee was appointed to consider questions of commercial sponsorship of education and journalism, advertising and fragmentation of the professions. Position statements will be developed.

— The Board voted to continue annual sponsorship of the scientific program of Section R (Dentistry) of the American Association for the Advancement of Science, with appropriate funding.
SECTION NEWS

Texas Section

The annual meeting of the Texas Section was held in Austin on April 27, 1979. The session was called to order by President John Wilbanks at 9:00 A.M. Mr. James Koster, a legislative assistant to Governor Bill Clements, presented an interesting insight into the Governor's office. Our second speaker was W.L. Fisher, Ph.D., professor of geology at the University of Texas. After the formal presentation, he answered questions reflecting our concerns about the future of oil and energy resources of our country.

At the business session a motion was passed to continue the Professionalism Award at each of Texas' three dental schools, to contribute $100.00 to the Texas Foundation for Dental Health and Education as a Memorial Fund, and to repeat the continuing education course, sponsored and given by Texas Fellows for all Texas dentists. This year the program is to be presented in Houston. Dale Hills, President of the College addressed the members, clearly outlining the goals, objectives, and future thrust of the American College. Regent L.M. Kennedy, delivered the charge and re-chartered our Section. After a report from the nominating committee chairman William Patterson, the following officers were elected: W.H. Ritchey, president; James P. Addison, president-elect; Morris Barrington, vice-president; Robert E. Lamb, secretary-treasurer. The meeting was then adjourned for lunch.

133 members and guests attended, and president John Wilbanks presided. Our luncheon speaker was Larry Kerr, president-elect of the American Dental Association. Introduced from the audience were James Vernetti, past president of the College and Ralph Boelsche past regent.

Earle Williams, past president of the College installed the new officers. Bill Ritchey accepted the office and presented retiring president John Wilbanks a past president's plaque.

CONTRIBUTING EDITORS

Contributing Editors for this issue are Ruth S. Friedman of Pittsburgh, Pennsylvania, Robert E. Lamb of Dallas, Texas, Henry I. Nahoum of New York City and Paul H. Oyamada of Portland, Oregon. Their contributions are gratefully acknowledged.
Oregon Section

The Oregon Section of the College met at the Red Lion Inn in Portland, Oregon on February 9, 1979. During the short business session presided over by chairman Jim Tinkle the newest Fellows were introduced: Dave Moline of Salem, Bart Cross of Lebanon, Joe Morris of Portland and John Holt from the University of Oregon Dental School. The new section officers were duly elected and installed. They included Evelyn Strange as chairperson, Jim Marshal as vice-chairman, and Philip Reiter as secretary-treasurer. The Section will again sponsor the Self-Assessment test during the state meeting. The balance of the evening was turned over to Mr. Frank Keil of the Oregon Museum of Science and Industry. His subject of Cold Weather Survival was apropos since he has recently returned from teaching classes to workers laying the pipeline on the North shore in Alaska.

New York Section

In accordance with President Dale A. Hills’ charge, the New York Section of the American College of Dentists met on June 8th, 1979 at the College of Physicians and Surgeons of Columbia University to consider Advertising and Commercial Sponsorship of Education and Journalism by Fellows.

The meeting was called to order by the Chairman of the New York Section, Irving J. Naidorf at 11 A.M. There were 28 Fellows present and the chair was turned over to Regent Gerard McGuirk who conducted the discussion.

It was immediately apparent that the fellowship was unanimous in deploring all forms of advertising by the fellowship, but concern was expressed for the legal ramifications of enforcing a strict code of ethics.

The following resolutions were passed unanimously:

1. The New York Section is against all forms of advertising and that a recommendation be made to the national office that a committee be appointed to investigate the legal aspects of restricting individual Fellows.

2. The New York Section opposes participation by Fellows in commercially sponsored education and journalism. We recommend that these activities be better defined and that guidelines be prepared.

The meeting was adjourned at 12 noon. The New York Section hosted a luncheon at the Faculty Center of The Columbia Presbyterian Medical Center.
NEWS OF FELLOWS

Harry Lyons, former dean of the School of Dentistry at the Medical College of Virginia and past president of the American Dental Association, the American College of Dentists, and the American Association of Dental Schools, recently received the honorary degree of Doctor of Science from Washington and Lee University.

U.S. Army Major General George Kuttas and U.S. Navy Rear Admiral Paul Farrell, now serving as the commanding officers of the Army and Navy Dental Corps, received the Alumni Award of Merit from the University of Pennsylvania School of Dental Medicine recently. Jack Lewin-Epstein, former dean of the School of Dental Medicine at the Hebrew University of Jerusalem, and currently professor and chairman of oral surgery at that institution received a similar award.

H. Arthur Zappe of Mineral Wells, Texas, has recently received the Outstanding Alumnus Award of the University of Texas Dental Branch at Houston.

Charles Pugh of Fort Worth was named Dentist of the Year by the Texas Academy of General Dentistry.

Robert V. Walker of Dallas was named Dentist of the Year by the Dallas County Dental Society.

Welden E. Bell, an oral surgeon of Dallas received the Distinguished Alumnus Award from Baylor College of Dentistry in recognition of constant devotion and outstanding contributions to the art and science of dentistry.

Philip M. Hoag has been named executive associate dean of the Southern Illinois School of Dental Medicine, Edwardsville, Illinois.

Clifton O. Dummett, professor of dentistry at the University of Southern California has been awarded the Air Force Systems Command Certificate of Merit.

P. Earle Williams, past president of the American College of Dentists and the American Board of Oral and Maxillofacial Surgery will be honored by having the 1979 meeting of the American Association of Oral and Maxillofacial Surgeons dedicated to him.
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ASSESSING CLINICAL JUDGEMENT IN DENTISTRY: PRACTITIONER EVALUATION OF PATIENT MANAGEMENT PROBLEMS
Regent Gerard E. McGuirk

Gerard E. McGuirk, an oral surgeon of Flushing, New York, has been named to the Board of Regents of the American College of Dentists at its last annual session. Educated at Fordham University and the New York University College of Dentistry, he graduated with honors from dental school and took an internship and residency in oral surgery at Bellevue Hospital in New York.

After two years in the Dental Corps of the United States Army, he entered the practice of oral surgery, first in Brooklyn and later in Flushing, New York.

Dr. McGuirk has held a number of offices in dental organizations. He has been Secretary, Treasurer, Vice President and member of the Board of Trustees of the Second District Dental Society, and served on many of its committees, as well as those of the Dental Society of the State of New York. He has been General Chairman of the Greater New York Dental Meeting and a delegate to the American Dental Association.

He is a diplomate of the American Board of Oral Surgery and a member of the Metropolitan Society of Oral Surgeons and the American Society of Oral Surgeons. He is a member of Omicron Kappa Upsilon honorary dental society, a Fellow of the Long Island Academy of Odontology, member of the New York Academy of Dentistry and past president of the Catholic Dentists Guild of the Diocese of Brooklyn and the New York chapter of Psi Omega fraternity. He also belongs to the Knights of Columbus and the Holy Name Society.

Dr. McGuirk is a former Clinical Instructor in Oral Surgery at New York University College of Dentistry and has given lectures and clinical presentations before a number of dental societies. He holds appointments at Bellevue, Brooklyn-Jewish-Greenpoint, Carson C. Peck Memorial, Methodist of Brooklyn, Flushing, Parsons and Whitestone Hospitals.

Dr. McGuirk and his wife have five sons and four grandchildren.
Editorial

Geriatric Oral Health

The fastest growing group of Americans are those individuals over age 65. At present there are about 25,000,000 and by the year 2000, (not too far off), well over 30,000,000. It's time that some thought and planning be given to a great need.

The American College of Dentists has a long history of examining specific professional areas and searching for directions and proposing solutions. While the College may correctly wish to avoid the political economies of dental service, it could begin to encourage broader education of dentists in geriatric oral health considerations and diagnostic and treatment procedures. At the present time, it takes special effort to find a dental school that is providing any specific course material related to problems of aging.

Any cursory examination of geriatric oral health leads one to the conclusion that unlike medical care, which becomes an extension of any total health insurance that existed prior to attaining age 65, under Medicare provisions of social security legislation, the insured oral health component of total health ceases to exist. Unfortunately, the need becomes greater rather than less. If one accepts the premise that oral health care is a prerequisite to related total health, then American dentistry must assume a responsibility to provide a continuum of essential quality care.

Dentistry for the aged is as encompassing as dentistry for the pediatric patient. The pedodontist learns to understand the physiologic processes of growth and development, the psychodynamics of understanding and treating the child as well as the necessary special modalities of diagnosis and treatment. The pedodontist also concerns himself with the socio-economics of providing care; unfortunately, he may consider this latter issue first.

Successful treatment of the aged requires particular knowledge of the physiology and pathology of aging. One must understand the psychodynamics that affect both dentist and patient as well as the more complex problems of diagnosis and broader treatment concepts and procedures. Everything that we know today about preventive dentistry procedures for children, adolescents or adults is equally applicable to the aged person.

Tooth loss does not necessarily have to be equated with aging. As dentists our objectives should be to keep the aged free of pain, infection, physically intact and functional.
Our problems with the denturist begin with the fact that only in courses for prosthodontics is any consideration given to the processes of aging. A quick survey of programs presented at state or dental meetings would reveal a dearth of subjects related to the oral health problems of the geriatric...again only as in prosthodontics. Which is what the denturists believe that they can do.

As long as dentists believe that prosthodontics is the ultimate therapy for the aged person, there will be more "Oregon" defeats for the profession.

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The Challenge is Now!

The annual meeting of the American College of Dentists will present a panel discussion on the challenges and problems currently facing the profession. Panelists will be:

LAWRENCE I. KERR
President of the American Dental Association 1979-80

and

ERNEST H. BESCH
President of the Texas Dental Association 1979-80

Moderator
WILLIAM C. DRAFFIN
President Elect of the American College of Dentists

Saturday, October 20, 1979

Hyatt Regency Dallas
Sections Oppose Advertising

Last fall, two Sections of the College, the New Jersey and the Upper Midwest (comprising the states of Minnesota, North and South Dakota) conducted a survey of their Fellowship on the subject of advertising. The question was asked, "Do you believe that Fellows of the College should advertise?"

A total of 306 questionnaires were sent out and 224 were returned. (73%) Of that number 203 (90.6%) were opposed to advertising by Fellows and 18 (8%) were of the opinion that Fellows may do so. Three were undecided. It was interesting to note that more than half the respondents felt strongly enough about the question to write some perceptive comments. Many of the respondents stated that they considered advertising to be degrading and demeaning and contrary to the ethical standards of the College and the profession.

Here are some of the other comments from the NO's:

—A dentist who is worthy of becoming a Fellow of the College, does not need to advertise his capabilities.

—I do not believe a dentist should advertise for popularity or for business gains. Quality of services, integrity and character should identify professional standing.

—if a dentist finds it necessary to advertise to maintain a practice, he better take a long look at himself.

—Our best ads always have been and will always be quality service at reasonable cost. Patients who like their doctor and trust his judgment in professional matters . . . are the best protagonists for practice building.

—not only should not the Fellows advertise but, in my opinion, neither should any professional engaged in health care delivery. We are not merchants. Market-place practices have no place in our profession. This is just another indignity heaped upon a grand old profession . . . I hope it can sustain the insult.

—the legal decision was made for us not by us. We must continue to try to protect the public.

—to advertise is to hawk one's wares and I cannot consider a hawkers as a professional.

—Don't let the bureaucrats dismember us bit by bit. Who stands for ethics?
—Advertising gives those members of the profession least qualified an opportunity of luring people who think they may be getting a good deal to their offices thru various means of salesmanship.

—It seems to me a retrogression to the conditions we eliminated here about 50 years ago.

—Most of us have worked too hard to raise the ethical standards and position of dentistry in the health world. Now that we have raised dentistry out of the “craft-trade” position it was once in, let’s keep it out.

—Because we believe that to advertise is neither ethical nor professional, we must resist those external and internal forces and pressures which will reduce us to something less than a profession.

—The costs must be paid for by the patient.

—When the public has been hurt enough the trend will be moving back in the direction of sanity. It is our responsibility to try and move the pendulum back again.

The following are expressions from the YES ballots:

—I think proper and suitable advertisements to guide—not mislead—the public could be beneficial.

—Not to advertise would be unwise. However, one should do so in low key and professional manner.

—If this is the law of the land . . . why not? For myself, I deplore it.

—If its ethical advertising approved by the dental society, it would be ok.

—If all dentists are allowed to advertise, within ethical restraints (hours, specialty or limitation) Fellows should be permitted. However, I don’t feel that Fellows will need to advertise.

The survey results speak loud and clear in stating the opinion held by a large majority of Fellows responding, that members of the College should not advertise. It should be understood that the College has no authority to tell any of its Fellows not to advertise or to take any action against any who may do so. The College merely points out that its ethical standards, which every Fellow has pledged himself to uphold, preclude participation in any type of personal aggrandizement. The rest is up to the individual. The Fellowship has spoken.
Professionalism

DAVID H. EHRLICH, D.D.S.

My thoughts on professionalism are continually fresh. It is the yardstick by which I measure my attitudes and my actions. It is the pillar of my self-esteem and the goal that makes me work harder and longer and better than is really needed to provide me with food, clothing, shelter, an automobile and a television receiver. It is the unending struggle toward a perfection I shall never reach; it is also the satisfaction and the inspiration given me for each great effort and each small gain toward that end. It is a mindset, if you wish, a conditioned reflex, built and strengthened over the years by favorable afferents consciously nurtured.

This exercise of mine in verbal nudism merely says in a slightly different way what has been said so often and so well by the great minds of our College. I have posed in microcosm the central theme of our College, the principal reason for its existence, and it expresses, I know, the essential feeling of every one of you. You have all been selected as Fellows because of your identity with the ideals of professionalism and your diligent pursuit of them. You all know and practice these ideals. No eloquent exposition and discussion of them is needed in this select company.

Our concern here is rather an assessment of the validity and the viability of these ideals in these turbulent times. We all know of the mindless, headlong assault upon us by the Federal Trade Commission through its San Francisco Regional Office, imputing that American dentists are organized primarily to give the American public the very least in dental service at the highest possible cost. The Commission's operating assumption, never responsibly documented, is that American dentistry has failed to meet the needs of the American people—or is it the needs? The impudence of these governmental saviors of the public is astounding as they manufacture what is wrong with us, all the while ignoring, suppressing and minimizing the fraud, inefficiency, blundering, extravagance, waste and failure that have been the record of every government social program ever foisted upon us, and of a majority of government's other-than-social programs as well.

Presented at a meeting of the Western Pennsylvania Section on March 22, 1979 in Pittsburgh, Pa.
The Internal Revenue Service and the United States Postal Service are cooperating loyally in the destruction of dentistry and all the learned professions by sniping at any cost and tax advantages our professional schools and our professional organizations may presently enjoy in disseminating scientific education and information to the nation's present and future professionals. Coupled with the Federal Trade Commission's ambitious scheme to reduce our incomes to those of the junior and middle ranking officers of the armed services, this assault seems designed to dry up the profession's resources and make further depredations that much easier when our organized ability to resist has been financially weakened or eliminated.

It is considered urbane and gentlemanly in our society to credit our opponents in contentious matters such as these with honest beliefs and sincere motivations. Yet, dare we ignore the tactical and even strategic implications of the pincers movement we now face? Restricted in income on one flank and punished with ever higher expenses and taxes on the other flank, do we not face envelopment and defeat by those who have the limitless dollars of the Federal treasury with which to exhaust us in litigation? Are we paranoid in feeling that just perhaps, among the liberal young bureaucrats eager to make their marks in the world and on their government personnel files, there is a feeling that reorganizing and reforming the health professions into a grand Federal master plan would (1) solve the nation's problems with the ills that flesh is heir to, and (2) earn each of them valuable credits toward lucrative positions on the payroll of a new Federal bureaucracy?

We could easily persuade ourselves into accepting a conspirational explanation of our complex problems. We do realize that controversy is in the air, water and food of an enlightened republic and that the good Lord above has managed to make everyone of us, although all in his image, just a little bit different. Yet we can very plausibly theorize that this assault we now face is the sum of many independent pressures:

2. The vote-conscious do-gooders in Health, Education and Welfare, who are irrevocably committed to the belief that the Federal Government is the only method by which human ills and discontents can be resolved.
3. The Postal Service's desperate desire to liquidate its blunders and extravagances at the expense of the efficient and the hardworking.
no matter what the results outside its own domain may be.

4. The worker bees in the Internal Revenue Service, constantly seeking ways to interpret and extrapolate laws, regulations and judicial precedents so that the activities of the foregoing other groups will be adequately financed.

This is the way it appears to me: Four independent columns are converging upon us, one from each direction of the compass. And I cannot put out of my mind the observation of General Francisco Franco in the Spanish Civil War of the late 1930s, "A fifth column will join us in Madrid." Dentistry also has a fifth column that will benefit the enemy. Twenty percent of it comprises the incompetent and the dishonest among us, the opportunists who see fabulous profit for themselves in the promises of the promoters of the new mechanisms of delivering dental care, and the young visionaries who are enthralled by the dream of perfect social and material justice through government. The other 80% comprises the bulk of our profession: our competent, honest, hardworking colleagues who are doing excellent work in their private practices, in the dental services of the Armed Forces and other government agencies, on the faculties of our dental schools, in research and in public health. They are doing so well and are so bound down by the daily demands of their busy professional lives, that they just cannot fully believe that there is any real danger without; or, if they do sense it, they cannot take it too seriously-just yet. Apathy, the Achilles' heel of dentistry since time began, continues to impose upon the alert and the dedicated the added duty of carrying the all too many others who will reap though they do not sow. It is just as true today as it was when Edmund Burke and many others stated that all that is needed for the triumph of evil is for good men to do nothing.

Our viewpoint, our motives and our objectives are crystal-clear and nobly pure to us, but our adversaries, who cannot appreciate us because they do not know us nearly well enough, are convinced that an unacceptably high percentage of us are incompetent, larcenous and high-handed with the patients we serve. Unfortunately, the newspapers find a sufficient number of such incidents to print from time to time to keep the fire burning.

What, then, to do? Our highly esteemed Fellow, Charlie McDermott, on October 8, 1977, in the penultimate paragraph of his inaugural address as President of the American College of Dentists, said "We have in the American College of Dentists one of the strongest, most versatile and most capable organizations in dentistry. It is very much needed today. It can serve as it has in the past. We need but to apply ourselves. We need everyone's help. We need your help—your personal, individual, consistent support and cooperation."
simple sentences are all punch lines. They tell it all.

Having plagiarized Charlie, may I plagiarize myself in retelling what I said in Houston in 1973? I can find no way to improve upon it:

"We who are gathered in this room today have given of our devotion, our talents and our energies in behalf of the common goal above and beyond what is considered to be normal and expected. Our College has members in every one of the important and decisive positions of the profession—the schools, the State Boards, the policy-making offices of all echelons of organized dentistry, in public life, in the dental specialty groups, in research and in public health. We, I propose, are an elite corps of the profession. We 3000 have the ability to guide, influence and even lead the other 100,000 if we adopt the will and the tenacity to do so. Perhaps it is possible that a sort of super-government can emerge in all these different headquarters of the varied operations of our profession. It will be the complete antithesis of the conspiratorial infiltrations of existing governments that are well known in history; it will be quite open and non-secret in every way. The dentist with the FACD degree will be elevated to leadership by acclamation because of his superior vision, know-how and hard work and in so doing, will stimulate by his example many others to see the wisdom of adding their strengths to the attainment of the common objective. He will mix evangelism with conscription. Thus another group will have entered the complex interplay of the forces of our day, and potentially it will be the most talented of them all. Policy, liaison and coordination between the sections of the College and its national headquarters are but the first of the requirements for an aroused and invigorated College. It is even possible that a sort of military discipline will be needed.

It will be difficult, it will at the outset be discouraging but if we are loud enough and insistent enough and honest and sincere enough, it will not be very long until here and there, and then in many places at once, it will be realized that there are people who see and understand what is going on and are able to do things that will point the way out of the wilderness.

To be the activators of this badly needed quest, we must become a group with the cohesiveness and the effectiveness and the single-mindedness of our best profit-making corporations. Even more, we must somewhere find the power and the impetus that derive from our belief in ourselves and our cause."

Professionalism, the devotion to service above self and to a life that, even outside our dental ministrations, embodies that ideal, is an attribute of our calling, our culture and our civilization that must not be allowed to die.

JULY 1979
Realistic Expectations for the New Dentist

JAY M. YANOFF, Ed.D.

INTRODUCTION

Let me begin this talk with an incident that occurred recently. I was visiting my five year old son's nursery school. His teacher, in attempting to impress me, asked my son, "Neal when you grow up, would you like to be Bar Mitzvah?" Neal thought for a second, stopped, and responded, "No, I think when I grow up I will be a dentist." What must go in all of our minds today is why someone chooses to go into dentistry? The literature indicates several main reasons.

1. *For the money.* There is a fantasy that the dentist makes a lot of money.
2. *The need for control or authority.* There is a fantasy that the dentist naturally controls those people with whom he works, his personnel and his patients.
3. *The desire to work alone.* There is the fantasy that the dentist is in an isolated profession, that he or she works alone, in a little room, in a person-to-tooth process.
4. *Altruism.* There is the fantasy that the dentist wants to help mankind by treating patients and preventing future dental disease.
5. *Imitation.* People will choose dentistry as a career because there is a dentist who they admire; that is they have seen either a parent or their own family dentist who has created for them a model after which they would like to pattern their lives.

Many students and parents do not realize that these factors are reasons one chose to enter dental school. Obviously with each individual, these factors will differ. For example, some will choose dentistry because of the potential earning power, others will choose it for altruism, but in most instances, students will choose it for a combination of these five reasons.

Portions of this paper were given by Dr. Yanoff at the request of the students for Family Day at the University of Pennsylvania School of Dental Medicine. Dr. Yanoff was the Behavioral Scientist for the TEAM Program (Training in Expanded Auxiliary Management).
WHY BEHAVIORAL SCIENCE?

You may ask the question, "Why are behavioral scientists now being involved in the dental profession?" We can look at the present and at the past, and we can look to the future. Presently for example,

— dental students face an educational system that criticizes them constantly,
— they face a society that fears dentistry,
— they face a profession that may attempt to keep them out,
— they face spouses and parents who pressure them for material things,
— and they face parents who place upon them unrealistic expectations.

Data from the past tells us a great deal about why behavioral scientists are now being brought into the field of dentistry.

1. Dentistry has been seen as a fear profession, yet a love-hate relationship often exists. Statistics show us presently that when people move from one city to another the last professional service person changed is the family dentist. The doctor is changed, the accountant is changed, the pediatrician, the lawyer, the druggist are all changed. But people tend to go back, year after year, to the same dentist even though he may be many miles away. When people are asked about dentistry, the majority will indicate they do not like to go to the dentist because of the relationship to pain and their fear of being hurt. Few of our population look upon the dentist or dentistry in a positive way. Thus when dentists treat patients, they are often times working with individuals who fear them greatly.

2. Dentistry has been seen as a person (the dentist)-to-tooth process. This is a misconception, for no dentist has ever had a tooth walk into his office. The dentist is working in a person-to-person process, because behind that dentistry, behind that tooth is a human being and his/her behavior. The dentist must deal with communication, and must be able to relate to the person who is behind the mouth. For example, in periodontia, the dentist can treat the disease condition. However until he can change the individual's tooth brushing and oral hygiene behavior, nothing definitive will happen in terms of cure, the disease will not go away. So it is, that dentistry needs to learn how to change behavior, teach prevention before cure, and thus the need for the behavioral scientist to deal with these phenomena.
3. Dentistry today, it has been said, has passed all other professions in terms of the high divorce and suicide rates. We are seeing individuals who are very unhappy, who are considering leaving the profession. The behavioral scientist is being consulted more and more to help work out interpersonal problems, to help the dentist deal with all the dynamics of the individuals within the practice.

4. Dentists are being pressured because of unrealistic expectations. When your sons and daughters enter dental school, the basic assumption of parents is that when they graduate, they will now begin to earn a substantial income. They will have large houses, they will drive prestigious cars, they will have good incomes, their offices will be in upper socio-economic areas where they can be shown off, they will enjoy immediate financial success. These unrealistic expectations on the part of parents have driven some students to leave dental school, to decide not to go into the practice of dentistry. These expectations are basically fantasies, for affluence in dentistry, if it happens, is a slow and gradual process.

5. Dentistry is basically an art rather than a science. In the past, students were selected for admission into dental school based upon their science background. Data has shown that these individuals do very well in their first two years, that is during the preclinical basic science courses. However, during the clinical phase of dentistry these individuals have shown no more competence than those students who have trained in the humanities. This author believes that although there is a good deal of science built into dentistry, it must in a larger sense be considered an art. Art and science go hand in hand in dental treatment and the most successful dentists show skill in both. Patients rarely if ever question the quality of dentistry, but they often choose their dentist because of his interpersonal skills. Why and how people stay with a practice is basically due to the interpersonal dynamics, not to the scientific skill, but particularly to the art of the individual.

WHAT CAN YOU EXPECT

One of the things about which students are very aware is the cost of opening a dental office. This differs greatly from medicine, where the primary cost of beginning practice is slight by comparison. It is estimated that if the dentist opens a new office that has several operatories and utilizes the most modern equipment, it can cost over $100,000. There are dental equipment companies out there attempting to entice your youngsters into entering into agreements for setting up practices completely. They will pick the site, they will pick the
equipment, and they will begin to design that practice for the young dentist. The only problem is, "How will the dentist pay for it?" Today, there are more bankruptcies in dentistry than ever before, and it is your children who are beginning to face that phenomenon. Also many of you are going to use your own finances as support for these dental practices.

You may not realize that presently it is estimated that only 40% of our population seeks dentistry at all, and many of those do not visit the dentist even once a year. There is an existing population however that needs and wants dental care. In some areas, there are dentists who would dissuade young graduates from coming into their communities, requiring them to share the patient population which provides their income. Thus graduates may face an unpleasant professional atmosphere when they move into communities which are presently being served by other dentists.

When can you expect profit to begin? Do you expect the first day that your son or daughter opens an office that there will be an overwhelming number of patients coming for treatment? If so, you will be sadly mistaken. However when the practice begins, the young dentist will be expected to pay personnel, to be able to pay for phone installation, for stationary, materials and supplies. Even if patients begin to fill the appointment book at the outset, it is unrealistic to expect to reach a financial break-even point until at least six months after the start of practice. More money will be going out during that period than coming in.

And finally, there is a need for reduction of the stresses they face. To open an office in a new area with the attendant psychological and financial costs, it will be important for the young dentist to eliminate as many of the inefficiencies of practice as possible. They will not be starting out with large practices and it will be important for them to do realistic types of dentistry. As you must know, their speed will not be as rapid as it will eventually become. They may not be as skillful in all procedures, and they may not be treating the more complex, more financially rewarding cases. Therefore, they will have to practice as efficiently as possible in the early stages.

SUGGESTIONS AND CONCLUSIONS

1. Start small and grow. This author believes that it is more important to start modestly and grow than to start big and fail. Although there are large companies and some parents who would like to see young dentists in expensive offices, it is my belief that when they start small, they are better able to handle their patients, eliminate inefficiencies, some of the pressures and much of the expense.
2. **Examine your goals and go after them.** This author suggests that each graduate write his/her philosophy and both short term and long term goals. After writing this, try to develop behavioral objectives that can be measured. An action plan which describes dates and each step to be completed is also helpful here. This, too, will help reduce inefficient work toward unwanted goals.

3. **Look to populations needing and wanting help.** If the suburbs presently are saturated with dentists, I would suggest that you look elsewhere. That means that you may have to begin in areas which do not seem to be as enticing as the suburbs. For example, presently the inner-city has a great deal of need for dentists. We know that one can realistically expect to earn in some states a comfortable livelihood primarily with Medicaid patients. The rural areas presently have very few dentists. These are areas where populations are going to need the kinds of care your sons and daughters can offer. If we look to these populations, then we can expect that young practitioners will be needed and wanted and can begin to build the kind of practices they would like to have. There are also dentally underserved individuals and groups in our communities. The mentally retarded and the physically handicapped have been grossly underserved in terms of dentistry and have not been able to receive proper care. Geriatric patients are in great need for care. For the dentist who is aware and seeking out these populations, there will be more opportunities to provide dental care.

4. **Know what ancillary personnel you can use.** In all medical and dental fields of the future, we are going to see the use of more ancillary people. We are going to see the inclusion of more hygienists, expanded duty auxiliaries and office managers. Only when dentists know how to use these individuals maximally will their practices work efficiently. Those who learn to work with ancillary personnel will be able to provide more dental care to more people at less cost and still be able to make a satisfactory living.

5. **Learn management skills.** The single biggest problem faced by all dentists is the difficulty encountered in managing others. I suggest that dentists understand their leadership style, know how to establish norms and roles, and establish participatory management skills. Using them in practice will help eliminate the most common problem of practitioners.

6. **Check your interpersonal self.** We must begin to ask questions; not only, "Why do people choose to study dentistry?" We need to look to the future and ask "what will make them stay in dentistry?" There are several suggestions that I would like to make.
A. Ask the question, "what is your happiness level?" What do you do to make yourself happy? What does it take to make you happy? If you know the answer, go after it. Look at it both in your professional world as well as in your personal life.

B. Deal with your feelings, don't hold them in. Have an open management style, and in that way, deal with open communication. Encourage feedback from people with whom you work.

C. It's OK to make mistakes. All parents expect children to be perfect. Spouses want their mates to be perfect. Dentistry, like all other professions, is not a perfect profession, even though dental schools would attempt to make one think so. We all make mistakes, and it is all right to make mistakes. If we can accept these in ourselves and in others our interpersonal dynamics within the dental practice will be much better.

7. Out of the world of fantasy and into realism. If we expect to be helpful, it is important in the future for all of us to be realistic with our children. We are going to have to understand them, listen to them, give them the support they need, and not place unrealistic expectations upon them. In that way, our sons and daughters will be able to grow in dentistry not as unhappy people but as happy professionals. They will be able to earn the income that they want, not the income that we would wish for them. They will find the level of happiness that will give them their own satisfaction, not just our satisfaction. We must be understanding, sensitive and very careful that we not ask them to satisfy goals that we have set for ourselves. In that way, your sons and daughters will be able to find meaningful rewards in the field of dentistry.

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A dental practice which utilizes auxiliaries may not be a harmonious environment in which to work. The people involved may not be performing at their maximum potential, may have difficulties with inter-personal relationships, and may have problems related to the stress that is bound to arise in a dental practice. As a result, patient treatment may suffer.

In this paper, several motivational theories which have a direct bearing on these circumstances are summarized and their application in dental practice is explored. It is suggested that patient treatment, in terms of productivity, efficiency and quality of care, will be increased and stressful situations in the office will be reduced if the principles outlined here are utilized. The result should be a more harmonious practice environment for all concerned.

Motivating Dental Auxiliaries: Theories and Applications

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In any dental practice in which auxiliary personnel are employed, the dentist may be faced with the problem of how to motivate employees to achieve the goals of the practice. The assumption that employees will always perform up to their full potential is unrealistic. It has been stated that employees work at 80 to 90 percent of their potential when they are highly motivated but can remain on the job by working at only 20 to 30 percent of their potential. It is therefore obvious that the dentist will need to motivate employees if they are to perform at a level even close to their full potential. The purpose of this paper is to explore several approaches to employee motivation and show how the dentist-manager may use the principles derived from these approaches to improve employee performance.

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CONCEPTIONS ABOUT THE NATURE OF INDIVIDUALS

A starting point for the dentist performing managerial functions is an examination of how he* sees himself in relation to the task of managing people. This examination must have as its base, a perception of the world in which the dentist functions as a manager and a philosophy about the nature of people who work in dental practices. A beginning point is a set of fundamental beliefs or assumptions about what people are like. To illustrate two different views of people, let's consider two conceptual approaches regarding the nature of people proposed by McGregor*: Theory X and Theory Y.

Theory X is identified as the conventional conception of using people solely to achieve the tasks assigned to them. Theory X assumptions include the following:

1. The average person has an inherent dislike of work and will avoid it if possible. In a dental office, this implies that auxiliaries would prefer to drink coffee, read magazines, and relax rather than perform the tasks assigned to them.
2. Because of the dislike of work, people must be coerced, controlled, directed, or threatened with punishment to get them to put forth adequate effort. The implication is that a dentist-manager must supervise and direct the activities of the auxiliaries very closely.
3. The average person prefers to be directed, wishes to avoid responsibility, has relatively little ambition, and wants security above all. This implies that employees are lazy, have no initiative and work only because of the money they receive.

Theory X has been the traditional, accepted mode of thinking about productivity and motivation. Theory X neither explains nor describes people; instead, Theory X assumptions merely demonstrate what happens to people and production as a consequence of adopting the Theory X philosophy.

Theory Y is the embodiment of a set of assumptions about people that are quite different from those of Theory X. These assumptions, and some of their implications as applied to the management of a dental practice, include:

1. The expenditure of physical and mental effort is as natural as play or rest. In other words, people enjoy work.

*The male gender in this paper refers to both males and females.
2. The threat of punishment is not the only means of getting people to work toward objectives established for your practice. Individuals will exercise self-direction and self-control toward achieving objectives to which they are committed.

3. Commitment to objectives is a function of the rewards associated with their achievement. If people believe they will benefit by trying to achieve the practice objectives (e.g., patient volume, high quality comprehensive care, gross income of the practice), they will strive to achieve these objectives.

4. Most individuals learn, under proper conditions, not only to accept but to seek responsibility. Dental auxiliaries will be likely to perform additional tasks if they are encouraged to do so and are given responsibility for completing the tasks.

5. Most people are capable of a relatively high degree of imagination, ingenuity, and creativity on the job. In many instances, auxiliaries can improve and simplify the way things are done in a dental practice.

6. Under the conditions of contemporary life, the average person’s intellectual potentialities are only partially utilized. If a dentist incorporates the suggestions offered by auxiliaries into the office policies and procedures, productivity and efficiency may be increased.

The assumptions of Theory Y are optimistic and humanistic. They also reflect an unlimited potential for growth of both individuals and a dental practice. Under Theory Y, dentist-managers must be ingenious enough to tap the hidden potential of auxiliaries through the development of the need of people to be self-motivated and self-controlled.

The views of people embodied in Theory X and Theory Y provide a groundwork for motivational styles rather than motivational strategies. Theory X is a rigid approach to motivating people while Theory Y assumes a more flexible approach.

THEORIES OF WORK MOTIVATION

Several theories of work motivation have been proposed in the last 25 years. Research has been carried out to test the usefulness and validity of the various approaches to employee motivation. In this section, the various approaches will be reviewed and examples of how each might be applied in a dental practice will be presented.
THE HIERARCHY OF NEEDS

One of the earliest theories of work motivation was proposed by Maslow\textsuperscript{3,4} who defined motivation as an internal motive that causes an individual to undertake some kind of action. He postulated that motivation comes from within the individual and cannot be imposed by others.

In Maslow's scheme, there are five levels of needs (See Figure 1). The basic needs constitute the lowest level of the hierarchy and refer to such things as food, shelter, water, sleep, and, in general, those things necessary for survival. The basic needs are usually satisfied by using money to purchase the commodities which satisfy these needs.

\begin{figure}
\centering
\includegraphics[width=0.5\textwidth]{motivation_hierarchy.png}
\caption{Work Motivation Hierarchy}
\end{figure}

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In our society, the basic needs of most people are satisfied. The security needs, which constitute the second level of the hierarchy, refer to a need for safety from physical and emotional injuries. In terms of work setting, security needs revolve around the knowledge that an employer will not act capriciously when dealing with employees. The need for belongingness is a social need which an individual cannot satisfy by himself. It is a need which involves being part of a group and having social interaction with others. In a dental office this need manifests itself in the friendships that usually develop among the auxiliaries, and between the auxiliaries and the dentist. The esteem needs focus on the continual need an individual has for self-respect and personal worth. Esteem needs also involve respect, recognition, and status in the eyes of other people. This need becomes apparent every time a person desires to be complimented for a job well done. Self-actualization is at the highest level of the hierarchy and focuses on the process of forming a perception of one's self. It is achieving full potential as a person and is internal to an individual. Few people ever reach this plateau.

Maslow's hierarchy underscores the fundamental point that until one need is satisfied, a person's behavior is not motivated by the next higher level need. For example, if a person cannot obtain an adequate amount of food and satisfactory shelter, he will probably not be overly concerned with security needs. By the same token, once a need is satisfied, it is no longer a motivator of behavior. If a person is well fed, he is no longer motivated to strive for food. A possible exception to this axiom is the need for self-esteem which has been described as a "bottomless pit" which requires constant fulfilling.

Let us illustrate how Maslow's hierarchy may be applied in managing the auxiliary personnel in a dental practice. Dr. Jones is a general practitioner who employs a receptionist, two chairside assistants, and a hygienist. As a dentist who is concerned with obtaining optimal performance from the office staff, Dr. Jones has decided to follow the tenets of the need hierarchy model as a means of motivating employees. How might Dr. Jones employ these concepts in an office setting? Since Dr. Jones realizes that the office staff will not be able to concentrate on their duties if they are worried about satisfying the basic needs, the salary schedule for all employees is at a level which allows them to maintain a standard of living commensurate with their position. Dr. Jones also realizes that employees who are worried about job security may have difficulty concentrating on their assigned tasks. For this reason, job duties and acceptable levels of performance are clearly specified so that the auxiliaries know what is
expected of them. Any disciplinary measures are based on violations of the stated office policies and procedures. Dr. Jones is aware of the need for belongingness and attempts to integrate all employees into a cohesive work group. This is accomplished by encouraging all members of the staff to interact with each other and develop friendships. Weekly staff meetings are held to discuss any problems which need to be resolved and to keep the lines of communication open. Dr. Jones takes his staff to lunch once each month so that they may relax and visit with each other. He is also very conscious of the employees' need for self-esteem. When an employee's performance warrants a compliment, Dr. Jones praises the individual for a job well done. However, if an employee's performance does not meet the established standards, the need for improvement is tactfully pointed out to the employee. As a means of helping employees realize a feeling of self-actualization, Dr. Jones tries to set the stage for all employees to develop favorable self-perceptions. This is accomplished by letting the office personnel perform all tasks which they are qualified to perform as well as attempting to broaden the skills of the auxiliary personnel. Dr. Jones encourages the office staff to learn new skills by attending continuing educational courses.

Alderfer has proposed a modification of Maslow's scheme which results in reducing the number of categories from five to three. The first of the three categories includes Maslow's basic and security needs and are labelled existence needs by Alderfer. They include such things as pay, working conditions, and fringe benefits. The second level of Alderfer's hierarchy, relatedness, includes belonging and esteem needs which encompasses relationships with family members, co-workers, superiors, and friends. This level focuses on the social aspects of life, primarily the sharing of experiences with other people. The relatedness level emphasizes the external aspects of ego needs whereas Alderfer's third level, growth, focuses on ego needs internal to the individual and includes the desire to be self-confident, creative, and productive. Maslow's model combined the external and internal components of ego needs; Alderfer's revised model separates these needs into the relatedness and growth categories. In addition, the Alderfer model does not assume that lower level needs must be satisfied before higher level needs can emerge.

The application of Alderfer's scheme in motivating employees in a dental practice would be identical with the application of Maslow's hierarchy. The distinction between the two models is in the conceptual approach rather than the application.
THE TWO-FACTOR THEORY OF WORK MOTIVATION

A popular theory of work motivation which has focused attention on the problem of persuading employees to perform up to their full potential has been proposed by Herzberg et al. and further developed by Herzberg. He implicitly defines motivation as getting employees to do what the manager wants them to do. The original research was carried out by asking a group of scientists and engineers what factors contributed to feelings of job satisfaction and job dissatisfaction. The elements which contributed to feelings of satisfaction were labelled motivational factors and those which caused feelings of dissatisfaction were called hygiene factors.

The two-factor theory postulates that job satisfaction and dissatisfaction are on separate continua. The presence of motivational factors which lead to satisfaction and are intrinsic to the job include: achievement, recognition for achievement, the work itself, responsibility, and growth or advancement. The presence of hygiene factors which lead to dissatisfaction and are extrinsic to the job include: organizational policy and administration, supervision, interpersonal relationships with superiors and co-workers, working conditions, salary, status, and job security. According to this approach to motivation, the opposite of job satisfaction is not dissatisfaction, but rather, no job satisfaction. The opposite of job dissatisfaction is not satisfaction, but rather, no dissatisfaction. Elimination of the sources of dissatisfaction, according to the theory, will result in no dissatisfaction, but will not of itself increase feelings of satisfaction. Conversely, the absence of motivator factors will result in no satisfaction but will not cause dissatisfaction. Although motivator and hygiene factors can contribute to feelings of both satisfaction and dissatisfaction, the motivators primarily contribute to feelings of satisfaction and the hygiene factors primarily contribute to feelings of dissatisfaction.

The two-factor theory resulted in a reconceptualization of work motivation. Whereas previous approaches placed job satisfaction on a continuum with satisfaction and dissatisfaction at opposite ends of the continuum, the two-factor theory specified that satisfaction and dissatisfaction are on separate continua. The implication for the dentist-manager is that it is necessary to concentrate on the hygiene factors as a means of decreasing dissatisfaction while at the same time attempting to increase feelings of satisfaction by focusing on the motivator factors.
As a dentist-manager who is interested in implementing the two-factor theory, Dr. Jones is aware that of all the hygiene factors, the one which causes the most intense feelings of job dissatisfaction is organizational policy and administration. Dr. Jones believes that one major cause of this problem is lack of understanding on the part of employees of office policies and procedures. For this reason, Dr. Jones has prepared an office manual which lists all office policies and procedures which affect the office staff. All new employees are expected to read and become familiar with the manual and Dr. Jones encourages the auxiliaries to discuss any questions related to office policies and procedures. Since interpersonal relations with superiors and co-workers may be a source of dissatisfaction, all office personnel are encouraged to share their feelings with Dr. Jones and their co-workers. Dr. Jones sets the stage for this to occur by expressing feelings and beliefs to the office personnel while at the same time expressing interest in the thoughts and opinions of the individuals who work in the office. Dr. Jones knows that working conditions, primarily the physical environment in which the job is performed, may lead to feelings of dissatisfaction. As a means of eliminating this source of dissatisfaction, Dr. Jones has an office which is designed to permit a smooth flow of both patients and staff into and out of the operatories. In addition, the office is well lighted and Dr. Jones does not allow any area of the office to be messy and cluttered. All equipment is kept in working order and an adequate supply of instruments and expendables is always available. The salaries earned by the auxiliary personnel may be a source of dissatisfaction. Dr. Jones has taken several measures to overcome this problem. First, Dr. Jones explains to all prospective employees how salaries are determined. Since Dr. Jones bases salaries on both performance and length of employment, this is made clear since misunderstandings about how salaries are determined are a contributing factor to dissatisfaction with salaries. Second, since salaries are based in part on performance, Dr. Jones has tried to make this evaluation as objective as possible by telling the office personnel all aspects of their performance which will be evaluated. Third, the auxiliaries are told when beginning employment that they will be considered for salary increases at six month intervals after the satisfactory completion of a probationary period. Dr. Jones is very careful to evaluate the employees at the appropriate time because it is known that failure to consider salary increases for employees when they expect this to occur may lead to feelings of dissatisfaction. Status can also be a source of dissatisfaction, so Dr. Jones goes to great lengths to increase the status of the office personnel in the eyes of the patients. The hygienist is responsible for the preventive aspects.
of treatment and Dr. Jones informs all patients of the importance of following the instructions given by the hygienist. One of the assistants has been designated as the plaque control therapist. Dr. Jones always stresses the important role played by this individual relative to the patient's total treatment. Feelings of insecurity about the continued existence of a job may cause dissatisfaction. Dr. Jones is aware of this and has assured the office staff that their jobs are secure as long as their performance is acceptable and the patient volume is sufficient. Dr. Jones has clearly specified to the auxiliaries what is expected of them and is always willing to work with them when time permits in order to help them improve their performance.

All of the measures outlined in the preceding paragraph are designed to eliminate feelings of dissatisfaction, but will not of themselves result in feelings of satisfaction. Since Dr. Jones recognizes that feelings of satisfaction are important to job performance, other factors are stressed by him in order to foster feelings of satisfaction.

Dr. Jones knows that a sense of achievement can result in heightened feelings of satisfaction. For this reason, he tries to set the stage for achievement to occur by delegating to the auxiliaries all duties which they are competent to perform. Closely related to the actual feeling of achievement is recognition for achievement. Dr. Jones always compliments the auxiliaries when they have satisfactorily completed a task. However, when the performance could be improved, this is also pointed out because Dr. Jones feels it is important to focus on areas of needed improvement as well as commending superior performance. Dr. Jones frequently tells patients what an outstanding staff of auxiliary personnel work in the office as a means of providing recognition for achievement. The nature of the work to be done can be a source of satisfaction. Dr. Jones tries to make the work of the auxiliaries as interesting as possible by encouraging them to attempt any legally delegatable task which they feel competent to perform. For example, one of the chairsides assistants has expressed an interest in learning expanded duty functions. Dr. Jones has helped the assistant to become proficient in performing expanded duty functions. The last motivator which Dr. Jones has focused on is growth or advancement. Since there are limited opportunities for advancement in a dental practice, Dr. Jones has tried to provide opportunities for growth by encouraging the auxiliaries to upgrade and improve their skills by attending continuing education courses. Dr. Jones is willing to pay the expense associated with any continuing education activity which will increase the skills of the office staff, benefit the practice, or both.
ACHIEVEMENT MOTIVATION THEORY

A third theory of work motivation centers on the need for achievement with motivation being influenced primarily by a person's need for achievement. This theory has been advocated by McClelland\textsuperscript{8,9} who has extensively investigated the existence of the need for achievement in individuals. His research has confirmed the existence of this need in most people. The research evidence indicates that an individual is most likely to be motivated when given the opportunity to perform tasks which utilize acquired skills and when feedback is given regarding performance. The achievement motivation theory is very narrowly based and much less comprehensive than the needs hierarchy model of Maslow or the two-factor theory proposed by Herzberg. The achievement motive is similar to the self-actualization level of Maslow's hierarchy and corresponds to the growth or advancement motivator factor.

As a means of satisfying the need for achievement among the auxiliaries, Dr. Jones assigns tasks to them which they are likely to complete successfully. It is known that if an individual attempts a task which is too difficult, the person will be less motivated as a result of failure. When instructing the chairside assistant in expanded duty techniques, Dr. Jones provides the instruction in small units which the assistant can learn and then do with a high probability of success. As a means of providing a feeling of growth among the office personnel, Dr. Jones encourages them to attempt more complex tasks than they have performed in the past. The assistant who is learning expanded functions recently packed and carved a simple restoration for the first time under Dr. Jones' supervision.

The three theories reviewed up to this point focus on the needs of the individual and may be termed content theories since they are concerned with incentives that cause behavior. The two theories which will subsequently be reviewed are called process theories because they attempt to explain how individual behavior is motivated. The two process theories are expectancy theory and equity theory.

EXPECTANCY THEORY

Expectancy theory is a complex approach to work motivation based primarily on the research of Vroom\textsuperscript{10} and Porter and Lawler.\textsuperscript{11,12} Since the two are quite similar, only the Porter and Lawler version will be reviewed.

The Porter and Lawler model focuses on several variables to explain the relations between job attitudes and performance. In their model,
effort is an important variable and refers to the energy expended by an individual in completing a task. As defined by the model, effort is defined as the individual's motivation to complete a task. The amount of effort depends upon (1) the expected value of the reward to be received and (2) the individual's perception that the expected rewards are related to effort. The rewards may be of two types: intrinsic and extrinsic. The intrinsic rewards are related to the factors which, for example, satisfy the need for self-actualization and are internal to the individual. The extrinsic rewards are those which must be given by someone else and have a weaker relationship with performance than do intrinsic rewards. Performance refers to what an individual accomplishes and is influenced by the effort devoted to accomplishing a task and the ability of the individual. Even though a person may exert a great amount of effort, performance may be poor if the person lacks the necessary abilities. Satisfaction is determined by the degree to which received rewards agree with the person's expected level of rewards. The relationship specified by this approach postulates that performance leads to rewards which in turn result in feelings of satisfaction which, in turn, influences the amount of effort expended by an individual. This explanation of the performance-satisfaction relationship is contrary to the traditional approach to satisfaction. First, the model takes into account that the discrepancy between the rewards which a person receives and the rewards which the person feels they should receive for a given level of performance influences the feelings of satisfaction. Second, whereas the traditional approach assumed that satisfaction causes performance (i.e., a happy employee is a productive employee), the expectancy approach to motivation assumes that performance causes satisfaction. The satisfied employee then puts forth greater effort which leads to higher levels of performance. The relationship between the variables in the expectancy model are shown in Figure 2.

The Expectancy Theory Motivational Model

Figure 2
The implementation of the expectancy theory of motivation in a dental practice is not simple and easy to accomplish. The importance of abilities in this model is known to Dr. Jones and all potential employees are carefully investigated. Dr. Jones contacts previous employers before interviewing applicants in an attempt to select those people who will be most likely to successfully complete the tasks assigned to them. In the beginning, new employees are given relatively simple tasks so that they can achieve a high level of performance. When this occurs, Dr. Jones commends the person for a job well done and encourages continued outstanding performance. Since intrinsic rewards are internal to the individual, Dr. Jones attempts to set the stage for every employee in the practice to have positive feelings about their performance. This is accomplished by telling the employees what they have done well; if an employee does not meet the established performance standards, Dr. Jones works with the employee to overcome the deficiencies. The focus is always on the skills to be improved, and criticism of the individual is avoided. Expected rewards are important to employees and Dr. Jones attempts to find out which type of rewards are most important to each employee. If an employee indicates that performing a wide variety of tasks is important, Dr. Jones tries to assign as wide a variety of tasks as possible within the legal limitations of the state dental practice act. The agreement between expected rewards and those actually received affect the performance-satisfaction relationship. Dr. Jones tries to equate the level of rewards a person feels should be granted for a given level of performance with the rewards given to that individual. If a dental assistant expresses a desire for less supervision in providing oral instructions to patients, Dr. Jones is agreeable to this type of request if it is felt that the assistant will provide instructions with less supervision. This action by the dentist may result in an intrinsic reward for the assistant because feelings of self-confidence and recognition of abilities will be fostered. Given that perceived equitable rewards result in increased feelings of satisfaction according to the model, and increased feelings of satisfaction lead to more effort being expended, the cycle as shown in Figure 2 is now complete.

**EQUITY THEORY**

Equity or social comparison theory has been most fully developed by Adams and is a process theory of work motivation because the focus is on the process of how individuals are motivated. According to equity theory, individuals compare their situation in terms of the contributions made and the rewards received with others in similar

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situations. If a person feels that other people performing the same or very similar tasks are receiving more rewards, that person may reduce the level of effort expended on the job. Conversely, if a person feels over-rewarded for performance, the level of effort quite likely will be increased in an attempt to justify the rewards which are received. In applying equity theory in a dental practice, it is important to note that when making comparisons with other employees, each auxiliary will be very likely to know how much money the other auxiliaries are earning. Since the primary basis for comparison under this model is salary level, perceived differences in salaries will be real if each employee knows the salary level of all other employees. Dr. Jones knows that comparisons will be made, therefore, he encourages openness among the staff, especially with regard to salaries. Any time salaries are reviewed, Dr. Jones carefully explains the basis on which the salary determination was made. It is important for an individual to be aware of their contribution, and Dr. Jones always explains this aspect to each employee. Thus, when comparisons are made, the employees will know how Dr. Jones has evaluated the contribution of each member of the office staff.

SUMMARY AND CONCLUSIONS

The five theories of work motivation reviewed in this paper may be divided into two classes: content theories and process theories. The needs hierarchy model, the two-factor theory, and achievement motivation theory may be considered content theories because the focus is on what it is that motivates employees. In contrast, expectancy theory and equity theory are termed process theories which focus on how work behavior is motivated. The process theories involve a more dynamic approach because these theories focus on relationships among several variables which influence behavior whereas the content theories have attempted to specify variables which produce motivated behavior.

The emphasis in the previous discussion has been on understanding the theories and how they may be applied in a dental practice. However, if the dentist-manager accepts the Theory X assumptions about the nature of individuals, motivation would probably take the form of threats and sanctions. If the Theory Y assumptions are the basis for managing dental office personnel, the approach to motivating employees would more closely coincide with the theories previously described.
Assuming that motivation is based on the Theory Y assumptions, which theory is the best one for motivating employees? Perhaps the answer to this question should be that parts of all five theories are applicable in a dental office. The needs hierarchy model stresses the importance of helping employees achieve their fullest potential. The two-factor theory suggests that the factors which contribute to feelings of satisfaction may be different from those which result in feelings of dissatisfaction. Achievement motivation theory focuses on the need of individuals to feel a sense of achievement. Expectancy theory is unique in that performance as moderated by perceived equitable rewards is postulated to cause satisfaction rather than satisfaction causing performance. Equity or social comparison theory states that people compare the amount of work which they do and the rewards received with the work done and rewards received by others and satisfaction results if a person feels he or she is fairly treated. The motivation of employees in a dental practice may be accomplished if parts of all theories discussed in this paper are incorporated in the dentist's attempt to motivate auxiliary personnel.

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(continued on page 186)
Equality has been defined as equal opportunity for achievement. Such a definition implies that each individual in society should be paid the value of his marginal physical product, on the condition of equal opportunity for development of skills. Inadequate medical and dental care is seen as an obstacle to individual development of skills.

A subset of the equality issue is encompassed in a comparison of the health care systems of urban and rural communities. The generally accepted assumption that the urban health care system is more effective in providing for the needs of health consumers than the system in rural areas implies an inequality between urban and rural residents. This is especially true of those urban counterparts outside of the ghetto areas.

United States Health Policy has wrestled with the problem of maldistribution of delivery—both in the “ghetto” and in the rural areas. There is concern with the equality of opportunity for access to health care. The blockages in ghetto care are similar to those of rural care. However, in the rural situation there may be a greater problem in that care may not only be too costly, it may also simply not be available.

Equality of access to health care becomes an important factor because inadequate medical and dental care is seen as an obstacle to the individual having other types of equal opportunities.

One of the major goals of the dental health care system has been the promotion of dental hygiene. Dental hygiene is a direct result of programs designed to teach a system for preventing disease through the proper care of teeth. The absence of such programs is a sufficient condition for the inequality of dental care among urban and rural residents.

In this study we tested the hypothesis that rural residents were less knowledgeable about dental hygiene than are urban residents. This hypothesis, if not rejected, indicates the absence of a dental program to teach dental hygiene. We found that rural residents were less

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knowledgeable about dental hygiene than urban residents. This finding suggests certain policy implications, especially the need of dental programs to teach dental hygiene.

METHODOLOGY

A survey of dental health care consumers was conducted to test the hypothesis. The results of this survey are based upon the 2,239 responses from a representative cross section of the heads of households in a western state. Interviews were conducted in the spring, 1972, in person at the respondent's residence by trained personal interviewers. The data was tested for significance and correlation using a Chi square test.

The state sample was stratified by multi-county planning districts, then by county or SMSA areas within each planning district. Census tract or minor civil division was utilized to ascertain the appropriate sampling points within each county. An average of 53 sampling points were statistically selected in each of the eight planning districts. A total cluster of six personal interviewers were then obtained in each of the sampling points selected. A cluster sample was used because of its probability properties and the ability to obtain quality data at a reduced cost from widely distributed populations. A comparison of the sample data with various measures from the 1970 census indicated a close statistical relationship between the population parameters and the sample estimators.

DISCUSSION OF RESULTS

The interviewers asked the respondents if any members of their family had been taught a system for preventing dental disease through proper care of teeth. Those respondents who had been taught were then asked to identify the source of information. The information source was cross-tabulated with the size of the community.* The results are summarized in Table 1.

Table 2 indicates that more than eighty percent of those who had not been taught a system for the prevention of disease, live in small towns or rural areas. Moreover, there is a significant difference between those who had not been taught dental prevention in the rural areas. Thus, rural residents appear to be less knowledgeable about dental hygiene than are urban inhabitants.

Further analysis of the data indicated that 37.1 percent of the respondents were taught dental hygiene by a dentist in his office.
implying that most individuals gained their knowledge of hygiene from dental visits.

The National Health Survey conducted by the U.S. Department of Health, Education, and Welfare indicates the number of dental visits made in a year. A dental visit is defined as any visit to a dentist's office

Table 1
Sources of Hygiene Knowledge Categorized
By Community Size

<table>
<thead>
<tr>
<th>Taught by:</th>
<th>Size of Community</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cities</td>
</tr>
<tr>
<td>A Dentist in his Office</td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>213</td>
</tr>
<tr>
<td></td>
<td>47.7%</td>
</tr>
<tr>
<td>Dental Personnel at School</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>14.1%</td>
</tr>
<tr>
<td>A Regular Teacher at School</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>11.4%</td>
</tr>
<tr>
<td>Not Taught Dental Hygiene</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>9.6%</td>
</tr>
<tr>
<td>Reading About it</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>9.7%</td>
</tr>
<tr>
<td>Don't know (if taught)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>0.2%</td>
</tr>
<tr>
<td>A Friend</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0.4%</td>
</tr>
</tbody>
</table>

| Raw Chi Square:                | 90.71  | 21 Degrees of Freedom |

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### Table 2

Analysis of those who weren't Taught Dental Hygiene

<table>
<thead>
<tr>
<th>Size of Community</th>
<th>Number and Percentage of Those Not Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities</td>
<td>43</td>
</tr>
<tr>
<td>Suburbs</td>
<td>17</td>
</tr>
<tr>
<td>Towns</td>
<td>129</td>
</tr>
<tr>
<td>Rural</td>
<td>130</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
</tr>
</tbody>
</table>

### Table 3

Dental Visits Per Person: SMSA vs. Outside SMSA

<table>
<thead>
<tr>
<th>Place of Residence</th>
<th>July 1963-June 1964</th>
<th>1969</th>
</tr>
</thead>
<tbody>
<tr>
<td>All SMSA</td>
<td>1.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Outside SMSA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonfarm</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Farm</td>
<td>0.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>

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for treatment or advice, even if the service was not provided by the dentist himself, but by a dental assistant or hygienist acting under the dentist's supervision. The number of dental visits per person per year were categorized by SMSA or outside SMSA, with those outside the SMSA further subdivided into farm and non-farm categories. The results are summarized in Table 3.

The National Health Survey shows that persons living in metropolitan areas had a larger number of dental visits per person per year than did residents of other areas. This is one of the primary factors for a lack of hygiene knowledge among non-metropolitan residents.

There are three reasons for the disparity of dental visits: (1) lower dentist per population ratio in rural areas, (2) less population, (3) lower per capita income.

The two most important reasons for the disparity of dental visits are higher population per dentist ratio and lower income.

We divided the rural state into categories according to the population in the county. It was determined that five counties had less than 2,500 residents, twenty counties had between 2,500 and 50,000, while only four counties qualify as standard metropolitan statistical areas. The averages of these three groups are summarized in Table 4.

### Table 4

Population-Dentist Ratios Categorized By Population Size

<table>
<thead>
<tr>
<th>Population Size</th>
<th>Population-Dentist Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 2,500</td>
<td>7,400.00</td>
</tr>
<tr>
<td>2,500 to 50,000</td>
<td>2,396.97</td>
</tr>
<tr>
<td>more than 50,000</td>
<td>1,730.96</td>
</tr>
</tbody>
</table>
Those counties with less than 2,500 residents had more than four times the population per dentist than the SMSA residents. The obvious shortage of dentists in the rural population is probably the main reason for less dental visits per person. The lack of dental visits is a reason for rural residents not having been taught a system for dental care.

Previous empirical research produced the following three generalizations concerning the supply of dentists and physicians: First, the major determinant of the number of health manpower in a state is its population; Second, health manpower are more responsive to their locational choices to the size of population to be served, than to its per capita income; Third, uncertain evidence for the existence of a positive association of training facilities and the number of physicians, but not dentists, exists.

Dentists, like others with higher education are concerned about the social, educational, cultural, and recreational attributes of the community. They may be expected to prefer a community with a sufficiently large number of people who are educated and have high incomes like themselves. Regardless of the reason, dentists do not consider the pecuniary benefits of rural practice to be sufficient to cover the opportunity cost they would receive when leaving an urban community.

The state we examined had 849,900 residents of SMSA communities. Only 244,700 lived in counties with less than 50,000 residents. This disparity of population size is obviously one reason for the disparity of the population per dentist ratios.

The state also displayed a disparity in disposable income. Table 5 indicates that SMSA populations have more than twenty percent more effective buying power than rural and small town residents. Although research has indicated that locational preferences due to community size are more important to dentists than per capita income, we include this only to indicate that very little, if any, pecuniary incentive exists for those dentists to practice in rural communities.

The second reason for fewer dental visits in non-SMSA regions is that of lower income. Feldstein estimates that the income elasticity of dental care to be 1.71, price elasticity of supply to be .29, price elasticity of demand to be -1.43. If the income of those non-SMSA communities increased by twenty-five percent (equal to SMSA), prices would increase 24.75 percent, and dental visits would increase 7.25 percent. This 7.25 increase in outside SMSA non-farm dental care.

*Cities: Above 50,000; Suburbs: Urban fringe outside cities; Towns: Between 2,500 and 50,000; Rural: Less than 2,500.

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visits would increase them from 1.2 to 1.3 dental visits per person per year (Table 3). The remaining difference in dental visits \((1.8 - 1.3 = 0.5)\) must then be attributable to other factors including population per dentist ratios.

The fact that this state does not have a dental school is not a valid reason for fewer dentists. Research has indicated that there is no significant correlation between the number of dentists and the location of training facilities.¹

**ALTERNATIVE POLICY**

Many may conclude that the policy to increase knowledge of dental hygiene among rural residents is to increase the supply of dentists. Such would be the case if one were to ignore history and cost-benefit reasoning.

Table 6 is a summary of the costs of the Health Profession’s Education Act of 1963.⁵ The average cost per marginal student is $871,703.41. The total cost per new place in a dental school is a realistic $307,727.44.⁵ If one assumes that the increase in the supply of dentists is only due to the HPEA subsidy, the program is still

---

**Table 5**

Average Per Capita Buying Income Categorized By Population Size

<table>
<thead>
<tr>
<th>Population</th>
<th>Average Buying Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 2,500</td>
<td>1.813</td>
</tr>
<tr>
<td>2,500 to 50,000</td>
<td>1.851</td>
</tr>
<tr>
<td>more than 50,000</td>
<td>2.287</td>
</tr>
</tbody>
</table>

(in thousands of 1967 dollars)
Table 6

Analysis of Cost per Marginal of the HPEA, 1964-1970

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Graduates</th>
<th>Change from the previous year</th>
<th>HPEA Dental subsidy</th>
<th>Cost per marginal student</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>3,213</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1965</td>
<td>3,181</td>
<td>-32</td>
<td>$22,108,737</td>
<td>----</td>
</tr>
<tr>
<td>1966</td>
<td>3,198</td>
<td>17</td>
<td>22,596,624</td>
<td>$1,329,213.18</td>
</tr>
<tr>
<td>1967</td>
<td>3,360</td>
<td>162</td>
<td>52,242,461</td>
<td>322,484.33</td>
</tr>
<tr>
<td>1968</td>
<td>3,457</td>
<td>97</td>
<td>43,419,671</td>
<td>447,625.47</td>
</tr>
<tr>
<td>1969</td>
<td>3,433</td>
<td>-24</td>
<td>51,253,948</td>
<td>----</td>
</tr>
<tr>
<td>1970</td>
<td>3,500</td>
<td>67</td>
<td>58,557,438</td>
<td>873,991.61</td>
</tr>
<tr>
<td>Total</td>
<td>23,342</td>
<td>287</td>
<td>$250,178,879</td>
<td>$871,703.41</td>
</tr>
</tbody>
</table>

unacceptable due to the high cost and low benefit of its operation. Feldstein maintains that, given the ADA's forecast in 1962 of population and dental supply for 1975, the dental visits-population grade for 1975 would be nearly equal to either the 1958 or 1961 rate, without the HPEA legislation. In other words there were no benefits, in terms of increased supply of dentists, attributable to this program.

**POLICY**

The survey of the western state indicated a need to increase knowledge of hygiene among rural residents. We have enumerated the reasons that illustrate that policy prescriptions should not be to increase the number of dentists. As an efficient, relatively low cost, and easily instituted program, we suggest that hygiene should be taught by school teachers and ancillary personnel in the schools. To see which ages this program should be directed towards, it has been necessary to study oral hygiene by age groups.

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Table 7 illustrates the difference in the Mean Simplified Oral Hygiene Index (OHI-S) by age groups. It indicates a favorable level of oral hygiene among youth, with less favorable results among children and adults.

Table 7

Mean Simplified Oral Hygiene Index
Classified by Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean OHI-S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td></td>
</tr>
<tr>
<td>6-11 years</td>
<td>1.44</td>
</tr>
<tr>
<td>Youths</td>
<td>0.89</td>
</tr>
<tr>
<td>Adults</td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>1.35</td>
</tr>
<tr>
<td>25-34</td>
<td>1.41</td>
</tr>
<tr>
<td>35-44</td>
<td>1.49</td>
</tr>
<tr>
<td>45-54</td>
<td>1.74</td>
</tr>
<tr>
<td>55-64</td>
<td>1.78</td>
</tr>
<tr>
<td>65-74</td>
<td>2.06</td>
</tr>
<tr>
<td>75-79</td>
<td>2.11</td>
</tr>
</tbody>
</table>
Poor oral hygiene among children is a result of oral debris. The component indices measuring debris and calculus were 1.42 and .02 respectively. These estimates indicate that faulty oral hygiene is due almost entirely to the presence of debris.\(^9\)

Adults are victims of calculus, which tends to accumulate with advancing age. This implies that improvement in overall oral hygiene could be attainable with consistent daily hygiene. The daily oral hygiene would decrease oral debris and in turn, therefore, decrease calculus.

We concluded from the results in Table 7, that ages 6–11 would be the best years to teach oral hygiene. This would emphasize prevention and thus decrease the need for dental visits among children. Children should be encouraged to visit the dental hygienist yearly to have their teeth cleaned and checked.

The presence of calculus among adults indicates the necessity of increased dental visits. Dental visits have been a function of the number of dentists, income, and education of household heads.\(^1,2,4,7\) To increase visits we suggest that all hygiene, that is cleaning of teeth and treatment, be done by ancillary personnel. This would eliminate the need to increase the number of dentists and decrease cost. Rural dentists who increase the number of ancillary personnel should be subsidized to make the operation profitable yet low cost.

The effect of the lack of education of household heads should be overcome through public school programs to educate children concerning oral hygiene. This program would have the long range effects of changing attitudes of both well and less educated household heads in rural households.

**SUMMARY**

Our survey indicated that rural residents were less knowledgeable about oral hygiene than their urban counterparts. Increasing the supply of dentists has been a high cost program with little or no benefits to the consumer. To offset the shortage of dental visits and knowledge among rural residents, we suggest that dental hygiene should be taught in schools, and the use of ancillary personnel be subsidized. This program would be less costly and increase benefits for clients, and improve the equitable advantage of locational emphasis.
REFERENCES


3. Donabedian, Avedis, Aspects of Medical Care Administration: Specifying Requirements For Health Care, Harvard University Press.


Motivating Dental Auxiliaries
(Continued from page 175)


HARMON ADAMS, D.D.S.
ROLAND WILLS, D.D.S.
FRED SHANNON, M.A.
RALPH HADAC, M.A.
PHILIP WEINSTEIN, Ph.D.

INTRODUCTION

The Patient Management Problem (PMP) has emerged as a promising strategy for instruction and evaluation in health sciences education. Basically, the PMP is a paper and pencil simulation of patient management and was developed to assess "essential components of clinical competence."

In format, the medical or dental PMP begins with an introductory paragraph describing the clinical setting, the patient's presenting symptoms, and the health professional's role. The professional is then faced with a list of possible actions of varying appropriateness for the specific patient at the given moment. Each choice provides information pertinent to, or resulting from, the choice just made and contains directions to the next decision point. This information is hidden until a choice is made and the use of a special pen reveals the results of that choice. Since, as in real life, different management decisions lead to different outcomes, progress through the simulation produces a record of the professional's individualized approach to a clinical problem. Although an optimum solution is normally determined for each problem, a number of variations are usually available leading to acceptable outcomes.

Drs. Adams and Wills are assistant professors of Restorative Dentistry, Mr. Shannon is a statistician and Mr. Hadac, a predoctoral researcher in the office of Research in Medical Education, and Dr. Weinstein is an assistant professor of Community Dentistry, all of the School of Dentistry, University of Washington, Seattle, Washington 98195.
PMPs in MEDICAL EDUCATION

PMPs have a number of attributes which make them attractive to educators: 1. They allow access to patient "management" without jeopardizing a patient's safety or comfort. 2. They compel the professional to make non-retractable management decisions and to deal with the consequences of the decisions. 3. They purport to provide an objective measure of clinical problem-solving abilities, i.e., ability to gather and organize disparate pieces of information into a meaningful framework and to formulate a management plan on that basis. 4. They provide the flexibility to accommodate differences in patient management styles; and 5. They have the potential of providing the professional with considerable feedback about performance.

PMPs have been used extensively in medical schools and in the training and evaluation of paramedical personnel. A few medical specialty boards have begun to utilize these problem-solving simulations for evaluation purposes. In addition, the Lister Hill Center for Biomedical Communications has included on its national telecommunications network a number of problems available to physicians and medical students.

One of the most promising uses of PMPs appears to be as a self-assessment tool for continuing education. Ramsay and others, for example, found that an overwhelming majority of 588 dermatologists who had read and used a text consisting of 12 PMPs felt that the PMPs constituted a worthwhile educational experience and favored the development of additional PMPs as a method of self-assessment.

PMPs in DENTAL EDUCATION

The use of PMPs in dentistry is relatively recent. Though a large number of dental PMPs do not now exist, PMPs have been developed and tested at the Universities of Florida, Virginia, North Carolina, British Columbia, Washington, and other institutions. A guide to the development and scoring of dental PMPs is contained in Volume 7 of the Instructional Information Exchange.

Purpose. This study, part of a larger investigation of quality assessment mechanisms and continuing dental education, explores the feasibility of utilizing PMPs as a self-assessment mechanism for general dental practitioners. It was believed that PMPs would provide a format which would appeal to practitioners. If this were the case, further exploration of PMPs as a potential self-assessment tool would be warranted.
METHOD

SUBJECTS

The subjects in this study were general practitioners working 25 or more hours per week who volunteered to participate in a study of quality assessment and continuing education. One hundred-five practitioners were chosen from a pool of volunteers intended to be representative of practitioners in Washington State in terms of year of graduation and practice location. PMPs were administered to six groups of practitioners at three locations in Washington State. Eighty-four practitioners participated in this phase of the study.

Year of graduation for the sample ranged from 1937 to 1973, with a mean year of graduation of 1965. For the analysis using graduation year, subjects were divided into three groups corresponding to stages of practice growth: early, middle and late. Similarly, dentists were distributed as 38% in Seattle and King County (urban) and 62% outside King County (non-urban). This division is used in the analysis reflecting practice location.

DEVELOPMENT OF THE PMPs

A series of five PMPs in restorative dentistry was developed and pretested by dentist-behavioral scientist teams. Each PMP presents information of the type a patient usually provides on the first visit. A problem requires a series of interdependent decisions representing various stages in the diagnosis and treatment of the patient. The problems include a number of types of clinical judgments. (Summaries of the problems are presented in Appendix.) A detailed discussion of major decision points is appended at the end of each problem to provide additional feedback to practitioners. An average of 30 professional man hours was needed to develop a problem, with the initial problem taking about twice as long as subsequent problems.

ADMINISTRATION AND EVALUATION OF THE PMPs

The dental PMPs vary in complexity. Pretesting indicated that the time to complete each PMP varied from 20 minutes to one and a half hours. As two hours were allotted for administration of the PMPs, each practitioner was requested to complete from one to three PMPs. Short PMPs (#1 and #3) were used more often, as they were used in conjunction with longer PMPs to fill in the two hour time frame.

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Assignment of PMPs to practitioners was random. Practitioners were instructed that the purpose of the exercise was to investigate the value of the instruments for self-assessment and not to assess their professional competence. A questionnaire to elicit the practitioner's opinion of the PMP was appended to each problem. The questionnaire appears in Figure 1. The first five questions assess their attitudes toward the PMPs (interest, usefulness); the sixth question assesses their perception of the quality of the materials (legibility, quality of x-rays and photos).

Figure 1

FEEDBACK ON THE EXERCISE

Your opinions of the exercise you have just completed are extremely important to us. Please share your candid reactions to the exercise you have just worked through. Thank for your help.

1. Did you enjoy working on this exercise? 1 2 3 4 5
2. Did you find this exercise interesting? 1 2 3 4 5
3. Do you believe other practitioners would find the exercise useful? 1 2 3 4 5
4. Do you believe this exercise would be useful for dental students? 1 2 3 4 5
5. Do you believe this exercise may be useful as part of a program of self-assessment? 1 2 3 4 5
6. How did you find the quality of the following?  
   a. instructions for working the exercise 1 2 3 4 5
   b. legibility of answers you uncovered 1 2 3 4 5
   c. x-rays 1 2 3 4 5
   d. study models 1 2 3 4 5
   e. color photos 1 2 3 4 5
   f. charts 1 2 3 4 5
   g. drawings 1 2 3 4 5
   h. decisions or choices available 1 2 3 4 5
   i. logical flow of the problem 1 2 3 4 5
   j. end-of-case discussion 1 2 3 4 5
<table>
<thead>
<tr>
<th>Item</th>
<th>PMP 1</th>
<th>PMP 2</th>
<th>PMP 3</th>
<th>PMP 4</th>
<th>PMP 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \bar{X} )</td>
<td>SD</td>
<td>N</td>
<td>( \bar{X} )</td>
<td>SD</td>
</tr>
<tr>
<td>1. Enjoy working on exercise?</td>
<td>4.2</td>
<td>1.1</td>
<td>39</td>
<td>3.9</td>
<td>1.1</td>
</tr>
<tr>
<td>2. Exercise interesting?</td>
<td>4.5</td>
<td>.9</td>
<td>39</td>
<td>4.1</td>
<td>1.0</td>
</tr>
<tr>
<td>3. Other practitioners would find useful?</td>
<td>4.3</td>
<td>1.0</td>
<td>39</td>
<td>4.3</td>
<td>.9</td>
</tr>
<tr>
<td>4. Useful for dental students?</td>
<td>4.2</td>
<td>1.3</td>
<td>37</td>
<td>3.8</td>
<td>1.2</td>
</tr>
<tr>
<td>5. Useful as part of self-assessment program?</td>
<td>4.1</td>
<td>1.2</td>
<td>38</td>
<td>4.2</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Table 2. PERCEPTION OF QUALITY OF THE FIVE PMPs

<table>
<thead>
<tr>
<th>Quality of PMP</th>
<th>PMP 1</th>
<th>PMP 2</th>
<th>PMP 3</th>
<th>PMP 4</th>
<th>PMP 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>SD</td>
<td>N</td>
<td>X</td>
<td>SD</td>
</tr>
<tr>
<td>a. Instructions</td>
<td>4.2</td>
<td>.8</td>
<td>38</td>
<td>3.8</td>
<td>1.0</td>
</tr>
<tr>
<td>b. Legibility of answers uncovered</td>
<td>4.4</td>
<td>.8</td>
<td>38</td>
<td>4.3</td>
<td>.8</td>
</tr>
<tr>
<td>c. X-rays</td>
<td>4.1</td>
<td>1.0</td>
<td>38</td>
<td>3.4</td>
<td>1.2</td>
</tr>
<tr>
<td>d. Study models</td>
<td>4.3</td>
<td>.8</td>
<td>20</td>
<td>4.3</td>
<td>.8</td>
</tr>
<tr>
<td>e. Color photos</td>
<td>3.0</td>
<td>1.3</td>
<td>34</td>
<td>3.4</td>
<td>1.2</td>
</tr>
<tr>
<td>f. Charts</td>
<td>4.1</td>
<td>.8</td>
<td>23</td>
<td>4.0</td>
<td>1.2</td>
</tr>
<tr>
<td>g. Drawings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Decisions or choices available</td>
<td>3.6</td>
<td>1.0</td>
<td>37</td>
<td>3.3</td>
<td>1.3</td>
</tr>
<tr>
<td>i. Logical flow of problem</td>
<td>4.1</td>
<td>.9</td>
<td>36</td>
<td>3.4</td>
<td>1.3</td>
</tr>
<tr>
<td>j. End-of-case discussion</td>
<td>4.1</td>
<td>1.0</td>
<td>35</td>
<td>4.3</td>
<td>1.0</td>
</tr>
</tbody>
</table>
RESULTS

RESPONSES TO THE PMPs

The attitudes of the practitioners towards the five dental PMPs are presented in Table 1. Responses to the first five questions on all five problems were uniformly positive. Practitioners enjoyed working on the exercises and found them interesting. They also believed other practitioners and dental students would find them useful, and predicted they would be useful as part of a self-assessment program.

The practitioners' perceptions of the quality of the materials is presented in Table 2. Results indicate that the overall quality of the PMPs was perceived as high. Instructions were coherent and the answers that were uncovered by erasure with special pens were clear. Study models, charts and drawings were acceptable. The end-of-case discussions were highly rated. On the other hand, color photos and a few x-rays were not perceived as of the highest quality. The decisions or choices available, and the logical flow of the problems, received lower ratings.

Responses of practitioners were summed across all five PMPs to provide a measure of "total PMP response." Using analysis of variance, comparisons of age groupings (less than ten years experience, 10–20 years, 20+ years) and practice setting (King County/non-King County) groupings were then undertaken. No differences were found for practice site. However, dentists with less than 10 years experience tended to respond less favorably than did more experienced dentists on four scales: interest (F = 6.04, p = .003), usefulness to other practitioners (F = 4.79, p = .010), agreement with decisions and choices available (F = 7.71, p = .001), and logical flow of the problem (F = 3.16, p = .046). The less experienced group tended to fall between the other two groups in their responses. On all other variables, the mean response for less experienced practitioners was lower, though not significantly. Analysis of experience of practitioners completing each problem yielded no significant differences between problems, eliminating the possibility that the above findings were the result of a biased distribution of practitioners to problems.

DISCUSSION

Patient management problems were found to be enjoyable, interesting and useful. These results suggest that PMP simulations offer acceptable means of self-assessment for practitioners in continuing dental education. Moreover, practitioners believed PMP
exercises would be useful for students in dental school. Preliminary testing with senior dental students by the first author (H.A.) indicates that his senior students find PMPs to be an exciting educational tool.

Practitioner attitudes held true regardless of the location of practice, but not for experience of practitioner. These differences were exactly the inverse of those found by Ramsay et al., who found that, though there was widespread acceptance of PMPs as a self-assessment tool in a survey of the American Academy of Dermatology, dermatologists who had been in practice longer tended to not favor the development of PMP self-assessment programs.

On the other hand, older dental practitioners in this study found PMPs interesting and felt their colleagues would as well. All groups found the decisions and choices available a little problematic, but here too, the more experienced practitioners were much more satisfied. The reason for such age differences and for the popularity of these problems with older practitioners remains a matter of speculation. Perhaps older dentists have the "clinical experience" to better appreciate the usefulness of such sophisticated problems; perhaps the younger practitioners, more recently trained, find less need for such seemingly academic exercises—or find the cases counter to their training.

Though problems with color photos and other exhibits were identified, the technical quality of the five PMP exercises that were tested was high. It is important to note that our major innovation—detailed end-of-case discussion—was well accepted by practitioners. Besides the immediate decision-by-decision feedback that the PMP format itself provides, specific commentary on major choice-points and concepts helps to convert what may be construed to be an evaluation device into a useful educational instrument.

CONCLUSION

In all, the data presented in the study serve to support the use of the PMP technique with practitioners. Though there is much need for future research, especially in establishing the reliability and validity of these instruments, our work suggests that the use of PMP exercises may be a viable source of self-assessment within continuing dental education. Such a technique could be incorporated within already existing programs such as the American College of Dentists' mini Self-Assessment and Continuing Education program. Future plans include establishment of a consortium to systematically develop a series of problems and investigation of the relationship of PMP scores to actual clinical performance.
REFERENCES


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APPENDIX

BRIEF DESCRIPTION OF PMP CASES*

Case 1: "Omar" by Roland Wills, D.D.S., Harmon Adams, D.D.S., Ralph Hadac, M.A. This PMP involves a young male with poor previous dental work from a foreign country. The patient is desirous of having a
fixed partial denture constructed. The removable partial denture is the treatment of choice, and the case revolves around management of the potential conflict between dentist and patient. (Time to complete approximately 35 minutes; includes x-rays, study models and color photos.)

Case 2: "Sally" by Harmon Adams, D.D.S., Roland Wills, D.D.S., Fred Shannon, M.A. This case represents unilateral posterior bite collapse due to extraction of the mandibular 1st molar and the lack of proper space maintenance. This simulation examines the ability to identify and manage an unacceptable occlusal scheme during the treatment phase of a half-mouth rehabilitation. (Time to complete approximately one hour; includes x-rays, study models, color photos and charts.)

Case 3: "Farmer Brown Comes to Town" by Randall Snow, D.D.S., Milton Johnson, D.M.D., Philip Weinstein, Ph.D. This PMP involves a person who has neglected his teeth for many years. His dental I.Q. is very low and he has numerous extracted teeth, caries, and peridontal problems. The problem involves patient education and restorative care. (Time to complete approximately 20 minutes; includes drawings.)

Case 4: "Jennifer" by Harmon Adams, D.D.S., Roland Wills, D.D.S., Fred Shannon, M.A. The case represents management of a patient with a temporomandibular joint problem, and a dental emergency (a fractured restoration). The patient has excellent oral hygiene and desires optimum dental care. The PMP examines the ability to gather diagnostic data, formulate a treatment plan and provide appropriate therapy. The case includes decisions on peridontal, occlusal, and restorative care. (Time to complete approximately 40 minutes; includes x-rays, study models, color photos and charts.)

Case 5: "Michael" by Harmon Adams, D.D.S., Roland Wills, D.D.S., Fred Shannon, M.A. The patient has chronic marginal gingivitis due in part to inadequate motivation toward proper oral hygiene. Complicating factors are the presence of a two-tooth anterior partial denture and numerous failing amalgam restorations. This case examines the ability of the general practitioner to identify etiologic factors, and to organize, sequence and coordinate restorative, peridontal and occlusal therapy. (Time to complete approximately one and a half hours; includes x-rays, study models, color photos and charts.)

* Copies of all PMPs are available at cost by writing to the first author.
The 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;

(d) To encourage, stimulate and promote research;

(e) Through sound public health education, 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; and

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

(i) In order to give encouragement to individuals to further these objectives, and to recognize meritorious achievements and potentials for contributions in dental science, art, education, literature, human relations and other areas that contribute to the human welfare and the promotion of these objectives — by conferring Fellowship in the College on such persons properly selected to receive such honor.

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