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The Journal of the American College of Dentists

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Objectives of the American College of Dentists

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

A. To urge the extension and improvement of measures for the control and prevention of oral disorders;

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

C. To encourage graduate studies and continuing educational efforts by dentists and auxiliaries;

D. To encourage, stimulate and promote research;

E. To improve the public understanding and appreciation of oral health service and its importance to the optimum health of the patient;

F. To encourage the free exchange of ideas and experiences in the interest of better service to the patient;

G. To cooperate with other groups for the advancement of interprofessional relationships in the interest of the public;

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

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

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American College of Dentists,
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FROM THE EDITOR

The Prisoner's Dilemma — Should Patients Be Sold?

Most American MBA students have participated in a classroom exercise called the prisoner's dilemma. It is taught in operations research as an example of formal decision theory, and in organizational behavior as an example of the social psychology of trust and cooperation. In the dental context it has much to say about the profession's response to managed care.

Here is a sketch of the prisoner's dilemma scenario. Two individuals are asked to imagine they are stopped by a police officer near the scene of a bank robbery; it is noticed that each is carrying a hand gun, which it turns out, is unregistered. They are taken to police headquarters and separated for questioning. Because the police do not have a firm case, they offer a deal. If the prisoners both confess to the bank robbery they will receive the most lenient sentence allowable under the circumstances — say five years of prison. If neither prisoner confesses, they will both be charged with the lesser offense of carrying a concealed and unregistered gun, which might carry a penalty of six to twelve years. But if one confesses and the other does not, the confessing prisoner turns state's evidence and will receive a light sentence (perhaps three years) while the prisoner who claimed innocence will have the book thrown at him and receive the maximum period of incarceration of ten years. Each prisoner has to assume that the other has been given the same set of choices and there is no possibility of communication between the two of them.

Each prisoner has two strategies: confess or not confess. These are four "payoffs" which depend on the joint choices of each prisoner's strategy. Whether either actually committed the robbery is irrelevant under these circumstances.

When pairs of individuals are asked to role play this situation and repeat their decisions several times, a pattern emerges. Despite some initial random fluctuation, participants very quickly settle on the joint strategy of not confessing. A sense of trust is created as each recognizes that their common interests best serve their individual interests.

Situations such as the prisoner's dilemma have been studied in decision science under the heading of game theory. A game is a situation of choice among strategies where the results depend, in part, upon the choices others make. The essential assumptions of game theory are that each player is trying to maximize his or her position, or minimize his or her losses, and that each player is rational.

While game theory is complex and mathematical, sufficient research exists to make the following predictions about choice under circumstances such as the payoff matrix in the dilemma just described. (a) If the game is played once, the smart strategy is *confess* — it minimizes expected loss. (b) If the game is played repeatedly, the smart strategy is *not confess* — this minimizes loss in the long run. (Actually, the smartest strategy is to play dumb and confess a little at random near the beginning and then fall in line with the no confess routine.) (c) The same strategy will be chosen by both players.

At this point readers may want to create their own prisoner's dilemma for the case of managed care.

Enter values reflecting fees or net income which you project under four circumstances: (a) no one in the community participates in managed care; (b) you participate in managed care and others in the community do not; (c) others in the community participate in managed care but you do not; and (d) everyone in the community participates in managed care. Although each dentist will place different individual numbers in this table, it is almost a certainty that

The Prisoner's Dilemma of Managed Care

Dentist \ Other Dentists	No Participation	Participation
No Participation		
Participation		

(Relative losses incurred under varying conditions of participation entered in payoff matrix.)

the values will be arranged in the same relative order as they are in the prisoner's dilemma payoff matrix. The decision theoretic correct solution if the game is to be played repeatedly, is to avoid managed care. This solution is reached despite the inability to communicate with other dentists — which the FTC strictly prohibits. (Parenthetically, it can be mentioned that if the FTC was to address this problem in a game theory fashion, they would come to the opposite conclusion. This does not mean that one or the other is wrong, it means the FTC is playing a different game.)

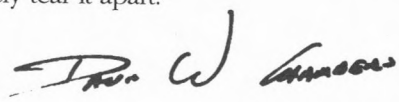
Buying Patients

I have sketched a proof that rational dentists, acting in their own economic self interest under competitive conditions such as the prisoner's dilemma, would not engage in practices such as buying patients for discounted fees. There might be short-term gain, but it just does not make sense in the long run. Yet there are large scale examples of exactly this trend. Of the available explanations, including the possibilities that dentists are irrational and they do not act out of economic self interest, I would choose to have another look at the penalty structure of the payoff matrix in the prisoner's dilemma.

What would happen if one of the prisoners was on parole for minor offenses and the other had been suspected of significant crimes but the police had not been able to gather convincing evidence. Now the table of penalties would be substantially changed so that prisoner A, the minor offender, would have a strong incentive to cooperate with the authorities, while the other prisoner would have a strong incentive to resist cooperation. The previous strategic symmetry between the prisoners is destroyed so there is no joint optimal payoff that guides long run cooperation. Under such circumstances, behavior is unpredictable, competitive, and generally less than optimal for both players. In fact, if allowed in the game, the second prisoner's logical strategy is to exert every pressure possible on prisoner A through threats or side payments.

Beginning a dental practice in the 1990s is different from the same activity thirty years ago. The debt level is higher now and patients are not as readily available. Under these conditions there is rational economic pressure on younger practitioners to buy patients for discounted fees, while there is much less pressure on established practitioners to do the same. There are two ways beginning practitioners buy patients. The first is through third-party providers by means of some form of fee adjustment. This is the managed care strategy. Perhaps the largest source of patients for sale is buying them from established practitioners on a capitation basis. The difference between the value of equipment and other tangibles in the dental office and the selling price of the office represents purchased patients. In many cases, the cost of purchasing patients represents the largest single component of indebtedness of young dentists.

The playing field in dentistry is uneven across generations. This is not a conspiracy of a privileged part against the whole, but an accident of history, demographics, and economic forces. Nevertheless, while the rewards for beginning practitioners are dissimilar to those of established dentists, no strategic symmetry exists. Each group will pursue their rational self interests by divergent strategies and the rewards available to the profession as a whole will be dissipated. This is the kind of pressure within the profession that will surely tear it apart.



David W. Chambers, EdM, MBA, PhD, FACD
Editor

Letters to the Editor

Dear David,

Congratulations on another excellent issue. The Fall, 1995 issue focusing on PGY1 included good articles and an excellent variety.

In Las Vegas, after our College meeting, I fielded a criticism of the *Journal* issue on the IOM study issue. The critic said it was too one-sided and seemed to support the academic leaning. I hope the College's planned survey of Fellows on managed care will support private practice based on the ethics issue. Enclosed is a copy of ADA House Resolution 91RC, "Implementation of Recommendations Contained in the IOM Report." As you can see, it "cautions interested organizations and institutions regarding the report."

Regardless, the *Journal* is unquestionably being read and is stirring the Fellows to begin thinking. I hope they will think on their own and not depend too much on others' opinions.

Sincerely yours,

A. J. McCaslin, DDS, Regent
Savannah, GA

Dear David W. Chambers,

I enjoy your editorials. As a "senior" trustee of the Wisconsin Dental Association, I am concerned that organized dentistry focus on a vision that the profession can grasp to help it move into the 21st century with renewed vigor and membership.

The vision we must all share is to "do what is best for the patient." This can be accomplished by enhancing the doctor-patient relationship. And as I see it, this perspective leads automatically to a unified profession, strongly resisting efforts to fragment it. Vision is the prerequisite to effective strategic planning and will build professional membership. From this foundation, the proper elements of "managed care" are a united profession, freedom of choice, delegation of duties, ethics and mentoring, quality assurance, tort reform, and direct reimbursement.

The ACD has led the way before — do it again!

Sincerely,

Fred L. Tidstrom, DDS
Ashland, WI

Dear Dave,

Devoting each publication to one issue and giving the reader a broad view from different qualified authors is working out very well. I have a broader understanding of managed care and now postgraduate education. I also enjoyed the historical section. I have always felt that Painless had more ethics, in some instances, than some of the "ethical."

I want to save these issues for reference in the future. For so many years the ACD *Journal* was not one to keep. For the first time in my long membership in the ACD the *Journal* has, in my opinion become worth saving on my shelf. I suggest that you consider making available for purchase a storage binder of quality for this purpose.

Sincerely,

Charles F. Sumner, III, DDS, JD
Orinda, CA

Leadership In Pursuit of Professional Excellence

ACD President-Elect's Address
October 6, 1995
Las Vegas, Nevada

Prem S. Sharma, DDS, MS, FACD

I stand before you with immense pride and joy but, more importantly, with a deep sense of gratitude for the special honor bestowed upon me. The American College of Dentists is undoubtedly one of the most prestigious professional organizations in the world. I feel uniquely privileged to serve in it's highest office. In many ways, this is a tribute to our great nation which allows people from distant lands to come to its shores and share in the American dream.

There is so much about our profession and the American College of Dentists in which we can take pride. The Fellows of the College exemplify professionalism, service and leadership. They are superb role models for our new generation of dentists and other members of the oral health team.

Our Challenges

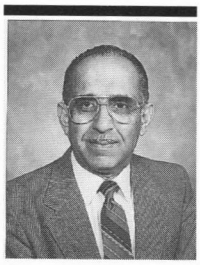
Today, our profession faces challenges unmatched in its illustrious history. The very structure of American dentistry is in danger of being undermined. We live in turbulent times; we must confront the challenges and find effective solutions. What are some of these challenges?

Let us begin with a look at our educational institutions. Over the past decade, many dental schools in the nation were shaken by internal and external forces. For some, the results were catastrophic. During the late 1980s, the number of applicants to dental schools started dropping precipitously while operational costs continued to skyrocket. As a result, six U.S. dental schools closed. Most of the remaining schools reduced their enrollments significantly and were forced to implement cost containment procedures that threatened to compromise the quality of their educational programs.

Recent increases in the applicant pool allow dental schools to select better qualified students but are not making a major impact on the high costs of dental education. Student indebtedness continues to be a very serious concern. According to a survey by the American Dental Association, the average indebtedness for students graduating from the nation's thirteen private schools last year was over $89,000. Graduates of state schools fared a little better with an average indebtedness of almost $50,000. The tuition at private schools ranged from a low of $11,710 to a high of $36,413 per year. Will these costs mitigate against dentistry drawing the most qualified applicants to its schools? Will the highly qualified applicants seek other career directions?

Another perspective shaping the profession today is the changing demographics of the applicant pool and the professional work force. In 1970, 81% of students entering dental schools in the U.S. were white males and 2.1% were female. By 1990, 68% of dental freshmen were members of minority ethnic groups or women. Currently, over one-third of the students in U.S. dental schools are women, and the number of ethnic minorities is rising. This is dramatically altering the composition of the professional work force.

Another concern requiring our attention is the small number of young dentists joining professional organiza-



Dr. Sharma is Associate Dean at the School of Dentistry, Marquette University, 604 North 16th Street, Milwaukee, WI 53233.

tions. Only 42% of dentists under the age of forty belong to the ADA, as compared to the 76% of those over age forty. Professional organizations and our leaders must be sensitive to the increased diversity of the professional work force and attend to the specific needs of all segments of their membership.

New and complex disease patterns, including those now affecting mankind and others lurking in the future, pose challenges the profession must face.

Requirements of OSHA, the FTC, and the Americans with Disabilities Act have to be dealt with by the profession as do issues related to Medicare, Medicaid, and Aid to Dependent Children.

Rapid technological advances, accompanied by the exponential growth in knowledge, must not intimidate us. Instead, we must assimilate these advances into our practices.

The Institute of Medicine's report on dental education needs to be reacted to by the various constituencies of the profession.

As if the plate was not already full, the mega-issue of managed care, with all of its ramifications, is now threatening the very fabric of our profession. During the past forty years, I practiced dentistry and have been associated with dental education on three continents. I experienced a variety of health care delivery modes, ranging from solo independent practice to a comprehensive national health service. What distinguishes American dentistry and makes it the envy of most of the world, in my opinion, is the unique and special relationship between the doctor and the patient in a free enterprise system. This results in providing oral health care of the very highest standards. This quality of care is in jeopardy; this level of personal service is in danger of being compromised.

Embracing Change

To maintain our traditions of excellence, we must meet these and other challenges. Change often is threatening and even painful to some. And we are experiencing extensive change.

Psychologists tell us that extreme or rapid change often produces reactions similar to grief. Elizabeth Kubler-Ross, in her book *On Death and Dying*, describes several coping mechanisms we employ to deal with extremely difficult situations and grief. She divides these into five stages.

Stage 1: *Denial.* We try to convince ourselves this is not happening or that it is just a passing phase.

Stage 2: *Anger.* We can no longer deny change is taking place, but we do not like it. We become cynical, resentful, and enraged. Fortunately, we have organizations and individuals who act as "lightening rods" and become vocal. They are important because they make us think about what is happening rather than ignoring it. This is a stage where we also look back to the so-called "good old days," hoping to keep things as they were for as long as we can. Yet, if we critically examine the good old days, we frequently find that in some instances they were not all that good.

Stage 3: *Bargaining.* We attempt to create tradeoffs to counteract change. We promise to do things differently, to make amends.

Stage 4: *Depression.* We begin to realize change will occur no matter what we do. The realization sinks in and our rage is replaced by depression.

Stage 5: *Acceptance.* We are not angry anymore; we feel numbed. We accept the change and live with it. Then, we can embark on the process of rebuilding. We begin to integrate change into our lives and into society. During the rebuilding process we open doors to new opportunities, improvements, advancements and growth. We build bridges to the future.

You, the leaders of the profession, must play a significant role in molding the future of dentistry. Your commitment and your involvement are the crucial elements to success.

Positioning for Success

My aspirations as President will be to position the American College of Dentists to continue its pursuit of professional excellence today and tomorrow. We can only achieve our aspirations through commitment, communication and cooperation.

My aim is to build upon the rapport that exists between the College and other professional organizations. In April, American Dental Association President Richard D'Eustachio and Executive Director John Zapp met with the ACD Board of Regents. This meeting opened doors for cooperation in several areas. We will open more doors with our other professional partners.

Your Board established a standing Communications Committee consisting of four members. This Committee will review the overall directions of the College's internal and external communications and develop recommendations for enhancing our efforts.

Cooperation is another key to our success. We need to work together. Marquette University School of Dentistry, where I have served for the past thirty-two years, recently went through some perilous times. We were fortunate to have not only the committed support of our alumni, faculty, staff and students, but also the incredible backing of the Wisconsin Dental Association. I am proud of this relationship between organized dentistry and the only dental school in my home state. This cooperation exists at all levels. We share a variety of essential resources. Our professional leaders speak effectively before

the state legislature, asking for increased funding for the school. Ken Zakariasen, Dean of the School, is here as an elected member of the Wisconsin delegation at the ADA House of Delegates. Cooperation was and is vital to Marquette's Dental School as it will be vital to our profession's future.

Unity is and will be another key to success. We must work together, overcoming our differences. We must speak with one voice. If there are differences in philosophies and opinions, we must talk and attempt to resolve them.

There is too much at stake. You, as leaders of the profession, and professional organizations such as our College must rise to the occasion — to face the opportunities and challenges ahead.

We must draw the best students to our dental schools. You, as individuals and with your Section, should become recruiting partners with the dental school(s) in your area. Dental schools must ensure that their curriculum is contemporary and prepares graduates for practicing the highest standards of clinical dentistry. As leaders, you must offer your guidance and assistance.

Graduates must possess the high professional and ethical standards for which dentistry is known. As Fellows of the College, you must be the example and mentors for our young professionals. You must be the conscience of the profession. We must be flexible and adapt to change, yet not lose sight of our high professional standards.

I am optimistic about the future. I believe our profession will rise and meet these and future challenges. I believe we will show the flexibility and durability to adapt to the changing world. More importantly, we will succeed because you care about your profession and the patients you treat.

Several years ago, Marquette University reaffirmed its basic educational philosophy, "*cura personalis* — care for the person." This personal concern for the individual is a fundamental value of the four hundred and fifty year old Jesuit educational tradition. This concept honors the intrinsic value of every individual as well as all mankind. This solicitude is rooted in the conviction that all are created in the image of God and therefore have infinite worth.

When I look at our profession, I see *cura personalis* in it's every fiber. We have shown the highest degree of commitment, care, and professionalism.

Your Board of Regents is deeply committed to the goals and objectives of the College. Our *Journal* is recognized as one of the finest. We have an energetic and efficient Executive Director and staff. I know the coming year will be an exciting and productive one for the College and it's Fellows.

With Appreciation

There are so many among you who have touched my life. Mentioning names would take far too long. Let me thank you by expressing my gratitude to my mentor and friend of over thirty years, who brought me into the College, Dr. Harry Blumenfeld. I express my gratitude to my wife, Anita, for her love, support, and understanding; to my daughters Leena and Madie and son-in-law Sol for being an inspiration to me in so many ways; to my grandchildren, Rebecca and Ben, for being my *raison d'être* at this stage in my life.

Finally, I extend my heartfelt appreciation to you my colleagues for your expressed support of my forthcoming endeavors as President of the American College of Dentists, and for this, the finest moment of my professional career. Thank you, and God bless you.

The Most Noble Sort of Obligation

Convocation Address
October 6, 1995

John DiBiaggio, DDS, FACD

When President Juliann Bluitt invited me to address this seventy-fifth anniversary of the American College of Dentists, I was somewhat taken aback. I reflected for a moment on my days as a dental student and thereafter as a young practitioner, recalling the awe I felt for those privileged to be selected to Fellowship in the College. I also remembered when I became a Fellow; I was younger than many of my more senior colleagues who worked a lifetime for the honor bestowed upon us. Little did I expect during those embryonic days that I would someday wear the mantle of Fellowship and be invited to address the College on such an auspicious occasion. Therefore, I am humbled to appear before you; I can only express my gratitude to Juliann and to the College for according me this privilege.

When I accepted this invitation I had no idea that intervening events would make my appearance before you even more relevant. Between the time of the invitation and this session, our profession lost one of its most distinguished and dedicated members, and I lost one of my dearest friends. One of your Regents, the late Bennett Malbon, was very close to me and to many others in this audience. He gave of himself fully as an oral surgeon, a loving husband and parent, and an active participant in organized dentistry. Like many of you, I miss him greatly: therefore, I dedicate this presentation in his memory, a small tribute to a truly great man.

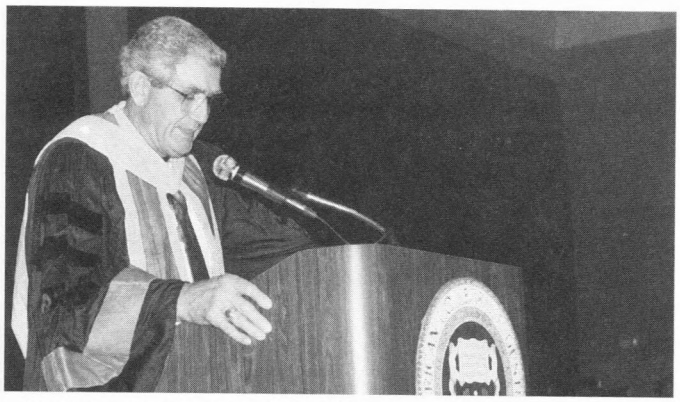
The Honor of Fellowship

For reasons I will never fully understand, I have enjoyed opportunities in my career that I never dreamed possible. I believe the positions I have held — not any special attributes I possess — led to my being the recipient of many honors and awards. I attempted to receive all with a modicum of humility, remembering the admonition of the late actor Robert Montgomery who once said, "When you hear applause, enjoy it, but never quite believe it."

In our profession of course, the highest accolade anyone can receive is election to Fellowship in the American College of Dentists. It symbolizes one is acknowledged by his or her peers as being truly superior. The College is made up of the best and the brightest members of the profession, those who are the most dedicated and committed to achieving excellence. Election to Fellowship reflects much more than simply academic achievement; it speaks to more than a high GPA. Rather, it recognizes contributions beyond the classroom or the clinic, it recognizes performance in life itself. And in my opinion, that is very heady stuff indeed.

But, before you become too self-congratulatory, let me caution you there are implications of election to Fellowship that go far beyond the certificate you will hold, the lapel pin you can now proudly display, or the privilege of appearing in this special cap and gown. Certainly Fellows are chosen for their meritorious professional contributions. This College is, after all, a meritocracy in the best sense of the word. There is no specific requirement for selection, except a record of distinguished performance and service. Thus, we gather today as members of a highly select group, hopefully all deserving of the honor that we mutually share.

However, no honor, especially one as prestigious as this, is ever given simply for what one accomplished in the past. It also anticipates a continuation — even an expansion — of one's re-



Dr. DiBiaggio is President of Tufts University in Medford, Massachusetts.

sponsibility to pursue excellence in every dimension of life. Thus, Fellowship in the College brings with it the most noble sort of obligation: ***You must lead through example***. You must be willing to serve as articulate spokespersons for all that is right about the profession.

The Need for Statesmanship

I would contend that never before has such leadership been more critically needed. Every aspect of our society, from our fundamental values to our basic rights as citizens, is undergoing tremendous change — and nowhere are these challenges greater than in our own profession's health care, where ever-expanding rules and regulations and decisions based on emotion rather than on careful analysis are all too often the norm. We have become pawns in a game played between political interests and self-protecting constituencies. Our frustration and apparent inability to manage our own environment lead to destructive internal bickering. In essence, as a wag once said, we tend to circle the wagons and shoot inward.

Take but one example, one threat: the specter of managed health care. I spoke recently at the American Dental Association's conference on managed care and saw first-hand just how concerned — legitimately concerned — dental professionals all across the country are about the impact on quality of care.

This, I remind you, is a profession with a proud record of delivering the highest quality dental care in the world. No other profession begins to approach dentistry's success in providing therapy, and no other profession has been more altruistic in its efforts to eliminate the very diseases upon which its members' livelihoods depend.

It is no longer enough to simply point out past achievements. We are now expected to be accountable to society at large and to be responsive to concerns that society expresses through its powerful advocates. We are not alone in having to meet new expectations. Corporate America has had to vastly change its way of doing business in order to manage costs, to consider environmental factors, and to enhance productivity. Hospitals no longer serve as the main venue for the delivery of health care, resulting in empty beds as the focus shifts from tertiary to primary services. Even our universities are under careful scrutiny because of rising tuition, faculty who are perceived as spending little time in the classroom, accusations that research money is mismanaged, and even because of scandals in intercollegiate athletics.

Society is demanding from all of its components that they be both efficient and effective; that is, in the words of Peter Drucker, that they do things right while doing the right things. Of the health professions, society expects both the services it needs will be available and costs for those services will be contained. We are expected to care for more people in more convenient settings and with more compassion. One of the new buzz words is quality management, which, in my view, is simply a metaphor for increased focus on the needs of the consumer.

None of us can blithely ignore the growing pressures to change the way we do business. Nor can we point accusing fingers at others suggesting that they are the cause of our dilemma. Above all, we must not think of ourselves merely as practitioners or academics or examiners, any more than one segment of the higher education community can divorce itself from other segments with equal, if different, purposes. Differences do exist in our various responsibilities, but, I believe

common cause is shared by all. Infighting is helpful only to those interested in diminishing our collective influence on decision-making. We cannot — we must not — allow our influence to be so diminished.

What has all this to do with the American College of Dentists? I contend that as the selected few, the elite of the profession, we must accept the mantle of leadership at this critical time. Those of you inducted today and those who preceded you as Fellows cannot abrogate this responsibility. We are the most respected, the most recognized members of the profession; we must assist in negotiating an end to the differences that divide us. We must help find compromises that are responsive to change but still maintain the integrity of this noble profession.

My charge to you, therefore, is this: Use your special status to speak out on issues of consequence to the profession, but in doing so, be a voice of reason. This is a time for statesmanship, a time for unity, a time for leadership. In my view, the American College of Dentists has never fully used its capacity to influence the future of the profession. You represent the world's finest dental professionals. That distinction must be used to benefit the profession and the public we all ultimately serve.

Honoring the Honor

This is a very special class of Fellows, for you are here as the College celebrates its seventy-fifth anniversary. Many have preceded you over these seventy-five years. They came here, as you do, fully deserving of this honor. But, they have gone on to truly "honor the honor" by contributing throughout the rest of their careers to the advancement of the profession. I trust you will take on that responsibility enthusiastically, bringing further honor to yourself and to those many distinguished colleagues of the past, who have claimed proudly, "I am a Fellow in the American College of Dentists."

Leadership, Making a Difference in the 1990s

Sheila Murray Bethel

Can you train someone to be a leader? Can you develop leadership qualities within yourself? Can you make a difference? The answer is *yes* and we *must* as individuals, organizations and a nation. The years leading to the turn of the century will be the most challenging the world has ever faced. We need leaders at every level of our society. Across the country, people are reassessing the priorities, excesses and imbalances of the 1980s.

The most exciting part of the new decade is that while we still want to be successful, our new definition of success includes the desire to make a contribution — to personally make a difference. That means you and I taking responsibility to lead ourselves first, then extend those skills to our families, jobs and communities.

This kind of grassroots leadership will make the difference in building our organizations and our country. The 1990s will be the decade of "values."

The foundation of effective value-based leadership comes in two parts. First is the desire to serve. Lao Tzu, ancient Chinese philosopher said, "A leader is one who serves."

Second is the understanding that we lead first by example. Everything we say or do sends a message, sets a tone or teaches people what to do or not to do.

With this foundation in place, you can go on to the value-based leadership qualities that will help you make a difference. With these, you will serve more effectively and set powerful examples that motivate and inspire others.

Qualities of Leadership

Have a mission that matters

Having a mission that matters, one that makes a difference, is at the core of leadership. It motivates and inspires followers. It is a powerful leadership quality that builds charisma. It releases leaders' full potential and is their driving force. A mission acts like a magnet in attracting others. Missions often start small; their size is not important. That the leader *has* a mission is what's important. A clear, value-based mission is a shining example to followers.

Be a big thinker

Robert F. Kennedy, quoting author Robert Frost, said, "Some men see things as they are and say, 'Why?' I dream of things that never were and say, 'Why not?'" Leaders have the ability to visualize on a larger perspective. Leaders are curious and have what Cavett Robert calls "Divine Discontent." They challenge tradition, are not afraid of idealism and are eager to create and bring out the best in others. Big thinkers have a clear definition of their personal goals and have the ability to help others expand their thinking and imagination.

Be ethical

Albert Schweitzer said, "Ethics is the maintaining of life at the highest point of development." A leader has clearly defined ethics and is steadfast in upholding them, even in the worst of times. Reaching for the highest point of development is the example leaders set for their followers. Leaders have a keen sense of fairness and justice. They are high principled and law abiding. They value the rights of others and respect their followers. They have strong convictions and are not afraid to stand and be counted. They know that true success means having high ethics.

Be a change master

Rosabeth Moss Kanter calls leaders, "Prime movers;" they move people in directions more beneficial to all. Leaders have the ability to create change; to accept it, handle it and succeed during times of change. They welcome change as the only constant in life. They learn from the past and then let it go. They don't burden themselves with old ideas, prejudices, habits or processes. Inspired leaders look for the opportunity in change and understand that they don't have to like the change, but they must understand it. They live by the tenant of the Serenity Prayer, "God grant me the serenity to accept the things I cannot change, courage to change the things I can, and the wisdom to know the difference."

Be sensitive

Sensitivity is a new quality for today's leaders. We live in a much more complex and quickly changing world than past leaders, so we must be sensitive to a wider range of concerns. Today's leaders must be sensitive to the

Sheila Murray Bethel is a business consultant, author of the best selling book *MAKING A DIFFERENCE, 12 Qualities That Make You A Leader* and an internationally recognized speaker on leadership, change and customer service. She is Co-Founder and Chair of the Bethel Institute, 1376 Vancouver Avenue, Burlingame, CA 94010.

needs, values and perceptions of their followers, because without responsive, productive people, other considerations quickly become secondary. Sensitivity builds one of the most desirable qualities in a follower — loyalty. Daniel Yankelovich describes sensitivity as one of the "soft" qualities crucial to a leader's effectiveness. At its best, sensitivity is called "people building."

Be a risk taker

Risk taking is a vital part of leadership. Leaders have the courage to begin while others are waiting for better times, safer situations and assured results. Leaders are willing to take a risk because they know that too much caution and indecision rob opportunity and success. They are willing to fail in order to succeed. Leaders know that no one wins all the time and that winning is not always the goal. They take initiative, are independent and are not unduly influenced by others. Leaders live by the philosophy and "anything worth doing is worth doing poorly first." They allow themselves and others to grow by making mistakes. They don't expect perfection. President Harry Truman said, "Life is risky." Leaders take risks.

Be a decision maker

Deciding to decide often is more difficult than carrying through once the decision has been made. Leaders know that not deciding is a decision. It allows time, fate and circumstances to make the choices. The leader is aware of this and would rather make a wrong decision than none at all. Few decisions in life are so critical that they cannot be corrected. Leaders know that indecision wastes time, energy, talent, money and opportunity. They make decisions and commitments to avoid future failures. Leaders are willing to make decisions and plans that affect future generations, because they know indecision will forfeit everyone's future.

Use power wisely

Leaders do not shrink from power, nor do they seek it unnecessarily. They know that having clout often intimidates others, so they use their power judiciously. They "pull rank" only in emergencies. Leaders know that the "higher up you go, the more gently down you reach." They use their power to direct others and help them achieve their full potential. Leaders take responsibility for themselves, their actions and the results. They use their power to instill this example in others. They know that power and greatness is not a goal but, rather a byproduct of learning how to serve.

Be a communicator

The power to communicate is the key to forging productive relationships. Good communication pays off in a leader's ability to:

- motivate and inspire people;
- take action;
- build cooperation and trust;
- maintain focus on the issues;
- resolve conflict;
- provide accurate information;
- and, prevent communication breakdowns

The better a leader communicates, the better the chance to make a difference. "What you are speaks so loudly I cannot hear what you say," wrote author Ralph Waldo Emerson. When a leader's words and actions match, communication becomes the highest form of leading by example.

Be a team builder

Team building encompasses all the qualities of a leader. It maximizes the potential of both leader and follower. The team building leader of the 1990s will be a coach — directing, motivating, training, delegating and making work enjoyable. Team building is the catalyst of all a leader wants to accomplish. Servant-leaders create teams of caring, cooperative, committed followers. A leader recently said, "Team building is the most difficult, and at the same time, most rewarding of all my responsibilities."

Be courageous

"Have the courage of your convictions" is a familiar saying. Easier said than done. Leaders must have a strong belief system to withstand and boldly meet today's challenges and maintain the courage of their convictions. Believing in their physical, emotional, intellectual and spiritual standards and values enables them to apply their resources and creative energy when faced with problems of overwhelming odds. General George C. Patton said courage is "fear holding on another minute." Leaders are valiant and undaunted in their approach to life; they "hold on." They venture forth with faith and stamina and set a courageous example for others to follow.

Be committed

Commitment is a primary word for leaders. They realize that without it all else is meaningless Commitment runs deep in leaders. Dedication to their mission pulls others to them. Their commitment exudes confidence and hope. Others become committed when they are with an unselfish, committed leader. They commit to high standards of excellence for themselves and others. They know that people grow when striving for excellence. They determine a course, make a plan and have the self discipline to follow through, despite obstacles.

Leaders stay, long after others give up. They know that life and business are like the seasons; thus, their commitment is sustained through the good and bad, hot and cold, and ups and downs. They know that spring (hope and opportunity) follows winter (darkness and lack of growth). Leaders are committed to their goals while living one day at a time, knowing that if they take care of today, tomorrow will take care of itself. Above all, leaders that make a difference are committed.

1995 Fellowship Class

The Fellows of the American College of Dentists are the leaders in dentistry and in their communities. They represent the creative force of today and the promise of tomorrow. We proudly welcome the 1995 class of Fellows.....

Abdoney, Michael O.
Tampa, FL

Abshere, Philip M.
Oklahoma City, OK

Aikens, Chester A.
Jacksonville, FL

Alford, James D.
Magnolia, AR

Allen, Nolan W.
Clearwater, FL

Allen, S. Joan
New London, CT

Alpern, Michael C.
Port Charlotte, FL

Altieri, Jeanne P.
Hartford, CT

Anderson, Frederick E.
Great Falls, MT

Anderson, Gordon S.
Grants Pass, OR

Anzelc, Matt M.
Hibbing, MN

Archer, J. Michael
Amarillo, TX

Arutt, Daniel
Norwalk, CT

Asaro, John P.
Tonawanda, NY

Back, Jim P.
Bonita, CA

Barnes, John D.
Huntsville, AL

Barrett, Robert L.
Jonesboro, AR

Beard, Bobby R.
Jackson, AL

Bentley, Geoffrey D.
Hawley, MN

Berger, Jeffrey L.
Windsor, ON

Berlocher, William C.
Corpus Christi, TX

Berns, Jack D.
New Haven, CT

Bertolotti, Raymond L.
San Leandro, CA

Bier, Sanford J.
Valley Stream, NY

Billings, Ronald J.
Rochester, NY

Birdwell, William R.
Bryan, TX

Blaha, David A.
Lincoln, NE

Bothwell, Eric D.
Rockville, MD

Bottomley, Daniel R.
Greenville, TN

Brown, L. Jackson
Bethesda, MD

Bruce, Steven M.
Boise, ID

Buchheister, John S.
Warren, MI

Burns, Dennis A.
Columbus, OH

Buttram, Charles J., Jr.
Raton, NM

Caldwell, Charles S.
El Paso, TX

Calverley, Mickey J.
San Antonio, TX

Carr, Bernard T.
Alexandria, VA

Casar, Joel A.
Glassport, PA

Chalfin, Henry E.
Brooklyn, NY

Chandler, John D.
Huntsville, TX

Cheney, Daniel K.
Bellingham, WA

Chenman, Alan H.
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Chinoy, Walter I.
Scotch Plains, NJ

Chisholm, Kenneth G.
Vancouver, BC

Christie, William H.
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Ann Arbor, MI

Cook, Arnold R.
Bethlehem, PA

Costley, John M.
Salt Lake City, UT

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Brooklyn, NY

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Curry, Lynn D.
Carroll, IA

DeMartino, Sam P.
Danbury, CT

Di Grazia, Peter M.
Reno, NV

Di Stefano, John F.
Parma Heights, OH

Dietrich, John E.
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Dinmore, Robert G.
Greenwich, CT

Doerr, John D.
Tuscon, AZ

Done, Harris N.
Anaheim, CA

Dover, Dean G.
Toronto, ON

Dowdle, Phillip O.
Memphis, TN

Drisko, Connie H.
Louisville, KY

DuBose, William Jones
Montgomery, AL

Duello, George V.
St. Louis, MO

Duke, Edward S.
San Antonio, TX

Dunn, Bruce R.
Denver, CO

Eggleston, David W.
Newport Beach, CA

Ehrich, Robert R.
Pekin, IL

Emery Robert W.
Washington, DC

Emory Robert N.
Milford, DE

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Epstein, Ralph H.
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Farmer, John B.
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Flam, David J.
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Floyd, Horace M.
Royal Oak, MI

Forest, Denis
Montreal, QU

Forrest, Mark
Pembroke Pines, FL

Fujioka, Lawrence M.
Honolulu, HI

Gaines, Henry
Brightwaters, NY

Gallin, David M.
New York, NY

Gartner, Reginald L.
Grand Island, NE

Geipe, Kathleen M.
Salisbury, MD

Gilbert, John A.
Kansas City, MO

Gilder, Jerry Q.
Hattiesburg, MS

Glicksman, Milton A.
New Bedford, MA

Goger, Michael J.
Albany, OR

Gorman, James E.
Girard, IL

Graham, Bruce S.
Detroit, MI

Graham, Elzy J.
Yuba City, CA

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Huntersville, NC

Greer, Joseph G.
Oak Ridge, TN

Griffin, Morris H.
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Grubb, John E.
Chula Vista, CA

Guaccio, Richard A.
Schererville, IN

Guenthner, Terry A.
Rochester, MN

Hadley, Jack N.
San Francisco, CA

Haering, Harold J.
LaBelle, FL

Hagen, Jeffrey W.
Yakima, WA

Hall, J. Hadley
Abilene, TX

Hamlin, Daura C.
Norfolk, VA

Hanson, Jonathan G.
Jefferson City, MO

Harder, Ervin W.
Hannibal, MO

Harrison, Richard L.
Hagerstown, MD

Hastreiter, Richard J.
Cedarburg, WI

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Hayes, Samuel E.
Kansas City, MO

Haynes, Danny R.
Hot Springs, AR

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Council Bluffs, IA

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Jackson, TN

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Holt, Charles R.
Bedford, TX

Hoover, Jeffrey
Houston, TX

Hori, Noble
Toronto, ON

Hume, John D.
Springfield, MO

lcyda, Teri-Ross
Stuart, FL

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Gadsden, AL

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Marietta, GA

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Jennings, John M.
Bakersfield, CA

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La Puente, CA

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Kennedy, David B.
Vancouver, BC

Khan, Zafrulla
Louisville, KY

Kingston,Roger S.
San Diego, CA

Kleefield, Richard
Westport, CT

Klima, Rodney **J.**
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Hagerstown, MD

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Kronmiller, Jan E.
Portland, OR

Kunkle, Terry L.
Moncks Corner, SC

Lagattuta, Vincent L., Jr.
Baton Rouge, LA

Lam, Chau N.
Birmingham, AL

Lane, Harold M.
Elizabethton, TN

Lane, Jeffrey A.
Burke, VA

Langsjoen, Erik D.
San Antonio, TX

Lee, Richard J.
Findlay, OH

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Corpus Christi, TX

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Closter, NJ

Linebarger, William G.
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Lippert, Jacob J.
Union, MO

Low, Samuel B.
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Machen, Donald E.
Pittsburgh, PA

Maes, Paul J.
Helena, MT

Mahanes, C. Marshall
Norfolk, VA

Manning-Cox, Georgetta
Washington, DC

Marini, Luis A.
Hato Rey, PR

Marshall, Grayson W., Jr.
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Matsuda, Melvin L.
Hillsboro, OR

Mattingly, John B.
Louisville, KY

McCrae, William P.
Convent Station, NJ

McDonald, Duane F.
Hermantown, MN

McDonald, Thomas R.
Athens, GA

McDonald, William M.
Birmingham, AL

McFarlane, Donald J.
Toronto, ON

Meyerowitz, Cyril
Rochester, NY

Miller, Robert J.
Delray Beach, FL

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Milone, Andrew S.
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Momtaheni, David M.
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Mouden, Lynn D.
Jefferson City, MO

Nakamura, Dan M.
Long Beach, CA

Natkin, Sheldon H.
West Haven, CT

Neacy, Kit
Covina, CA

Nidiffer, Thomas J.
Leawood, KS

O'Donnell, David
Hong Kong

Olinger, Thomas J.
La Mesa, CA

Olmsted, John S.
Greensboro, NC

Olson, James A.
Berkeley, CA

Palcanis, Kent G.
Birmingham, AL

Palmer, Debra S.
Racine, WI

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Passon, Craig
Englewood, CO

Pavelka, Miro A.
Richardson, TX

Pedersen, Gary R.
Astoria, OR

Pedersen, Jac W., II
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Pelle, Joseph M.
Pittsburgh, PA

Perl, Michael M.
West Hartford, CT

Peshoff, Carl M.
Canton, OH

Phillips, Alden K.
Winston-Salem, NC

Plodzik, Henry M.
Manchester, NH

Poidmore, Samuel J.
Brea, CA

Pretel, Robert W.
Fairfield, CA

Price, McKinley L.
Newport News, VA

Rader, Charles E.
Victoria, TX

Rausch, Richard L.
New York, NY

Reinhardt, John W.
Iowa City, IA

Rethman, Michael P.
Washington, DC

Reynolds, Arthur L.
Springfield, IL

Rich, Gabriel J., III
Raleigh, NC

Rider, Ernest A.
Charlotte, NC

Riley, Irving N.
Southfield, MI

Riley, Joseph A.
Hampton, VA

Risk, William B.
Lafayette, IN

Rivera-Nazaro, Yilda M.
Hato Rey, PR

Roberts, Steven L.
Huntington, NY

Rogers, Raymond L., Jr.
Orlando, FL

Rosenfeld, Alan J.
Park Ridge, IL

Rothstein, Jerome P.
Jacksonville, FL

Rothwell, Richard A.
Erdenheim, PA

Rude, Carolyn S.
Kennesaw, GA

Rupprecht, W. Erick
Grand Rapids, MI

Rutt, Martin J.
Prospect, CT

Sadler, Kenneth M.
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Salois, Robert
Sherbrooke, QU

Sanders, John J.
Charleston, SC

Sanders, R. Michael
Newark, NJ

Sandoval, Victor A.
San Antonio, TX

Santiago, Robin M.
Hartford, CT

Sarrett, David C.
Richmond, VA

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Oak Forest, IL

Scheideler, Robert O.
Robbinsville, NJ

Schmitt, Adrianne
Toronto, ON

Schwartz, Ivy S.
San Antonio, TX

Schwimmer, Alan M.
New York, NY

Scott, Fred E.
Portland, OR

Scott, John A.
Edmonton, AB

Serman, Neill I.
Riverdale, NY

Shamy, Frank E.
Montreal, QU

Sharp, Robert E.
Glens Falls, NY

Sharun, William J.
Edmonton, AB

Shore, Paul I.
Elmira, NY

Shultz, Rudane E.
Kansas City, MO

Sievert, James A.
Wausau, WI

Sigfstead, Bryun
Edmonton, AB

Simkins, Alan B.
Wilmington, DE

Simmons, Henry C., III
Nashville, TN

Slaughter, Joel P.
Medford, OR

Slavkin, Harold C.
Bethesda, MD

Smirne, Michael J.
Scranton, PA

Smith, Glenn M.
Montpelier, IN

Smith, John E.
Helena, MT

Smith, Mary K.
Spokane, WA

Smith, Wallace G.
Portsmouth, VA

Snyder, James A.
Alexandria, VA

Somoza, Francisco
Guaynabo, PR

Stahl, John W.
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Steinberg, Marvin H.
Cote St. Luc, QU

Stevens, Alvin W.
Birmingham, AL

Stoch, Russell B.
North Palm Beach, FL

Stovall, John M.
Crockett, TX

Stratigopoulos, George J.
San Diego, CA

Sturm, William J., Jr.
Springfield, IL

Szatkiewicz, Richard J.
Mundelein, IL

Tawil, Georges
Beruit, Lebanon

Theisen, Frank C.
Kansas City, MO

Thompson, Declan
London, England

Thompson, Thomas L.
Fresno, CA

Tiner, Billy Don
San Antonio, TX

Todd, James L.
Dalton, GA

Torregrosa, Jose R.
San Juan, PR

Tynio, Andrew
Toronto, ON

VanderVeen, Michael H.
Wyoming, MI

VanderBeek, Peter S.
Warren, MI

Versman, Kenneth J.
Aurora, CO

Virata, Jose J.
Quezon City, Philippines

Volland, Lawrence E.
Lockport, NY

Vuchetich, Thomas A.
East Lansing, MI

Wall, Brian A.
Springfield, PA

Wallack, Milton B.
Hamdon, CT

Warford, John H.
Bismarck, ND

Warrington, Richard D.
Ft. Benning, GA

Watkins, James D.
Hampton, VA

Webb, James K.
Pulaski, TN

Weintraub, Jane A.
San Francisco, CA

Westerman, Gary H.
Omaha, NE

Weyant, Robert J.
Pittsburgh, PA

White, Benjamin A., Jr.
Portland, OR

Widmer, David N.
Brunswick, ME

Wieland, James L.
Grand Rapids, MI

Wiener, B. Harvey
Fort Lauderdale, FL

Williams, Frank C.
Shaker Heights, OH

Williams, John D.
Los Angeles, CA

Williams, John R.
Moline, IL

Williams, V. Richard
Winchester, IN

Wilson, Margaret B.
Baltimore, MD

Wright, John M.
Dallas, TX

Wright, John T.
Chapel Hill, NC

Wright, William E., Jr.
Tuscaloosa, AL

Young, Jeffrey O.
Westminster, CO

Zegarelli, David **J.**
New York, NY

Profiles in Professionalism: 1995 ACD Awardees

William John Gies Award

The William John Gies Award was established by the American College of Dentists in 1939 to recognize Fellows for outstanding service to dentistry and its allied fields. This award embodies the highest levels of professionalism, and it is the highest honor the College confers on its members.

Dr. I. Lawrence Kerr

From president of the Broome County Dental Society, to president of the Dental Society, State of New York, to president of the American Dental Association, Dr. I. Lawrence Kerr's success stemmed from a dynamic, loyal, team oriented, creative and "can do" approach to leadership. Dr. Kerr's efforts on behalf of his family, profession, community and nation make him a most worthy recipient of this, the most prestigious award bestowed upon a Fellow.

Dr. Kerr concentrated his efforts on delivery of comprehensive oral healthcare and public education, while remaining vigilant to professional needs in an ever changing environment. An astute and eloquent spokesperson for the profession, Dr. Kerr delivered more than 150 addresses and papers worldwide. He testified before Congress and appeared on national television. He established one of the first multidiscipline group practices in the country.

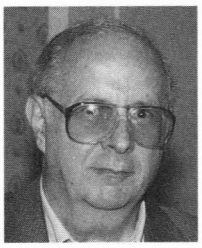
Dr. Kerr served as co-chairperson of Dental-Max, a demonstration project combining private, pro-active, managed care and the public sector for the provision of dental care to a Medicaid population. In 1968, he was a member and chair of the Advisory Committee on Dental Health to the Secretary of the Department of Health, Education and Welfare. From 1971-1972, he served as an Assistant Secretary of Health. Dr. Kerr earned the title of "Honorary Chief" from the Comanche Indian Tribe in Oklahoma for his work as consultant on Indian health. Dr. Kerr was one of the founding fathers of a college that became SUNY Binghampton, one of the leading public universities in the nation. For his concentrated efforts to the United States Olympic Committee, he was awarded the Distinguished Service Award.

But Dr. Kerr's greatest pride and joy was his family, his wife Hazel and their four sons. We are saddened that Dr. Kerr passed away this past May but his spirit and his accomplishments are very much alive today.

Honorary Fellowship

The ACD confers Honorary Fellowship upon persons who are not members of the dental profession but have made outstanding contributions to the advancement of the profession and its service to the public. These contributions may be in education, research, administration, public service, public health medicine and many other areas.

Mr. Harvey Sarner



Mr. Sarner is a retired lawyer now residing in Palm Springs, California. He served as a staff lawyer for the American Dental Association and among other things, was the secretary to the Council on Insurance. He could correctly be called the architect of the American Dental Association's insurance program. Mr. Sarner was instrumental in having Keogh and Incorporation status written and passed to include dentists. The insurance program which he devised became the model for other associations. Mr. Sarner's lectures, seminars and the Sarner Newsletter helped countless dentists avoid legal and tax entanglements.

In 1988, Mr. Sarner began to work with the Israeli government in the "Righteous Program." This program honors non-

Jews who risked their own lives to save Jews from the Holocaust. At his own expense, Mr. Sarner searches out these people and brings them to Israel to be honored. His work is internationally recognized and in fact, the President of Poland, Lech Walesa, delayed a departure to meet Mr. Sarner.

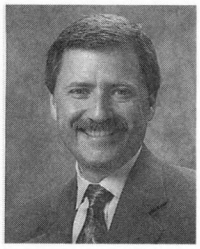
Mr. Sarner has touched dentists' lives in many ways, with kindness and sound advice, and he is also an Ecumenical man, who knows that philanthropy literally means love of man.

Mr. Sarner's honors include: Honorary Member, American Dental Association; Humanitarian Award, American Society of Oral Surgeons; and The Order of Merit from the President of Poland.

Merit Award

The supporting services of dentistry are vital to the profession, providing key elements which enhance the effectiveness of dental care delivery and the growth of the profession. The ACDs Award of Merit was established by the Board of Regents in 1959 to recognize unusual contributions in dentistry and its service to humanity by persons who are not Fellows of the College.

Dr. D. William Harman



Dr. D. William Harman is the Associate Dean for Student Services, University of the Pacific School of Dentistry in San Francisco, California.

Dr. Harman's selection to receive the Merit Award was based on his work as Executive Director of the ADA/AADS SELECT Program and his efforts to increase the quantity and quality of dental school applicants.

Dr. Harman focused on creating a pool of highly qualified men and women to enter the profession of dentistry, at a time when enrollment was on the decline. The resulting turnabout was significant and will benefit the profession and patients for years to come.

Dr. Harman devised a Five Year Strategic Plan designed to promote careers in dentistry including in the under-represented groups; to expand and enhance the SELECT program network; to maintain and enhance the SELECT communications network and to evaluate the SELECT program.

An interesting insight into Dr. Harman, is that at the age of 13, he established a music studio where he taught piano and music theory to private students, ranging in age from 3 to 72. At the age of 14, he organized a company which sold and installed home and professional sound systems. The College is elated that a man of so many early talents, found his way to dentistry.

Special Service Award

This award is presented to recognize outstanding efforts of a Fellow of the American College of Dentists for exceptional and distinguished service to the College or to humanity through his/her professional service.

Dr. Russell W. Buchert

Dr. Buchert is a graduate of St. Louis University School of Dentistry. He assisted in the establishment of the Dental Health Theatre which is a unique theatre that provides children with preventive dental health information, at no cost, in an entertainment setting. Dr. Buchert continues to serve on the committee overseeing the operation of the theatre. He is a dedicated and untiring Fellow of the College, member of the profession and humanitarian in his community.

Over 530,000 children and adults have attended the Dental Theatre shows. From the beginning, Dr. Buchert has raised money for the Theatre's Foundation. For the past 10 years has been the Chairman of the Ways and Means Committee. Today, he is busy raising funds to create a dental museum in the theatre.

Dr. Buchert has received the F. Gene Dixon Award from the Delta Dental Plans Association and the Gold Medal Award from the Greater St. Louis Dental Society. He has worked continuously for the St. Louis and Missouri Sections of the ACD.

The Information Age Arrives

Sherry L. Keramidas, PhD, CAE

Stop for a moment and think about the changes that have occurred over the past fifteen years. An array of images race through your mind — microwave ovens, cordless phones, answering machines, cable television — and of course, computers. In fact, if we focus on the source of much of the change over the past two decades we return to the staple of life today — our computer. Thirty-five percent of American families and 50% of American teenagers have a personal computer at home; nearly forty million people are on the Internet; 65% of new computers sold worldwide in 1994 were for home use; 90% of computers sold in 1995 will have a CD-ROM and a modem. Nicholas Negroponte, Professor of Media Technology at MIT states, "Computing is not about computers anymore. It is about living."[2]

Today, in our homes, offices, schools, libraries, and even our shopping malls we have new and wondrous tools for creating, organizing, and distributing information at the touch of a button. It's no longer the solitary PC replacing other office machines — it is a new and often confusing world. We can be connected to others around the world; we can gain information from experts in far away places; and of course, we can encounter traffic jams and information overload. These are just some of the possibilities and the realities of the Information Age — a time of transformation, opportunity, and challenge.

Becoming comfortable in the Information Age isn't easy for many of us. We're intimidated by the information tools and we are unaware of the opportunities and the limitations. Although ignorance may seem like bliss, understanding the Information Age and its implications is vital to successful leadership and even professional survival. In July, 1995 the American College of Dentists hosted a conference designed to probe some directions, challenges, and opportunities along the information superhighway and the implications for oral health and dentistry. Preparing for the Information Age requires more than knowing the current computer lingo; it requires an examination of what we need to know, what we want to be and how we can open our eyes to new approaches. Thus, the InfoTech Conference examined perspectives on dental informatics, clinical outcomes, and other professional perspectives.

The ACD's InfoTech Conference was a first, but important step toward preparing the dental leaders for the future. Highlights of the meeting are presented below and in the accompanying articles covering conference presentations.

There's No Speed Limit on the Information Superhighway: Technology Trends to Watch

That's right, cruise along faster than a speeding bullet as new tools and technology are introduced regularly. There are some key trends that are here to stay for a while and likely to shape the dynamic technology marketplace.

Electronic Paper: CD-ROM and Beyond

Most experts don't expect to achieve a paperless world in the very near future. However, CD-ROM, optical disks and new optical storage like the *juke box* and other *hot storage devices* (which store multiple disks and allows quick access) are changing how we store and access information. The rapid evolution of on-line publications, electronic data exchange, and the falling prices for CDs and CD writers are likely to hasten the electronic paper revolution.

On the Move with Mobile Technology

Palmtop computers, cellular modems, pagers with worldwide satellite access/ 32K text and PC interfaces, satellite phones, infrared links, and ISDN will allow us to keep in touch anywhere. Digital connections will improve speed and quality of information transfer.

Color

High resolution color monitors, color laser printers, color copiers, new color smart technology will allow us to take advantage of the impact of color at a reasonable price.

The Internet is Mainstreet, USA

Almost forty million people are *on* the Internet. It's now common practice to ask someone for their fax number and their e-mail address. The world wide

"Society is undergoing a fundamental transformation from the Industrial Age to the Information Age. This is a global phenomenon with very significant local implications. All people, all organizations, societies, and nations are affected.... Those who realign their practices most effectively to Information Age standards will reap substantial benefits. Those who do not will be replaced or diminished by more nimble competitors."[1]

web allows access to individuals and organizations worldwide. Although the Net originated in the late 1960s, it is a new addition for many individuals. Many questions and challenges lie ahead. However, the Net represents the ability to be interconnected in order to work, learn, communicate, and entertain ourselves.

Transitions in Software

Software is becoming more user friendly and more complex — a double-edged challenge for many. Important new trends include the move to the 32-bit operating systems (Windows NT, Windows 95, and Macintosh) which allow you to take advantage of the features of your PC; and integrated software, which links many different functions.

Interacting through Technology

Advances in telecommunications and information technology will offer more effective methods for teleconferencing or just teleinteracting. While face-to-face meetings will still be necessary, we will have the opportunity to get some of our meetings and other interactive duties accomplished without leaving home.

Information Everywhere

We are generating more information today than ever before, and now we can access information with just a few keystrokes. But, if we have access to information everywhere how will we find anything? Information overload may create real challenges. On the bright side, we are developing new and better ways to search out information and creating new opportunities for information organizers.

Steps Toward Mapping the Future

Through discussions and a computer-based brainstorming session, InfoTech Conference participants offered views on directions for the future. To begin a successful journey along the information highway, the profession must develop a vision of what lies ahead and where dentistry wants to be.

Creating a future vision of dentistry and information technology will not be easy. The profession and its related professional organizations, like most groups today, still have a narrow view of the information technology arena, its importance, and its momentum. Further, the real relevance and impact on dentistry is not yet appreciated.

Visioning must be done with an open-mind, free from organizational rivalries and unconstrained by what exists today. These first steps will, in essence, be a collaborative brainstorming opportunity with representatives from the dental profession and the information technology industries.

The information age offers great opportunity and challenge for the dental profession. It is vital to actively engage in this new age now, before its too late and the chance to share in shaping the future slips away. What are some of the next steps? InfoTech Conference participants listed several:

- Develop a plan for dentistry and oral health involvement in information technology, encompassing input from diverse dental related organizations. This collaborative plan may then be used for strategic activities by individual organizations and institutions.
- Expand collaborative efforts through partnerships among dental organizations, schools, industry, and technical groups.
- Increase participation in efforts to develop standards for oral health data, databases, and related systems.
- Develop novel and effective methods for educating the profession on the technology future that combines hands-on experience and an interest in shaping the future.

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The Digital Revolution: Are We in Control?

Titus Schleyer, DMD, PhD

Information technology is pervading all aspects of our lives at breakneck speed. Innovations such as desktop publishing, automated teller machines, magnetic resonance imaging, electronic mail, and computerized fuel injection are only a few years old, but are so tightly integrated with our daily lives that we hardly pause to think about them. Even the lives of dentists, patients and their families are touched by the new technology. *High-tech* dental practices now offer computerized charting, intraoral imaging, filmless radiology and computer-based patient records.[1,2]

In analyzing the changes technology brings to dental practice and searching for ways to manage the evolution of information technology, the important questions are not when digital radiology will replace traditional films or when and how the computer-based oral health record will replace the paper chart. The vital questions are: *How will information technology affect the way dental care is delivered? How will it change the patient-provider relationship? Will quality of care improve? What dangers and problems will result?*

Attempting to quantify and evaluate the future effects of technology presupposes a certain level of predictability. Yet the past has mostly blessed (or cursed) us with surprises[3] rather than predictable changes. Rather than attempt to quantify future effects of information technology, this paper describes general trends in technology evolution, provides a framework for evaluating technology, and offers suggestions on how dentistry can actively shape the application of technology.

Uses of Information Technology in Dentistry

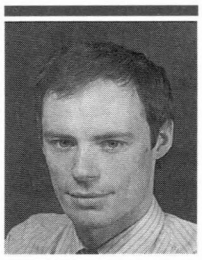
Two aspects characterize uses of information technology in dentistry: 1) the type of application; and 2) the setting where it is used. The application of computers in dentistry occurs in a wide range of settings: in dental practice for billing, insurance processing, practice management, and increasingly for clinical functions such as diagnostic charting, treatment planning, imaging, and progress notes;[4,5] in dental education for computer-aided instruction, administrative systems, and clinical applications;[6-8] by third party/government payers who have long relied on computers to process claims; by patients who are part of the burgeoning home/office computer market, and by some dentists who are employing electronic methods to communicate with their patients.[9,10]

Information Technology Trends in Dentistry

The type of application determines how computers are used in dentistry. Most computer applications fall into one of five categories: direct clinical, indirect clinical, administrative, educational, or research applications.

Direct clinical applications: A number of digital devices for diagnosis and treatment have been developed recently, such as periodontal mobility testers, digital periodontal probes,[11,12] digital radiography sensors,[13] computerized design and milling of restorations and computer-aided manufacturing,[14-17] and intraoral cameras.[18] Developers are likely to refine these devices and add functionality in the near future. Opportunities for the future will evolve from miniaturization, technological innovations such as new sensors or imaging modalities, and from reduced cost. Nanotechnology[19] will stimulate a quantum leap in diagnosis and treatment. Barriers to direct clinical technology developments are likely to arise relative to complex activities (e.g., caries diagnosis) and procedural aspects and economic factors.

Gains in therapy, however, will mostly come from indirect clinical ap-



Dr. Schleyer is Associate Professor, Operative Dentistry, and Director of Computer Support Services at Temple University School of Dentistry, 3223 N. Broad Street, Philadelphia, PA 19140-5096.

There are two kinds of fools. One says: "This is old, and therefore good." The other says: "This is new, and therefore better." — *John Brunner,* The Shockwave Rider

plications supporting the practitioner through knowledge bases and decision support

Indirect clinical applications: We are likely to see the greatest impact in this category with many technically feasible opportunities on the near horizon. Innovations will increase our ability to digitally acquire and store more patient information. In the not-so-distant future, dental computer applications will store all clinical information, most likely in a standardized format.[20,21] Functions, such as data analysis, outcomes assessment, decision support, and quality improvement will be much easier to perform than today. For example, computer applications for general and periodontal practice could routinely graph pocket depth trends for single patients, patient subgroups, and whole practice populations. Using a visual representation, practitioners could review many cases in a short period of time and identify the ones that warrant closer attention.

The limits in this category are mostly "environmental" and relate to limited standards for acquiring, storing, and managing clinical information, in exchanging information, and building distributed, complete computer based oral health records.[22-23] However, progress toward overcoming these barriers can be expected with rapidly emerging opportunities in developing healthier information and informatics standards,[21,24,25] and emerging communications infrastructures.[26,27,28]

Administrative applications: Innovations in administrative applications will continue to support the process of oral health care. Workflow software may automate complex treatment protocols and office functions. Management information systems will make the task of managing care easier by summarizing and collating data needed for decision-making. Administrative systems will also help to integrate interactions among stakeholders in oral health care — patients, dentists, physicians, HMOs, and suppliers. The "end of the flagpole" phenomenon will create some perceived limitations. Once a task is sufficiently automated, further automation may not be feasible or not economical. Information technology also cannot fix real-life flaws requiring non-technical solutions.

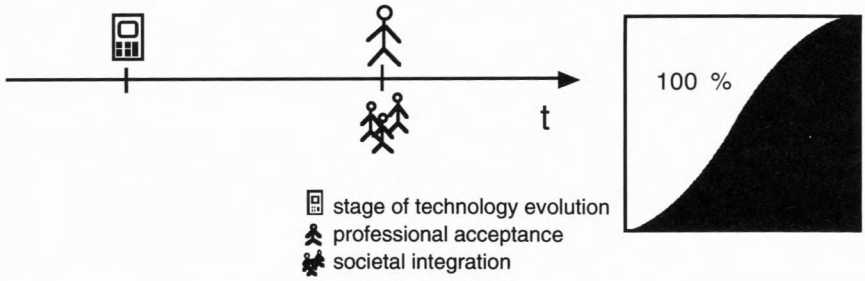
Educational applications: The development of educational applications has lagged, not because of a lack of tools and methods, but due to constraints such as high development costs, limited comparative studies with traditional methods, small markets, and technological requirements. However, technological innovation is driving down the cost of both development and delivery of computer aided instruction; users of educational software will be responsible for expanding educational applications.[29] New methods for content delivery, such as the Internet, will create new application possibilities.[30,31] Other growth opportunities will stem from technical innovation, reduced delivery cost, the emergence of "digital libraries," and a growing acceptance of the importance of information technology in all areas of education.

Research applications: Computers will continue to open new research opportunities. These include analysis of existing information using new methods (e.g., analysis of radiographs with new scanning or imaging methods), and previously impossible studies, such as monitoring of biological parameters using embedded, miniaturized sensors. Simulations will support, and in some cases replace, clinical trials. Computer networks will provide new mechanisms for collaborative research. Limits for research applications include the lack of standardized data sets,[23] difficulties in data aggregation,[32] and technological barriers. However, the developing healthcare standards will remedy some problems, and continued technological development and technology transfer from other fields will assist researchers in oral health care.

A Scenario-Based Approach to Technology Evolution

Technology applications do not exist in

Figure 1. The fading technology has been accepted overwhelmingly by professionals and society, and may be on the way to becoming obsolete. (Left illustration: relationship between stage of technology evolution, professional acceptance, and societal integration; Right illustration: level of acceptance in the professional environment)



a vacuum. Usually, individuals and society use technology to solve one or more problems. In assessing technology in its professional and societal context, three variables are useful.

The stage of technology evolution is an expression of the maturity of the technology. Technology maturity is a relative measure. Some technologies, such as the wheel, have existed — basically unchanged — for thousands of years. Others, such as silicium-oxide-based computer chips, have existed only for a few decades and are already being replaced by newer technologies. Thus, technology maturity is not a function of longevity but of how rapidly technology is changing and whether a substitute is available.

In a societal context, technology often is first accepted at a personal and professional level. Many technologies appear in the workplace before entering the home or leisure environment. At this stage, technology acceptance is a personal decision and the professional and his or her environment will develop certain coping mechanisms.

Societal acceptance is the last stage of integrating technology. At this stage, the technology is accepted by most of society and is so commonplace that many people can not imagine living without it. Technologies to which society-at-large is not exposed are exceptions. However, patients are aware of many technologies used in the dental office.

The three scenarios below give examples for obsolete technology, mature technology, and recent innovations.

Fading Technology

A fading technology (see Figure 1) has been adopted by the majority of the profession and society and may be in the process of becoming obsolete. Little or no improvement in the basic technology is evident. Changes are limited to "incremental tinkering," with little or no benefit. An example of fading technology is electronic calculators, whose functions are being subsumed by computers. Among the most recent calculator innovations were solar power and wristwatch-size versions (and the wristwatch calculators are so difficult for human hands that they largely attained the status of a marketing gimmick).

Technology as the Workhorse

Technology as the workhorse (see Figure 2) is a mainstay of technology implementation in an area. The majority of the profession has adopted the technology and society accepts it widely. Societal acceptance may lag behind professional acceptance, due to information asymmetries and attitudinal differences. However, these tend to shrink over time. Procedural aspects of the technology continue to improve; innovations may be driven by external factors. Examples of this scenario are billing and practice management systems. Over 60% of all dentists use them, their market is relatively mature and many recent innovations, such as electronic data interchange (EDI), have been driven by market participants.

Technology in the Lead

When technology is in the lead (see Figure 3), it may only be adopted by the pioneers of the profession; the tech-

Figure 2. The technology as the workhorse has been accepted by a majority of professionals and society. The stage of technological development corresponds with the capabilities and coping mechanisms of professionals and society. (Left illustration: relationship between stage of technology evolution, professional acceptance, and societal integration; Right illustration: level of acceptance in the professional environment)

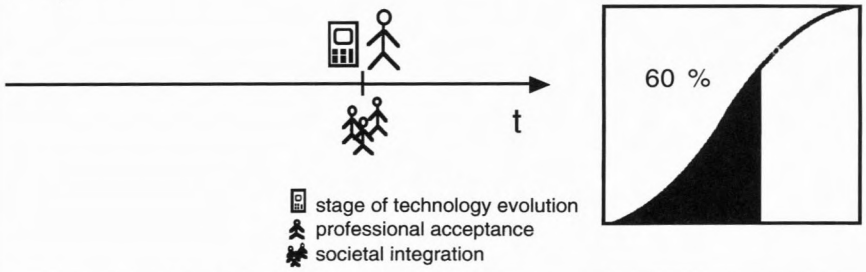
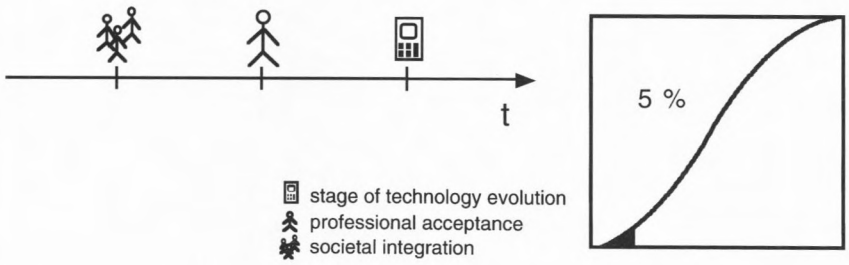


Figure 3. Technology in the lead provides many more capabilities than professionals or society can use. Only pioneers have adopted this technology, and coping mechanisms may be in their infancy. (Left illustration: relationship between stage of technology evolution, professional acceptance, and societal integration; Right illustration: level of acceptance in the professional environment)



nology is too new to be accepted by more than a small percentage of professionals. While the profession is grappling with the appropriateness and usefulness of some technologies,[33] it is slow to accept others because of drawbacks compared to traditional methods, or because of limited usefulness. Sometimes, innovative and rapidly evolving technology soon may gain the same level of professional acceptance as more established technology only to encounter legislative, economic or societal barriers to its adoption. These new technologies affect the profession in major ways as they tend to change functions, roles, and processes. Society typically has developed few mechanisms for coping with the technology. An example of technology in the lead is the computer-based oral health record. Guidelines on how to deal with information access, security, confidentiality, and legal issues are only in their infancy. Laws and regulations that worked well with the paper record are not sufficient or not applicable for its electronic counterpart.

Dentistry's Ability to Cope

How can dentistry cope with technology changes that are difficult to predict? A SWOT (Strengths - Weaknesses - Opportunities - Threats) analysis[34] may provide a useful starting point.

Dentistry's strengths in information technology include the fact it is a relatively defined area with few previously established standards. Standardization in medicine has suffered from a large, complex domain, with multiple and sometimes competing efforts. Developing dental informatics standards, through the Accredited Standards Committee Medical Devices 156 group, is a concentrated, cooperative effort among the stakeholders in dental information technology and covers most areas of information technology in dentistry.

Among the weaknesses in dentistry is the limited scientific/educational base, which makes it difficult to apply new, scientifically-based concepts (e.g. quality assurance). Substantial non-technical barriers also must be surmounted before the full benefits of computer-based patient records are realized. Industry fragmentation and small market size are impediments in the commercial environment. However, many small companies are among the primary innovators in the dental computer systems market. Parochialism among dentists and dental organizations may be another obstacle to quickly and efficiently addressing important issues. Limited and uncoordinated efforts among the general healthcare informatics community may lead to incompatible or conflicting solutions. Finally, limited attention to evaluation may contribute to problems and ineffective technology.

Growing societal acceptance of computer technology is an external opportunity for dentistry. Public initiatives addressing standards[26] and technological innovation[35-38] are directly applicable to the dental environment as are the evolving national information infrastructure and advances in medical informatics.

Despite these advantages, external threats to technology evolution in dentistry are substantial.[39] Limited and shrinking resources prevent investment in technology. The rate of technological change may outpace dentistry's ability to stay current. Finally, changes in the dental/healthcare environment may affect technology integration in ways that are not yet understood.

Taking Control

Dentistry is well positioned to shape technology evolution. To take control of its destiny the profession must face a number of challenges. Dentistry must develop a common vision of information technology. Technology affects everybody, not just dental practitioners or dental educators. To develop a common vision, the profession must network, cooperate, and participate in efforts to develop common goals. Pooling resources is essential since no single entity has enough resources to meet all the challenges. Dentistry should pursue integration with healthcare information technology standards and initiatives despite obstacles and differences.

Immediate priorities for dentistry include developing dental information and informatics standards; developing computer-based oral health records; es-

tablishing networked knowledge resources; developing frameworks for evaluating technology; and establishing a solid scientific/educational foundation for dental informatics. Any one of these areas is a daunting challenge. There is only one way to control technology evolution in dentistry: together with a shared vision.

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The Evolution of Informatics

Daniel T. Wolf

The practice of dentistry depends on knowledge and information flows. Dental services are delivered through a decentralized channel of independent providers. These services are influenced by changing standards of care, diverse reimbursement schemes, dynamic clinical technology, and the business issues of dental practice. Better knowledge and information flows could represent the key to opening important new frontiers in:

- ☐ **The quality, access and economics of dental care that characterize the real value of dentistry.**
- ☐ **The economics of dental practice, productivity solutions, new clinical processes and methods, and practice development methods for groups and solo practitioners.**
- ☐ **The cultivation and deployment of clinical and process innovations in all corners of the dental world.**

Informatics (defined as the use of integrated and automated disciplines for information development, storage, and transaction) is evolving to address the new frontiers in dentistry. Informatics expands the capacity of stakeholders throughout the dental care system relative to knowledge and information flows. In addition, it introduces significant utility, speed, and convenience into a world that historically has not enjoyed these benefits. This paper supports the notion that the dental informatics movement is indeed tracking forward. However, it cautions that the **sustained evolution** of informatics in the dental environment has some structural and behavioral hurdles to clear.

The Relevance of Informatics

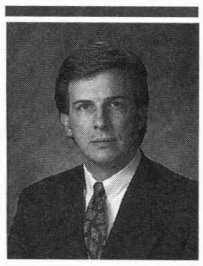
The dental economy is comprised of a complex and dynamic group of supply and demand elements. Clearly, the patient is at the center of the system. Patients are served , influenced, and managed by the combined forces of the dental profession, dental care finance and reimbursement, dental technology, and the industry that produces, distributes and fabricates dental goods. Altogether, this is a $45 to $50 billion enterprise. As with healthcare delivery in general, societal concerns about dentistry relate to shaping standards of care, access, productivity, patient self-care, and the matters of cost containment. While dentistry has significant differences from conventional healthcare delivery, the same societal concerns apply.

The relevance of informatics in the dental economy can be defined in the context of clinical issues, business issues, and research issues. Based on a series of studies by Dewar Sloan under the sponsorship of the American Dental Trade Association as part of the dental care economic model (DeCEM.ADTA) these issues can be summarized and evaluated as follows:

Clinical Issues. The potentials for automated diagnostic data capture are only now coming into practical focus. Interactve case planning and management is a reality through informatics. Integrated quality and outcome data tracking is an evolving front in dental informatics. As a result...

- ☐ **Individual dental practices can upgrade their disciplines and clinical methods.**
- ☐ **More information can be considered in the casework management process.**
- ☐ **Clinical value/merit norms and standards can be compared more readily.**

These and similar **clinical functions** stand out as opportunities for shaping standards of care, access, productivity, patient self-care and cost containment. The connection and integration of clinical data without physical boundaries



Mr. Wolf is Managing Director at the research and planning firm of Dewar Sloan, 141 West State Street, Traverse City, MI 49684.

also represents significant new opportunities for supporting research and education.

Business Issues. In a 1994 DeCEM. ADTA study, ten major business concerns of dental practitioners were defined and evaluated. Six of these concerns related directly or indirectly to the management of knowledge and information flows. Administration of the practice is more and more challenging given the information and knowledge flows related to:

- ☐ Compliance and Regulatory Considerations
- ☐ Practice Management and Operations Control
- ☐ Reimbursement and Managed Care Factors
- ☐ Patient Records, Case Management Factors
- ☐ Risk Management and Quality Assurance
- ☐ Work Process and Procedure Management

The **business functions** of dental practice are already impacted by the evolution of dental informatics. There are implications for practice administration methods, practice investment and the overall business affairs of dentistry.

Research Issues. The academic attention to informatics have often focused on the prospects for research exercises, standards, data bases, education, referral counsel and advanced studies or practices. The relevance of dental informatics on this front is fairly self-evident.

- ☐ Dental Care Research Initiatives Can Be Accelerated
- ☐ Continuing Dental Education Can Be Facilitated
- ☐ Interactive Issues Management Can Take Place With Many Groups
- ☐ Problems and Opportunities Can Be Defined and Debated

The potential for moving the multitude of active research priorities through advanced networks and informatics channels is also significant as an economic matter. More contacts can be isolated and connected in less time with greater utility and compliance prospects. Remote parties and places can be connected with far greater convenience and relatively little hassle.

The Barriers and Roadblocks

While the informatics frontier looks exciting from the clinical, business, and research points of view, there are some natural limits to evolution. There are at least six major barriers to the broad scale adoption and diffusion of dental informatics outside the academic and experimental environment.

- ☐ Behavioral and Work Process Issues ☛ There is simple resistance to change in practice methods and work process.
- ☐ Mass and Scale of Practices ☛ Most dental practices are limited in critical mass and economic capacity.
- ☐ Resource Constraints and Investments ☛ There are numerous competing demands for capital, time, energy.
- ☐ Integration Complexity ☛ The complexity of systems, networks and applications is an "entry" barrier.
- ☐ Conflicting Costs and Benefits ☛ While many can see the merit and value of informatics, many more are waiting.
- ☐ Practical/Ethical Considerations ☛ There are a number of perceived "glitches" in the workings of informatics.

These are not permanent road blocks. However, they are significant in many ways. Structurally, broad-scale adoption and diffusion of informatics requires capital, time, and resource commitments. Other clinical and business priorities are chasing the available capital, time, and resources. In addition, since most practitioners do not operate in groups, the burdens are difficult to absorb and rationalize in the more constrained solo practice environment. Behaviorally, our research over the last fifteen years suggests the dental profession is not dominated by risk-seeking, leading-edge investors in information technology and process automation systems. The early *adopters* are clearly investing in the informatics frontier, but others will take time to follow.

The Real Opportunity Space

With appropriate systems resources, data capture tools, networks and information channels, there is no doubt that the dental informatics frontier will see great movement in the next decade. Other segments of the healthcare delivery system have shown the way in many regards. As the electronic oral health record develops a "nuclear" role in dental informatics, and as third-party stakeholders participate in setting the norms for clinical, business, and research applications, a series of opportunities benefiting patients, clinicians, agencies, suppliers and researchers can be seen:

- ☐ *Clinical Behaviors* will change as they incorporate more information into the "relationship" between patients and clinicians, staff members and third parties.

- ☐ *Business Behaviors* will change as they incorporate more information into the practice development process and the everyday activiites of practice administration.

- ☐ *Research Behaviors* will change to take advantage of the connection with patients, clinicians, staff members, third parties, suppliers and other principals.

When everything is said and done, the real challenges for the dental informatics frontier relate to **behaviors**. How will this blitz of information technology applications shape behaviors in ways that improve patient satisfaction, clinical quality, practice productivity, service access, cost-containment, treatment value and the overall economic well-being of the dental care system? How can informatics contribute to the natural goals of professional development, dental care service advancements and clinical quality/value innovation? The opportunity is to change clinical, business and research behaviors. The potential to manage that opportunity is here and now. The profession, the industry and influencers from many disciplines will be the agents of market change, innovation and development.

Developing the American Dental Association Concept Model for the Standard Computer-Based Oral Health Record

Mark Diehl, DDS, MA

Dentistry is among the health professions experiencing ongoing pressure for change in the care delivery system. This change is outcome-oriented and focuses on the cost and quality of, and access to dental care. Alterations in expected or desired outcomes drives process change; this, in turn, drives change in the information systems supporting clinical activity.

An electronic patient record system is a technology to implement change. As the data subsystem of the electronic patient record system in dentistry, the Computer-based Oral Health Record (COHR) is the data framework for building rational change in our profession.

Background

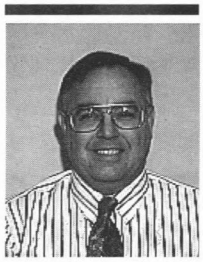
For the past fifteen years, the commercial marketplace for dental systems has been extremely volatile. Many of the first billing and insurance programs were written by practicing dentists on their own personal computers. Most lacked the requisite computer systems expertise and their ventures were not sustainable in the marketplace. In some years, nearly one-third of dental systems vendors failed. Many practitioners lost more than their system investment when, in transition, there was no means of converting their files and recovering the data previously entered.

The American Dental Association (ADA) regards the data in the COHR as an integral constituent, or domain subset, of the data contained in a computer-based patient record (CPR). There should be no segmentation of patient data by profession, discipline, or specialty. Every provider and other authorized user must have access to patient health data according to their own specific needs and access privileges. This access must be timely; the data must be accurate and complete, and must be at the point of service or decision.

Development History

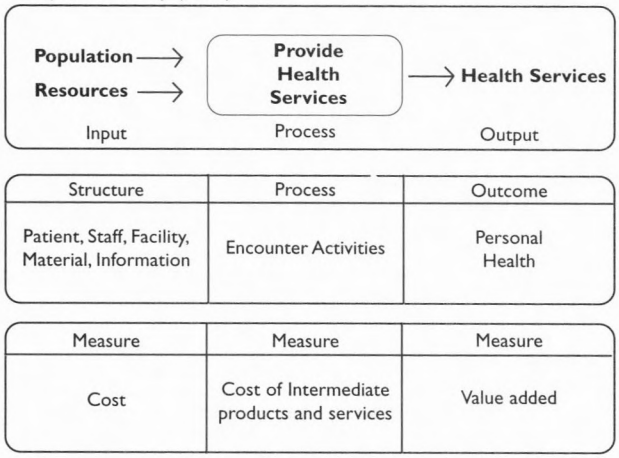
In 1992 the ADA House of Delegates adopted four resolutions dealing with electronic technology in dentistry. Resolution 18H-1992 (Trans.1992:597) addressed facilitating the development of the COHR. Ultimately, this resolution leads to a standard specification from which developers can readily prepare clinical portions of their systems upon a single common foundation. This fundamental step is necessary to ensure data compatibility, to ease communication among dissimilar systems, and thus to begin realizing the Association's vision of seamless data exchange throughout all facets of the health professions.

The first step in compliance with Resolution 18H was the development of a concept model. The COHR concept model was prepared by a working group convened by the ADA Council on Dental Practice. It will lead to a logical model of the COHR, with the standard values determined by the Advisory Committee on Dental Nomenclature, Indexing and Codes of the Council on Dental Benefit Programs. The logical model will then be used by the Accredited Standards Committee MD156 Working Group 4 on the COHR to prepare the actual standard specification. This progression allows for variance of technical application, where the developer has wide freedom of expres-



Dr. Diehl is currently deputy project manager of the Department of Defense Dental Standard System and an informatics consultant to the ADA.

Figure 1. The Public Health Basis of the COHR Concept Model, derived from Feldstein (1967), Bradbury (1977), Donabedian (1980, 82), Veney and Kaluzny (1991).



sion, while retaining an identical conceptual and data foundation.

As a precursor to model development, the Council on Dental Practice working group identified the need to understand the clinical activities to be supported and to develop a conceptual model of the data necessary to support these activities using a generic entity-relationship approach. [An IDEF (for ICAM Definition) methodology was selected as the appropriate information engineering toolset.]

Drafts of the key data views of the concept model were prepared from information provided by the working group in August, 1994. By February, 1995 the remaining data views were ready for review by the working group. The model was modified and approved by the working group in April; in May, the Council on Dental Practice approved public release of the model for general comment.

Nature of the Model

A model is a representation of reality. The purpose of the COHR concept model is to provide a basis of understanding from which a standard specification for the COHR may be rationally developed. Where previous efforts at defining the COHR concentrated solely on the structure of data, the ADA effort first focused on understanding the clinical process and then deriving the data needed to support these activities.

As illustrated in Figure 1, the concept model has a public health foundation. A population seeks dental care; resources are consumed and a more healthful patient population results. In quality terms, the inputs are the structural elements, the oral health care activities are process elements, and the resultant healthy population is an outcome. The key activity is the patient care encounter, in which a set of clinical activities common to all healing professions can be derived. The resource elements consumed have value as cost, and the outcome has a value-added benefit to the person and society.

In its most fundamental form, the clinical process consists of: an examination and other tasks which acquire patient data; the diagnosis or decision — making task; a treatment or service planning task; and finally an intervention or treatment task. Quality assessment entails a reiteration of these steps with the decision being a determination of if and what quality improvement intervention is required. The data required to support these tasks comprises clusters as a patient data base, the differential diagnosis, the treatment or service plan, and treatment provided documentation.

Each of the four clusters of clinical data, or data views, requires nonclinical supporting data. For example, patient registration and demographic information is needed to identify and characterize the patient. A reference view of services and procedures is needed to support the examination and treatment tasks. Additional data, such as relating to patient and organization communications or the acknowledgment of obligations associated with a treatment plan, require further supporting data views.

Where Does It Go From Here?

Consensus has been obtained on the fundamental nature of the concept model. In the future this consensus and the model itself will evolve to reflect increasing sophistication and changes in clinical care delivery. The concept model has begun the transformation into a logical data model. This step consolidates the independent data views and ensures technical precision and accuracy. The logical model will then be

transformed into a physical model through specification of each data element type and size, acceptable values, and any specific rules which may be associated with it. This physical model will then form the basis the COHR specification from which developers can build standardized databases.

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Broad-Based Consensus Is Needed in Developing Standards and Technologies

Michael McGinley

Through its InfoTech Conference and other deliberations, the American College of Dentists plays an important role, adding its voice to discussion of the ethical and other implications of "the dental office of the future."

Several institutions are developing standards that have the potential to affect every dentist in the United States. The most notable of these are the Accredited Standards Committee, the American Dental Association (ADA) and the National Dental EDI Council. Key developments in standards, office automation and the movement towards the paperless dental office are underway. The American College of Dentists (ACD) can influence these developments by participating with each of these councils, to ensure that its commitment to the public's oral health and the profession's dedication to quality is incorporated.

The development of the computer-based oral health record (COHR) is probably the foremost example of where the ACD can add its counsel and help identify ways to make the COHR an effective and widely accepted tool. This paper addresses several issues that may be important in making this undertaking successful.

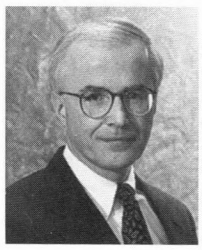
Distinguishing Dentistry from the Greater Healthcare Arena

In developing still-needed standards, we can learn from the past. Wherever possible, the differences between dentistry and the rest of the healthcare arena should be evaluated and decisions made whether it is appropriate for dental perspectives to be included in or excluded from larger standards. For example, the basic standard for transmission of health claims from provider to payor was developed by the Accredited Standards Committee's X12N subcommittee. The standard, known familiarly but inaccurately as the "ANSI 837," is the same for any health claim — whether from physician, dentist, hospital, or other provider. As a result, transmitting dental claim information is needlessly complex and difficult for small offices to adopt. This explains why few in the dental industry follow the "837," although it's been the official industry standard for several years.

When the X12N subcommittee worked on the healthcare claim standard, the dental industry was represented by the ADA, some Delta Plans and a few others. These representatives were greatly outnumbered by the representatives of health insurance carriers, hospital consortiums and the like. There was no way for dentistry to argue that the differences between a dental claim and other health claims were sufficient to justify a separate, streamlined standard for dentistry. Fortunately, the ADA developed an implementation guide to assist office management through the complexities of the "837." This may improve the standard's acceptance.

Electronic Data Interchange (EDI) Standards Group Offers Model for Cooperation

One group is working to prevent the same situation from recurring at the next stage of electronic claims. The National Dental EDI Council (NDEDIC) developed a standard for interactive, real-time electronic claims specifically limited to dental claims. A real-time transmission is beneficial to the dental office because it permits the carrier to process the claim and identify the covered benefit while the patient is still in the office. This standard may have a better chance of succeeding than the "837" because it was created by a broad



Mr. McGinley is Vice President, Public and Professional Relations, Delta Dental Plan of California.

consensus of all of the parties who will be affected by it — dentists, office management vendors, carriers and clearinghouses, and others.

Standards are more likely to be widely accepted when they take into account all stakeholders. It is important that the American College of Dentists and other professional organizations that play a part in standards development continue to solicit the broadest possible base of participation in these efforts. If the profession speaks only to itself or only to a limited number of others, it is possible the work will be for naught.

The development of the COHR offers an excellent opportunity to avert this danger. Without question, the profession must be at the forefront in defining the components of the dental office oral health record. The COHR, as currently envisioned, will serve as a standardized electronic format to record patient treatment information and will be uniform in every dental office. The data ultimately will be used to record, refer and monitor primary and specialty dental care, analyze and project treatment outcomes, track and present patient histories (complete with digitized radiographs), and accumulate many other kinds of oral health data.

Why Others Need Input Into the COHR

As critical as dentistry's role is in defining the COHR and ensuring that it safeguards the interests of the dentist and the patient, it would be a mistake to develop this valuable tool in isolation from other interested constituencies. A computer-based oral health record will need to communicate readily with the dental office's business management system. Licensing and regulatory authorities must be satisfied that it contains effective safeguards against tampering. It must facilitate transmitting relevant clinical data between the dental office and the patient's carrier, particularly in managed care settings. These interconnections suggest this is the time — at the earliest stage of the COHR's development — to involve many outside of the profession.

It is interesting to note there is one constituency the profession has never (to my knowledge) involved in its discussions on standards. In some respects, the purchaser — which is to say the corporation and/or entity that selects and pays for dental benefit coverage for its employees and members — may be the entity with the greatest clout. In 1993, an estimated $18 billion of dental treatment was funded by employer-sponsored programs. This is 44% of the total expenditure for dental services and does not include government-sponsored programs. Naturally, both the dental benefits industry and the profession firmly believe the public's dental health has greatly improved over the past twenty years because of these programs. We must now prove this with hard data.

The COHR gives hope this evidence will be forthcoming and it is important for purchasers and their consultants to be brought into the formative work now underway. If purchasers are not part of the development work, they will be skeptical of the product. If purchasers aren't satisfied with the speed of introducing tools like the COHR, they will use whatever tools are available, even those developed with little to no input from the profession. Purchasers show no inclination to wait.

Large benefit consulting firms are used by most major employers to advise on benefit plans. Over the past decade, these consultants have become adept at reviewing data from medical PPOs and HMOs to determine effectiveness at maintaining the health of the covered population at competitive costs. Consultants already are looking at the delivery of dental benefits in the same way. Using only data from claims, they seek to draw conclusions about the value of the coverage and even of the quality of the dentistry being provided.

Why Carrier Claims Data Cannot Be Used

There are clear problems with this approach. First, payors store data only to process claims. It is common for payors to retain records of claims for prophylaxis treatments, simple restorations, and the like for only eighteen months. These procedures then become largely irrelevant in the evaluation of future claims. Records of crown and bridge procedures are usually purged from the data record after five years.

Storing data is expensive and payors have little incentive to keep data for research purposes only. This foils the researcher who may want to use payors' claim data to determine something as simple as whether patients who receive prophylaxis treatments twice a year have better oral health than those who receive professional cleanings every two years.

Another limitation of drawing valid oral health conclusions from insurance claims is that payors retain only procedure code information. There is no accepted methodology for dentists to report, or for payors to retain in an accessible format, many of the elements of patient care that determine the treatment plan, including diagnosis and the patient's medical/dental history. If diagnostic codes did exist, there is no certainty carriers would preserve them in the data record. In the absence of these data, conclusions about oral health status or outcomes are suspect.

The payor may not even preserve a record of the procedure code reported by the attending dentist because its pro-

cessing system may save only the code of the procedure that was benefited. Some payors keep no data on procedures that are not benefits of the member's program. Thus, reliance on payor data will thwart interpreting treatment in its context, as when there is a record of extraction of asymptomatic teeth but no record of concurrent orthodontic care because orthodontics were not covered.

Lack of Data Leads Purchasers to Question Dentistry's Effectiveness

Data limitations have not kept the benefits consulting industry from drawing conclusions. Payors are challenged routinely to justify their program design in the face of these conclusions. For example, it is common for a carrier to be asked to justify why the incidence of cast restorations continues to increase in a stable population covered for many years, or, why one dental office reports four prophylaxis treatments for every one quadrant of root planing, while another reports four quadrants of root planing for every routine prophylaxis. The question underlying these challenges is: If dental care is truly prevention oriented, and if our company has spent millions of dollars on dental coverage for more than a decade, why isn't our expense reducing or at least stabilizing?

This leads some purchasers to question the value of dental benefit coverage entirely. It is not enough for the payor industry or the profession to rely on statistics indicating insured individuals seek dental care 40% more often than the uninsured, or that they utilize $128 more of services annually. Sophisticated purchasers are not convinced that more dentistry is better dentistry.

Those administering benefits for the dental industry see the COHR as an excellent first step toward a remedy. It has the potential to provide researchers with access to comprehensive, meaningful data that far exceed the data held by payors. It may finally provide a cost-effective way to assess the effect of various benefit programs on oral health over the long-term. If purchasers are asked to honor these conclusions, they must be active in developing the COHR.

Model for Cooperation: HDIC Network in California

Cooperation among such disparate parties is possible. An example of what cooperation can produce was recently announced by Healthcare Data International Corp. (HDIC), a consortium of thirty-four of the largest members in the California healthcare community. HDIC is launching a two-phase plan to link records of more than twelve million Californians with hospitals, provider associations, employer coalitions, governmental entities, and healthcare payors. When completed, the network is projected to save $2 billion to $3 billion dollars annually from the state healthcare budget from reduced administrative expenses. Among other features, this network and the standardized records it will carry will enable physicians to order lab tests, submit prescriptions, consult electronically, and access medical information databases. The premise for this cooperation stems from recognizing that a patient's health record should include not only information needed to administer treatment and evaluate probable treatment outcomes but should also facilitate the payment processes and economic considerations that can factor into a treatment recommendation.

The COHR would greatly benefit from a similar cooperative effort between dentists and dental plan sponsors and payors. Dental leaders naturally should be the driving force behind the COHR's development, but the input of payors and purchasers should be considered. Working together, these parties can reach a consensus that ensures continuation of employer-sponsored dental benefit programs and continued growth in the public use of and reliance on professional dental care. In turn, the profession can realize its ultimate goal of achieving excellent oral health among the public and greater recognition of its contribution to oral health among a somewhat skeptical purchasing community whose goodwill and financial support are key.

The National Information Infrastructure and Health Care: An Overview of Key Agencies

Sherry L. Keramidas, PhD, CAE

An interconnection of computer networks, telecommunication services and applications, the National Information Infrastructure can open up new vistas and profoundly change much of America's life, not by the fact that it exists but by the way it is used.

Over the past two years, the National Information Infrastructure (NII) initiatives have spurred activities examining applications of technology to many areas including education, telecommunication, and health care. The Administration's Committee on Applications and Technology of the Information Infrastructure notes:

Implementation of wide-area, comprehensive, integrated, networked information systems is a logical response to the challenges faced by the nation's health care delivery system. These challenges arise from several sources: dissatisfaction over rising health expenditures, in both private and public health care programs, concern over the personal health security issues of access and continuity of insurance coverage, and serious questions about the uneven quality and appropriateness of health care.[2]

Information technology is playing an ever-increasing role in streamlining administrative and billing procedures, enhancing storage and communication of information, providing access to patients through telehealth care, and using on-line databases to handle difficult cases and track new clinical developments. A 1992 study by Arthur D. Little, Inc. concluded that health care costs in the U.S. can be reduced by more than $36 billion annually by applying selected information technology applications.[3]

Applications of the NII may offer significant potential for reducing unnecessary costs for health services while improving quality and access. The NII is envisioned as offering provider, consumers, hospitals, payers, and managers accessible information necessary to make informed choices about health care options. Further, NII initiatives to develop standards for defining, collecting, storing, and communicating clinical data will be valuable for determining cost-effective treatment methods; national database networks will offer accessible sources of information on the latest treatments as well as a vehicle for linking patient outcomes in various practice settings.

NII initiatives, and any information technology efforts in the health arena must involve government and private sector activities. During the ACD's July 1995 InfoTech Conference, two key federal agencies involved in information technology frontiers in health care offered insights into their program and efforts. The following summarizes the NII related activities of the National Library of Medicine (NLM) and the Agency for Health Care Policy and Research (AHCPR), agencies within the Department of Health and Human Services.

National Library of Medicine

The National Library of Medicine (NLM) is the world's largest research library in health related areas. The Library's resources comprehensively cover all health sciences. In addition to its collection of over five million books, journals, reports, and microfilms, the NLM maintains comprehensive computerized databases to the professional health literature and other resources that are accessible from sites worldwide. Annual searches of the NLM databases was 6.9 million in 1994.

The NLM also plays a central role in efforts to effectively integrate informa-

The information age is shaping virtually all aspects of our society and our nation, from business and economics to education, communication, foreign policy, health, and even the operation of government agencies. Recognizing the challenges and opportunities, the Clinton administration and the federal government have assumed an active role in a public-private partnership designed to move the U.S. into an effective information age. The basic plans for federal initiatives were outlined in September 1993 in the report The National Information Infrastructure: Agenda for Action.

Ronald H. Brown, U.S., Secretary of Commerce[1]

tion technology into health care and the related professions. Foremost, NLM produces databases and information services that provide access to the scientific knowledge underpinning biomedical research and health care and are the most widely used medical information resources in the world. NLM on-line databases offer access to clinical practice guidelines combining images and full text; the developing "Visible Human" digital library of image data from photographic, computed tomography, and magnetic resonance imaging of complete male and female bodies for a range of educational and health care applications.

The Unified Medical Language System (UMLS) Project of NLM focuses on linking terms and codes in patient records to evidence-based knowledge such as that in practice guidelines and the scientific literature. Through the development of the Metathesaurus that connects the various computerized coding schemes and controlled vocabularies and an Information Sources Map that will support automated selection of databases containing information relevant to particular information needs, the UMLS is providing tools for successful navigation among the growing number of health care information resources and for capturing and encoding patient data.

The NLM's High Performance Computing and Communications (HPCC) program is a focal point for many NII and information technology initiatives, funding research in the areas of testbed networks linking health care organizations, telehealth care, and development of computer-based patient record systems and for collaboration and joint funding with other agencies. Development of computer-based patient record systems bridges into the NLM's National Information Center on Health Services Research and Health Care Technology (NICHSR), since data collected as a byproduct of current health care delivery can greatly enhance the quality and timeliness of health services research, including outcomes studies. Linking major health institutions to initiate the information flow is a joint project of the NLM and the National Science Foundation (Medical Connections). Finally, the NLM supports the development of enterprise-wide Integrated Advanced Information Management Systems (IAIMS) and Medical Informatics training for health and information professionals.

Agency for Health Care Policy and Research (AHCPR)

The AHCPR, established by Congress in 1989, is the major Federal agency responsible for determining ways to improve quality of and access to health care and for determining that health care is effective. AHCPR undertakes its charge through support of health services research aimed at improving care delivery and understanding outcomes of care, development of clinical practice guidelines, and dissemination projects. For a more comprehensive summary of the AHCPR, refer to the *Journal of the American College of Dentists*, Spring 1994.

The AHCPR also is a vital part of efforts to effectively integrate information technology into health care. Through its Medical Treatment Effectiveness Program (MEDTEP) which supports health care effectiveness research and development of practice guidelines, the agency seeks to continuously expand the knowledge built into health databases. AHCPR also supports development and evaluation of computer-based patient record systems and attendant clinical computer decision support systems as well as studies of the impact of these systems on health care delivery

and outcomes. Through its Office of Science and Data Development, AHCPR promotes the coordination of the developers of patient care data standards and the analysis of confidentiality and privacy issues concerning researcher access to patient care data.

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Other Federal Agencies Involved in the NII

Health Care Financing Administration (HCFA) has the most comprehensive healthcare database in the world, supporting the Medicare and Medicaid programs. HCFA uses clinical data to assure quality and appropriateness of care provided to beneficiaries and shares this information to facilitate research and healthcare policy development. HCFA also participates in developing data standards and electronic claim procedures; an active member in ANSI-Accredited Standards Committees and ANSI's Healthcare Standards Planning Panel. HCFA also supports research on telehealth care projects in rural areas and on payment methodology for telehealth care consultations.

Department of Commerce's National Telecommunications and Information Administration (NTIA) supports some pilot demonstrations designed to develop and promote information technology applications that will educate, restrain healthcare costs, improve quality, and increase access to health care, with the potential for wide-scale deployment and interconnection over NII networks.

Department of Commerce's National Institute for Standards and Technology (NIST) is active in several standards development efforts related to health care. The NIST also has a cooperative research and development agreement with private industry in medical information systems/architecture standards, which draws upon NIST's experience with electronic data interchange.

Department of Veterans Affairs (VA) operates one hundred seventy-one medical centers supported with a hospital information system called the Decentralized Hospital Computer Program (DHCP) comprised of sixty public domain software modules supporting functions such as admissions, pharmacy, laboratories, medicine, order entry, health summary, engineering, purchasing, and finance. These modules are being used by other public and private agencies and groups.

VA also works on enhancing digital connections among sites, data transfer, imaging and electronic patient records.

Department of Defense, Office of Health Affairs supported development of a Comprehensive Healthcare System leading to six modules deployed world-wide. The Department was also charged by Congress to deliver a plan for developing and deploying a computer-based patient record in military settings. Also working on medical diagnosis and imaging support systems and electronic transmissions of digital images via satellite.

Department of Agriculture through the Rural Electrification Administration (REA) offers the Distance Learning and Medical Link Grant Program (DLMLGP), demonstrating the ability of rural communities to utilize telecommunications for cost-effective distance learning and health links networks.

National Aeronautics and Space Administration (NASA) has been a pioneer in telehealth care for over thirty years with projects in space and in remote, underserved areas on earth. NASA's experience in telehealth care and communications technologies has helped promote the practice of telehealth care across the globe.

Trial by Innuendo

At the state dental association meeting you find yourself having a stand-up lunch with a dental school classmate you haven't seen in several years.

After the usual personal inquiries and pleasantries, your classmate broaches the topic of decaying standards in the profession. At first there are some general comments about insurance companies and recent graduates; then he focused on managed care and one particular dentist in his hometown (evidently there are only three or four dentists in his area).

"I never thought I would live to see the day when professionalism is reduced to being nothing more than the subject of editorials," he begins. "This guy in town — I won't mention any names because at least I'm professional — never produced the highest quality dentistry. I've seen a lot of his work. You can overlook a few problems. Who am I to judge; I mean, I didn't see the original cases. But recently it's become outrageous. I heard he signed up for several capitation programs, and who knows what they are paying. I have heard six or seven dollars. No one can provide ethical care at those rates. Don't you agree?"

You mumble something through your sandwich, surprised by the intensity of your classmate's attack. You are trying to be appropriately noncommittal.

Evidently, your classmate interprets your response as encouragement. "Somebody ought to get this guy before the ethics committee. This kind of thing is pulling down the whole profession. If I told you who it is you would be amazed. He went to school with us, just a few years behind us."

"Last week, Meg Priestly saw one of this guy's patients on an emergency basis and she said she wasn't certain whether she was more offended by the neglect or the shoddy work. I can believe it. I'll bet you've seen the same or worse where you practice because I know there are more of these 'mills' in the cities. Right?"

This time you just slowly sip your coffee and stare back. But that is sufficient agreement. "I would say something, but you know if you do you're going to get sued five ways to Sunday. Of course I wouldn't want to damage the reputation of one of our classmates who had a classic '52 Chevy in school and now can obviously afford better cars than either of us will ever own. Thank goodness there are still a few ethical dentists left in this world."

"Nice talking to you."

What, if anything, should you say to your classmate at this point?
What, if anything, should you say to others?
Is there a general underlying ethical issue or principle involved in this case?

The American College of Dentists has taken a leadership position in dental ethics and professionalism. Part of its responsibility in this role involves placing before Fellows and others practical ethical issues for analysis and discussion. Ethics is neither a private matter nor an academic one. Several Fellows responded to the case of *Trial by Innuendo*; you are invited to comment on the second case.

James L. Palmisano, DDS
Regent
3 Bay Point Drive
Toms River, NJ 08753

The classmate was not professional in his handling of this matter.

Being a professional means, first of all, you act ethically and that you police the profession. The complaining classmate hurt the patient and the profession; it appears he was more concerned that the treating dentist participated in capitation programs.

While I personally do not agree with capitation programs, participation in these programs does not automatically make one an unethical dentist. The classmate is a third party in this situation and he is spreading a possible falsehood about the first treating dentist.

Meg Priestly, who told the classmate about the situation, is wrong and acted unethically. It was her duty to tell the patient the diagnosis and then, with the

patient's permission, call the original treating dentist. She should discuss her findings with the original dentist. After all, she does not know the circumstances under which the treatment was rendered and should reserve judgment about another dentist's competence. If the original dentist does not volunteer to see the patient again or is abusive, then Meg should advocate the use of peer review to the patient. By doing it this way, she would be acting as a professional.

A professional should never breach patient confidentiality by discussing the case with others without the patient's permission.

I would have told the classmate in no uncertain terms that both he and Meg handled the situation unethically. I would then proceed to describe the proper way to handle the situation. I would definitely not repeat the situation to others.

"Do no harm" and "confidentiality" are the principals involved in this situation.

Alvin B. Rosenblum, DDS
1950 Sawtelle Blvd, #100
Los Angeles, CA 90025

Anyone analyzing this case begins with a bias created by the title and the descriptive terms used by the author. Essentially the title "innuendo" gives us the essence of the ethics violation in this case. Innuendo hints of wrong-doing without supporting evidence and is improper.

To minimize such biases and come as close as we can to a reasoned solution to any case, we must evaluate the behavior of everyone involved. We must also evaluate each relevant event in the case. Both should be accessed using the established ethics principles.

Three people are involved in this case — you, Meg Priestly, and the accused dentist. The ethics principles are: ***veracity, autonomy, beneficence, non-maleficence, justice, and reparation***.

The events analysis [listed as a)]

1. You are having lunch with a classmate

1 a) *No significant ethics component*

2. He makes some remarks about insurance companies and recent graduates, presumably of a negative nature.

2 a) *Comments may be uncalled for but seem to be simply an expression of opinion to which he was entitled. If you are uncomfortable or unhappy with this line of conversation you should change the subject.*

3. He focuses on managed care and on a particular dentist. (Again we are to assume these comments are negative.)

3 *a) His comment about insurance companies and managed care seems to fall in the same category as #2 above, an expression of opinion. His reference to a particular dentist alerts us to potential ethics violation.*

4. He thinks professionalism has been reduced to the subject of editorials.

4 a) *His expression of concern about professionalism can be viewed as concern and complaint and, except for the discomfort it may have caused you, if the encounter ended at this stage, one would be hard pressed to ascribe an ethics component.*

5. He focuses on the individual dentist saying "who am I to judge," while judging both the dentist and capitation programs.

5 a) *His focus on the individual dentist is ethically questionable. The ethics principle of justice comes into play at this point. Is it fair for him to be critical of another dentist when only his point of view can be heard? The ethics principle of non-maleficence (do no harm) may apply. One can argue that harm is being done to the reputation of the dentist.*

6. You mumble in surprise and try to remain noncommittal.

6 a) *Your silence seems to give tacit approval to his point of view. One can argue that you have a duty to express your surprise and state your opinion. You might even suggest his information is misdirected.*

7. He says "somebody ought to get this guy before the ethics committee" and gives another clue to the identity of the other dentist.

7 a) *He is here clearly maligning the other dentist and one can argue more strongly that you should respond. The appropriate response should be that you would rather not take part in further conversation on the subject. Or you could say if he feels that strongly and can document his assertions he should abide by the ADA Principles of Ethics and Code of Professional Conduct and report the alleged behavior to the appropriate reviewing agency.*

8. He says Meg Priestly told him of shoddy work and neglect on a mutual patient.

8 a) *He should have advised Meg Priestly to discuss the matter with the alleged offending dentist and report it if the facts warrant. His passing on this information is hearsay and can only do harm. This constitutes a violation of the principal of non-maleficence. You should say this to him.*

9. You are still noncommittal.

9 a) *At this point a very strong argument can be made that by not responding you are giving tacit approval to his behavior. An expression of concern is appropriate even if you agree with his general position. Your behavior is now in question from an ethics perspective.*

10. While denying any effort to damage the accused classmate's reputation, he again gives another clue to the classmate's identity and implies that he

has ill-gotten gains.

10 a) *Unquestionably he has now overstepped the bounds of propriety. He wants you to know who he is talking about. He intends to do harm. You have an obligation to set him straight. By not doing so you encourage him to continue his campaign of innuendo. You have now violated the ethics principle of beneficence by failing to do the right thing. You have also violated the principle of non-maleficence by contributing to harm done. And, one can also make the case that justice and veracity have not been served.*

The *Journal* invites comment on *The Report*, the ethics case that appears below. Views should be 200-400 words and should be faxed to the Editor (David W. Chambers) at (415) 929-6435 no later than Friday, 26 April 1996. Submissions will be peer reviewed and edited to fit with other responses. The most useful combination of responses will be published in the June 1996 issue of the *Journal*.

Upcoming Ethics Case

The Report

It was one of those strange conversations that take place at meetings of state dental association councils; three members who are only acquaintances arrive twenty minutes early and all there is available is coffee and small talk.

"What do you think of the Foghorn Commission Report?" ventured Bernard. "Well, I wasn't entirely impressed," volleyed Martha. Charles added, "Yea, well, you know the definition of a committee..." Long silence and searches for nondairy creamer.

Finally Charles takes up the topic in earnest. "I'll tell you what I really think about that Foghorn thing; I think somebody's nuts. The whole thing is arrogant. It's out of touch with real dentists. The idealism may be a nice touch in dental schools or big organizations, but it sure as heck doesn't meet my needs. It's obvious to me that there must have been some people on that commission who don't have to practice dentistry for a living."

Bernard and Martha look a bit shocked. Finally Bernard answers, "Well one thing you'll have to give them — their position on continuing education is right on the mark. I have been saying for years that this is the bigest blight on the profession. Finally somebody had the nerve to step up and name the problem and suggest some practical solutions."

"Now I'm confused," said Martha. "I haven't read the report, but I have seen a number of editorials. To tell you the truth, I can't tell from those editorials just what is in the report, but I haven't seen anything about CE." "Well, what do you think the reference to non-traditional educational settings is about anyway, if it's not CE?" shot back Bernard. "I tell you, if you throw away the whole report and just keep this one part, that commission has done an invaluable service to the profession in pointing out this widespread evil."

Charles is now at his cynical best. "You wish. I haven't read it either, but a lot of my friends have warned me about it. I understand that nontraditional educational settings refers to unaccredited dental programs, probably including illegal functions for auxiliaries as well. It never should have happened in the first place, and the best thing we can do now is bury this thing and take control of our own destiny."

"I don't mean any offense, doctor, but it seems narrow minded to throw the whole thing out just because you don't like part of it. As I say, the legitimization of the CE problem is sufficient justification to take this seriously. This is the key to our profession's future."

Now Martha seems a bit superior as she muses. "You're both taking a rather naive view, as I see it. One of you hasn't read it but seems to have found enough evil to have it burned. The other probably read it from cover to cover and only found one possible confirmation of a previous personal view. This is what I hate about dental politics. And you've convinced me, from now on I won't even read the editorials."

Charting the Course of Dental Journalism — How a 1932 ACD Study Changed Dentistry in Print

Eric K. Curtis, DDS, FACD

Everybody in America reads," wrote Yale professor Henry Seidel Canby in 1915, "from the messenger boy to the corporation president." It has always been so. The *Mayflower* carried, among other things, a cache of books. The general male literacy rate in 17th century England was no more than 40%, points out communications theorist Neil Postman in his 1985 study *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*, while as many as 90% of men in the Massachusetts of 1640 could read. Fast forward almost three hundred years. By the 20th century, that literate population was restless and hungry.

Life was suddenly becoming more complicated. "Our lives, even our so-called leisure hours, are hectically speeded up," wrote an engineer in 1930, quoted in James L. Baughman's 1987 book *Henry R. Luce and the Rise of the American News Media*. "On Sundays we rush about in cars at forty miles an hour (or more), cursing those ahead for blocking traffic. Or we play golf and yell "fore!" at every man we catch sight of. We have roving minds."

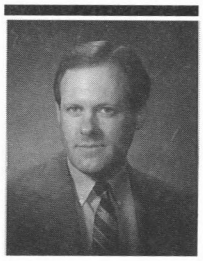
The engineer's (and Baughman's) point was that the mounting sophistication of the 1920s cultural milieu intensified, focused, and accelerated the nation's demand for cogent reading material. The United States was already measuring itself by the things that would define it for the rest of the century: technology and global influence. The new awareness of eminence heightened the American urge for knowledge. And not just raw knowledge, but accessible, contextual knowledge for facilitating understanding for decision-making, for managing the manic pace of progress. America craved journalism.

"We have found the specialist efficient in producing knowledge," said a 1920s era college president, "but [we] need the journalist to put it to work." Sensing the prodromal tingling of the approaching information age, Henry Luce launched *Time* magazine in 1922. "The hope of Democracy is Intelligence," he said when asked the magazine's purpose, "and the food of Intelligence is Information."

Early Dental Journalism

Substitute "Dentistry" for "Democracy," and it might have been another Henry talking. Henry L. Banzhaf was president of the seven-year-old American College of Dentists in 1928 when he announced in his presidential address, "The time has come when the College must begin its work of service — it must begin to fulfill the expectations of its founders. The tremendous potential energy for good that this organization possesses must be released."

One of the College's first priorities, appropriately enough, was to investigate the state of dental journalism. Just as Luce and his partner Briton Haddon discerned that America's progress would be more profoundly documented and influenced by not just delivering the news, but distilling and interpreting it, Banzhaf understood that the progress of American dentistry would be affected by the slant of the journals that served it.



Dr. Curtis is in private practice in Safford, AZ. He is a dental historian and editor of the *Journal of the Arizona State Dental Association*.

For transforming dentistry into a bona fide profession, early dental leaders agreed on the importance of three key ingredients: schools, societies, and journals.

Dentistry had emerged as a profession in the first place on the back of journalism. Reputable dentists of the 1830s, either formally trained as physicians or through apprenticeship to established practitioners, were looking for ways, as one historian puts it, to fight "the twin demons of incompetence and quackery." Legitimacy seemed to depend on organizing, codifying, and passing on knowledge. For transforming dentistry into a bona fide profession, early dental leaders agreed on the importance of three key ingredients: schools, societies, and journals. The latter, naturally, came first. *The American Journal of Dental Science* debuted in 1839, a year before the Baltimore College of Dental Surgery and the American Society of Dental Surgeons. Its publishing committee argued that "the publication of such a Journal will have the effect of giving dignity and importance to the general subject of Practical Dentistry; and thus result in solid advantage to each and all of its professors, as well as the community at large."

But because there were few legitimate dentists in practice, subscriptions were spotty and financial problems plagued the magazine. By mid-century, dental manufacturers and supply houses began developing trade magazines backed by corporate money. Dentists were used to counting on supply houses and their detail men for news and advice as well as equipment, and the magazines seemed a natural extension of that comfortable, casual system of professional discourse. Trade journalism, which by one count included some thirty periodicals by the turn of the 20th century, thrived.

The trade magazines bolstered their appeal by their accessibility (a supply-house salesman would simply add the subscription price, practically unnoticed, to the bills of his dentist customers) and the practice of inviting dental societies to submit announcements and opinions for publication. By 1929, some sixty-nine local, state, and regional dental organizations had gone so far as to formally designate a trade magazine as official organ of society publication. *The Dental Cosmos*, for example, published since 1859 and circulated by the S.S. White Company, was sanctioned by the American Dental Association itself. In 1936 *The Dental Cosmos* merged with the ADA *Journal* to become the *Journal of the American Dental Association and the Cosmos*. For two years, until the name disappeared from the journal's masthead in 1938, the ADA listed S.S. White's old supply house magazine as an official publication.

The practice of piggybacking dental society business onto proprietary trade magazines was temptingly convenient and cost-effective (read: free to the various dental societies involved). However, the obvious conflict of interest attracted a number of critics. After all, the journals' primary purpose was not to disseminate information but to stimulate business for the supply-house publisher.

In 1877 *The Canada Journal of Dental Science* observed, "It is a fact that our dental journals are mainly advertising mediums for manufacturers and colleges who own them; that while they are in a measure exponents of professional thought, they are first of all monthly advertisements for their proprietors." In 1889 Dr. Louis Jack of Philadelphia wrote, "What the press performs for the public, dental journalism should do for dentistry, and those controlling the latter should have an eye single to the higher interest of dentistry. It is a fact with which you are all

familiar, that dental journalism has for many years, with little exception, been under the management of persons engaged in commercial pursuits, and whatever their pretensions may have been, they have failed editorially to discuss the questions concerning us, as they have arisen, without the bias of their business interest."

The famous dental reformer William J. Gies broadsided the supply-house dental magazine when he said in a 1916 address to Boston dentists: "Trade journalism in a profession is a form of vulgar autocracy. When it is benevolent, it pauperizes; when it is benignant, it patronizes; when it dominates, it demoralizes. Like autocracy, it exploits those who maintain it, it misrepresents those who trust it; it seeks to destroy those who challenge it."

The College Takes a Stand

The ACD's Council on Journalism, after a three-year study completed in 1932, took up Gies' argument calling for the development of non-commercial dental journalism. Its book-length report, *The Status of Dental Journalism in the United States*, recommended in 1932 that the profession increase the volume and circulation of "non-proprietary journals in dentistry," create new periodicals, and negotiate to essentially buy out existing trade magazines for conversion to independent journals.

The die was cast, but the transition was painful and messy. Several well-regarded, influential dental leaders edited trade journals, and bridled at the accusation of being part of a "captive press." The ADA Journal itself dropped its Dental Cosmos hybrid identity only when Cosmos editor Pierce Anthony became ADA editor in 1938. The dental historian M.D.K. Bremner noted acidly that "the great journal [Cosmos] has now been entirely forgotten. The purists were jubilant, but some more practical men felt it would have been wiser to have let time take its course. The Cosmos...was certainly hewing to the professional line with little if any taint of commercialism in its pages, and [at any rate] the profession was not yet ready to provide space for all the material available for publication..."

Bremner argued that economics rather than idealism extinguished the trade journals. Referring to the ADA's own publication, started as an "Official Bulletin" in 1913 and renamed *Journal of the American Dental Association* in 1922, Bremner wrote, "The big factor in its success has been the arrangement whereby the subscription is included in the dues of every member, thus giving the Journal a larger circulation than any other publisher.... Obviously such a dependable circulation made the Journal the best advertising medium in the field." Bremner, however, may not have been an altogether unbiased observer. His own book, *The Story of Dentistry*, which carried that opinion, was published in 1939 by the Dental Items of Interest Publishing Company—a subsidiary of a dental supply house that published a well-known magazine of the same name.

Whatever the means, the dental profession had dramatically altered its journalistic course. An official call for journal reform had been made and responded to. For its part, the ACD Council on Journalism also proposed a new ACD journal. The quarterly was launched in 1934. Gies himself was appointed the journal's first editor; John E. Gurley of San Francisco became associate editor, and also succeed Gies at the helm of the publication. Yet before its study was even published, the College moved ahead to implement the journalism commission's recommendations. In 1931, the ACD established the American Association of Dental Editors (AADE), an independent entity dedicated to promoting non-proprietary dental journalism.

The movement that reshaped dentistry's written communications was so successful that it disappeared. Trade journals lost their dominance, and their threat, to the extent that at least one prominent commercial dental magazine today is even a member of the AADE. The limitation of access, which defenders of trade journalism such as Bremner decried, continues. (For example, refereed dental journals may require waiting periods of two years or more, by which time, critics contend, the research or information contained may have lost its timeliness.) Nevertheless, at least in part as a result of American College of Dentists' recommendations, current American dental journalism is largely independent of commercial influence.

Leadership — The Learning Organization

David W. Chambers, EdM, MBA, PhD, FACD

A learning organization is one that uses its collective experience to create new, alternative futures. In an organization that is not learning, the same unfriendly world happens to the group over and over again, or a consultant is hired to design an organization fixed in time to respond to a changing world.

These days we are hearing a lot of pop philosopher Eric Hoffer's observations, "In a time of drastic change, it is the learners who inherit the future. The learned find themselves equipped to live in a world that no longer exists." This insight is equally applicable to individuals, dental offices, Fortune 500 companies, various levels of government, organized dentistry, and dental schools.

Technology has us reeling — for two reasons. First is the time warp caused by the cycle time to develop new technologies (including new treatment modalities, materials, marketing positions, payment mechanisms, staffing pattens, etc.), which is diminishing and approaching the cycle time to learn how to implement these advances. Second, the computer, telephones, faxes and other forms of information technology have shrunk time and distance while providing only minimal improvements in productivity and communication. Innovation is no longer a competitive advantage. Especially in a service profession such as dentistry, the capacity to innovate faster than our dynamic environments is the only sustainable competitive advantage.

A few sports analogies are appropriate. I played defensive end in high school. My coach made it clear to me on more than one occasion that I had to keep my feet moving if I wanted to stay in the same place. The business world has borrowed a metaphor from another sport.; it is called the *Gretsky Principle*. Roughly translated, it says that if you skate to where the puck is you'll always be chasing it. To be effective you must understand the flow of the game so you can anticipate where the puck will be as you are skating to that point.

Learning organizations are where efforts focus on anticipating changes and constant evolution is widespread. Organizations that emphasize fitting people to their roles (socialization), even if these were the optimal roles last year, are not learning organizations. There are a few environments where efficiency, stability, and control through structure are appropriate. Elementary education, bible colleges, family farming, and coal mining are examples. For the rest of us, it is useful to consider the "sloppy" organization where risk, dependence on others, ambiguity, and constant learning are the norm.

People first started writing about the learning organization about two or three years ago. While the concept is still not well enough understood to frame a definitive characterization, I will mention ten features that recur in the literature. This may paint a general overview that is useful.

The imperative to learn. Virtually all writers on the subject begin here. The skills needed for individuals to succeed will not last a professional lifetime. A habit of continuous growth must be built into the routine. Industry in past funded R&D in the neighborhood of 6 to 8%, though the investment climbed recently. Although the learning in an organization is more than the collective or average level of learning of indivdual employees in the organization, it is necessary for a significant number of employees to be committed to continual learning.

No one's learning habits are more important than the leader's, primarily because of the example set. As Yale psychologist Chris Argyris pointed out in a recent *Harvard Business Review* article, "Teaching Smart People How to Learn," those whose effectiveness is based on years of learning are most vulnerable and are least likely to respond in a timely fashion.

The key to continuous learning, according to Peter Senge, one of the most prominent advocates of the learning organization, is to maintain a healthy balance between the vision one needs to achieve and the reality one lives in. This is termed a "creative tension," and it contrasted with the unhealthy emotional tension of fixating on deficits. For Senge, personal mastery is a discipline — the blending of understanding and applied skill — much like what we call competency in dentistry and in education.

Growing people. Learning organizations are designed to promote the personal and professional growth of members. Individuals are recognized as being the most renewable and more leveragable of resources; in many organizations such as dental offices, they are also the largest single category of costs. There was a time in the 1970s and 80s when organizations tried to be good citizens by offering educational and other growth opportunities to employees as a fringe benefit paid out of profits. The logic of learning organizations is quite different — all employees are expected to engage in learning for the sake of strengthening the organization and building its profits.

Shared vision. Vision, a clear and motivating image of an attainable future, has always been central to the success of organizations. It takes on special meaning in the case of learning organizations. Because the fear that comes from intimidation and narrowly prescribed requirements for behavior are inimicable to the curiosity and creativity of learning, there is a control vacuum. How are people to be directed, coordinated, motivated, and kept from abusing the privileges of the organization if they can't be commanded, carefully supervised, and regulated?

The answer is: a vision must be shared throughout the organization. The assumption is that people enjoy being part of a successful group and the pressures, both personal and peer, flowing from striving for a common and widely supported goal are more effective than is direct control — and they are much less expensive as well. Shared vision is akin to the survival instincts of individuals which direct and energize learning in powerful ways, on a larger scale.

There is an independent line of reasoning in management literature that the primary function of a leader is to articulate an organization's vision and create a culture that can be pursued. The shared vision of the learning organization is something more than this. The vision must be a synthesis (not a vote or consensus on the lowest common denominator) of personal visions of indivduals in the organization. It cannot be created at the top and "sold" to the rank and file.

Minimally edited communication. Communication within the organization is an obvious feature of the learning organization. The analogy is the central nervous system, connecting sensory input, reasoning, memory, emotion, and other functions of learning. The communication must be rich, timely, personal, redundant, and intelligible.

But the critical feature of communication in learning organizations is relative freedom from being edited. Constant meetings, newsletters, ccs on every memo, and endless reports can actually suffocate communication. An organization cannot function effectively and learn from experiences in other parts of the organization if some information is withheld or if it is distorted. The acid test is whether bad news travels up and as quickly as good news travels down.

Organizational memory. A prerequisite for individual learning is sufficient memory to interpret present experience in light of goals and previous experience. Without it, behavior tends to be random and repetitious. The same is true for organizations, which reinforces the need for good minutes, documented policy, accurate and timely accounting data, and statistics on all key processes and resources. Less obvious, but quite important, are the organization's ceremonies, symbols, and repetoir of culture stories and myths. To be effective in promoting learning, group memory should be widely disseminated. Some authors discuss organizational memory under the heading of mental images, schema, or paradigms.

Environmental sensitivity. It isn't the dramatic and sudden changes in the world that trip organizations; it is the inexorable but undetected changes. There is an often told story about the frog dropped in a pan of hot water and jumping right out again. But the frog, scientists would have us believe, placed in cool water over a slow flame will cook nicely while trying to decide when it is hot enough to require moving.

Environmental scanning is critical in a dynamic world. Reading, committee work, visits to suppliers and customers, and even studying competitors are essential. Internal scanning from group to group is also important. The need for sensitivity to the relevant external and internal world created a need for job descriptions with somewhat permeable boundaries.

Flexible networks. Increasingly, work is no longer being done by individuals or by permanent groups. The changing, complex challenges today require teams, often with customized expertise. Consider a TMD patient or one with severe medical complications. The new work style includes access to multiple expertise, as needed. The demands of this work are not for greater technical expertise. To work with teams or to manage them requires social

skills, flexibility, and the ability to develop trust and effective networks. Here, the critical test is: can you work with all the types of people needed to solve a problem and how fast will they return your phone call.

Process not product. It was probably true when the poet said that building a better mouse trap would cause people to trample on your lawn. Today, there are no large companies making mouse traps. The leaders in all fields are focusing on processes to increase the chances of continually generating needed innovations in a timely fashion. A study of high-technology industries reports that on-budget products entering the market six months late earn 33% less profit over five years, whereas products 50% over budget entering the market on time earn only 4% less profit over the same period.

Requisite variance. There is a tenet in the theory of learning organizations that traditional managers and even some leading theorists find difficult to accept. This is the need for appropriate variance, or what James March terms "purposeful foolishness." The TQM movement taught us to turn our organizations inside out to diminish variance; as an operations rule this is appropriate. But it is poor strategy in a dynamic world. The breakthroughs will always come from someone who is questioning the assumptions on which the majority is working and probably from someone who has failed several times before. Organizations now are urged to create environments where people can experiment and to refrain from punishing reasonable failures. The theory of requisite variance is actually a technical argument — the variation in the alternatives considered for a satisfactory solution must be at least as great as the variance in the presenting problem.

Systems thinking. Senge said "Organizations break down, despite individual brilliance and innovative products, because they are unable to pull their diverse functions and talents into a productive whole." Systems thinking is the habit of looking for the underlying structure in situations and coordinating interventions to take advantage of the relationships already existing in an organization. This is the "fifth discipline" referred to in the title of his best seller.

Failing to think in terms of systems dynamics causes reactivity to events. We address symptoms; we throw resources in the wrong direction; we shoot the messenger. One of the worst mistakes of thinking in terms of events rather than systems is to introduce into an unstable, poorly understood system a massive intervention that works — but only at the cost of perpetually supplying resources, usually our own time. Often, a proper intervention is small and temporary, but far removed from where the symptoms are noticed.

Safe environments. Communication, innovation, and other elements of the learning organization presuppose a general culture which allows appropriate latitude for experimentation and truth telling. Argyris discussed extensively the damaging effects of organizational climates that create defensiveness, which he calls "skilled incompetence" and which he says is especially common at the mid to high levels of organizations. The rule is simple: stress makes people dumb.

Can dental offices be learning organizations? Certainly, many are. They hum with creativity and concern for patients; information flows quickly and candidly in all directions; the personal growth of each employee is as important (it is the same thing) as the growth of the office. Part of everyone's job each day is to make the office better than it was yesterday. I also know some dental schools that have elements of learning organizations.

So it may appear strange that the American Dental Association is not a learning organization. Certainly, there are some aspects of the staff operation that look like a learning organization. But the ADA is a political entity and not an organization in the same sense as a practice. Decisions are made by majority vote after attempts at consensus building. Usually, the association finds itself taking the more conservative position in its dealings with other groups. Variation is not especially encouraged. In fact, it would be inappropriate for the ADA, as a representative body of the profession to function like a learning organization. But the natural tendancy of the staff to do so will cause tensions.

Recommended Reading

Argyris C. Teaching smart people how to learn. *Harvard Business Review*, May-June 1991, 99-109.

Enthusiastic, but effective people such as CEOs are busy, defensive, and surprisingly unaware of the gaps in their knowledge (who's going to tell them) — and after all, they didn't get to the top by luck (or did they?).

Argyris C. *On organizational learning*. Cambridge, MA: Blackwell, 1992.

Primarily an excursion into the dysfunctional aspects of organizational learning such as skilled incompetence, control, defensiveness, and distortions of information.

DeGeus A. Planning as learning. *Harvard Business Review*, 1988, 70-74.

One of the first publications to identify the learning organization. DeGeus was Head of Planning at Royal Dutch Shell Group and popularized the notion that strategic planning is a method for organizations to learn about their alternative futures.

Kiernan MJ. The new strategic architecture: Learning to compete in the twenty-first century. *Academy of Management Executive*, 1993, 7, 7-21.

Argues that a new form of organization will be dominant in the next few years, one whose primary function is to create knowledge. His list of elements in the learning organization include (a) promoting innovation and experimentation, (b) constructive contention, (c) empowerment (reducing the hierarchy), (d) managing values, and (e) strategic reframing.

*Kline P, Saunders B. *Ten steps to a learning organization*. Arlington, VA: Great Ocean Publishers, 1993. ISBN 0-915556-23-5; 240 pages; about $16.

Written for the popular audience, this is a light approach to the subject. Many of the observations are applications of individual learning theory to the corporate context. There are a few nice self-diagnostic tests and group exercises.

Machlup F. *Knowledge: Its creation, distribution, and economic significance*. Princeton, NJ: Princeton University Press, 1984.

A three-volume tour de force catalogue of the categories and uses of human knowledge. Volume three is especially interesting for its efforts to calculate the economic costs and benefits of knowledge.

*Senge PM. *The fifth discipline: The art & practice of the learning organization*. New York, NY: Doubleday Currency. ISBN 0-385-26; 424 pages; about $25.

The most widely known of a growing number of books in this area. Well written, but complex. It is actually two books in one — the first explains systems theory as applied to modern business organizations, the second presents a model of organizational learning in terms of individual learning, mental models, shared vision, team learning, and systems thinking — the Fifth Discipline.

Senge PM. The leader's new work: Building learning organizations. *Sloan Management Review*, Fall 1990, 7-23.

A seventeen-page summary of the long and difficult Fifth Discipline.

Thompson MP. The skills of inquiry and advocacy: Why managers need both. *Management Communication Quarterly*, 1993, 7, 95-106.

*Wick CW, Leon LS. *The learning edge: How smart managers and smart companies stay ahead*. New York, NY: McGraw-Hill, 1993. ISBN 0-07-070082-6; 232 pages; about $23.

A good introduction to the topic. Presents a strong case for the dangers of individuals and organizations that stop learning and a practical approach to implementing a personal growth plan. Interesting case studies included.

Inquiry is a form of dialogue driven by openness and curiosity, as might be found in research and learning organizations. Advocacy is a form of dialogue driven by the need for power which aims to build consensus for action. Both are needed.

A new journal for the learning organization — *Management Learning*. To be published quarterly for the first time in December 1995, this quarterly will be devoted primarily to issues of organizational learning. It appears to be aimed at scholars rather than practitioners. Sage Publications / PO Box 5096 / Thousand Oaks, CA 91359.

Editor's Note

Summaries are available for the three recommended readings preceded by an asterisk. Each summary is about five pages long and conveys both the tone and content of the book through extensive quotations. These summaries are designed for busy readers who want the essence of these references in fifteen minutes rather than five hours. Summaries are available from the ACD Office in Gaithersburg. A donation to the ACD Foundation of $15 is suggested for the set of summaries on the learning organization; a donation of $50 would bring you summaries of all the leadership topics covered in 1995.

How To Review A Manuscript For The *Journal of the American College of Dentists*

David W. Chambers, EdM, MBA, PhD, FACD

Reviewing manuscripts for publication in professional journals is a difficult task. It is also a significant responsibility when the journal holds itself out to the professional community as refereed. This short piece is written in hopes of reducing the confusion surrounding the review of manuscripts submitted for publication in this journal.

The approach suggested here differs in one fundamental way from the conventional wisdom on how to review manuscripts. The primary emphasis is on the potential impact of the paper, not its form. There are many ways of achieving interest, freedom from bias, and clarity in publications. So check lists have been replaced with a structure for dialogue. Author, reviewer, and editor each have roles to play in this conversation between nature and practitioners.

To critique means to identify salient features and compare them to existing norms and standards. Reviewers help make individual papers better and, by advising on which should be published, improve the overall quality of the journal.

The model offered involves four hierarchical steps. A manuscript failing the early steps is not given detailed considered for the subsequent ones. The longest reviews are reserved for manuscripts which, in the reviewer's opinion, must be published — they are the ones that will be examples to future authors.

Guidelines for determining whether a manuscript is of interest:

1. Who are the readers of this journal?
2. What is the mission statement of the publication?
3. Does the article clearly articulate an issue where there are alternative interpretations?
4. Does the choice between alternatives matter to how individuals or groups in the profession act?
5. Is the issue grounded in common practice, political policy, or the professional literature?
6. Is current thinking about the alternatives raised in the manuscript altered by reasoning from accepted facts or by new data, or by both?

Step One: Is the Manuscript of Interest?

The most essential requirement for a manuscript is to be interesting. The English novelist Thackeray observed that good writing makes new things familiar, and familiar things new. The question reviewers must help the editor answer is, "Will publication of this article (with reasonable modifications) advance the profession?"

Regardless of its other virtues or shortcomings, every published article must roughly match the interests of the journal's readers. In the case of the *Journal of the American College of Dentists*, most readers are practicing dentists who are leaders in the profession and have an interest in policy matters that shape the profession's future. The mission statement for the *Journal* states, "The *Journal* should identify and place before the Fellows, the profession, and other parties of interest those issues that affect dentistry and the oral health of the country. All readers should be challenged by the *Journal* to remain informed, inquire actively, and participate in the formulation of public policy and personal leadership to advance the purpose and objectives of the College."

A skillful writer engages the reader in an initial uncertainty and then spins out the data and reasoning that eventually and convincingly point to one conclusion. Connection to the existing literature and current thinking is important in the introduction and discussion sections of the manuscript. The introduction places the issue in the context of current thinking; the discussion shows how the present manuscript represents an advance on that thinking.

Reviewers must be on guard against the "critic's fallacy." This is the temptation to judge a manuscript against the one the reviewer would have written had he or she attempted to do so. An-

other version of this fallacy is to criticize a manuscript for coming to a conclusion that the reviewer does not agree with. A manuscript addressing an important issue for the readership through sound data and reasoning must be considered on its own merits.

If it is clear that a manuscript, even considering plausible corrections, fails the test of being of interest, a short note to that effect is the only review that is required. In such cases, the editor is counting on having several similar replies; unnecessary detail only invites authors to critique the reviews, to everyone's distraction.

The most common places to look for bias are the following:

1. "Red herring" or "straw man" framing of the question.
2. References to the literature which only support one point of view. Generally, any issue worth reporting in the literature has several sides.
3. Nonrepresentative sampling.
4. Measurement methods that skew the data in the direction one is proposing.
5. Inappropriate analysis or selection of data.
6. Faulty logic, or drawing interpretations which exceed what can be supported by available data or information.

Step Two: Is there Evidence of Bias?

Bias is systematic, usually unintentional, distortion of data or arguments that will lead to actions one would not choose if one knew everything about an issue. Bias cannot be corrected by larger sample size, more references, or additional arguments.

The reviewer has a positive obligation to state the nature of bias, if it is detected. It is insufficient to say "bias might exist," since this is true in every paper. If the author has taken reasonable and conventional precautions and proceeded in a logical fashion, the burden of proof for bias rests with the reviewer.

The most common forms of bias are uncompelling logic and drawing conclusions that go beyond the data presented. Both of these problems are easily corrected by the editor requesting that the argument be dropped or qualified. More fatal forms of bias are sampling and measurement problems which contaminate the data or conclusions not supported by the data or the arguments.

The questions below are a representative test for clear communication:

1. Is the manuscript properly structured?
2. Are the sections well proportioned? Long discussion sections or tedious arguments may signal fuzzy thinking or strained efforts to stretch results.
3. Do the sections of the manuscript anticipate each other?
4. Are key concepts defined?
5. Are the materials and methods described in sufficient detail to rule out the most obvious sources of bias?
6. Is a reason given for the data analysis chosen?
7. Do the graphics tell a story on their own? Tables and figures should be labeled in sufficient detail to permit clear interpretation.
8. Can the manuscript be shortened? Small points should use few words; ancillary arguments should be developed in separate papers.

Step Three: Does the Manuscript Communicate Effectively?

Manuscripts passing the first two tests should be critiqued for clarity of communication. It has already been established that many readers will want to read the manuscript and they are unlikely to be misled by it. Now the question must be asked: Are there places where the manuscript may leave readers confused or with unanswered questions?

Research articles should follow the traditional five-part format of introduction, materials and methods, results, discussion, and conclusion. Other manuscripts should be divided into logical sections that are named by the author at the beginning of the article. It should be possible for readers to tell when an argument has been completed and whether new topics follow logically from what has been developed previously. Likewise, a reader should be able to anticipate the results of a research study having read the introduction and materials and methods sections. The discussion section should contain no surprises and the conclusions should logically follow from the discussion.

Key terms should be defined if they are used in new ways. Authors sometimes fool themselves into thinking they have discovered something significant by shifting the meaning of key terms through the introduction, results, and discussion sections of a manuscript. We also need to know any characteristic of the sample that could interact with the variables being studied, the inclusion criteria for references in a review article, and the assumptions in a paper focusing on analysis.

Data analysis can present problems for both novice and expert reviewers. The responsibility of the author is to explain the research question and the measurement procedure so that an informed critique would approve the method of analysis chosen by the author. The reader wants to know why nonparametric, logistic regression, or multivariate methods were used; they do not want to know how the calculations are performed.

Occasionally reviewers will recognize the opportunity for further data analysis, additional arguments, or other germane references. These should be

mentioned if the evidence presented in the manuscript fails to support the author's conclusion and the missing evidence would make the point. If the potential suggestions represent elaboration or alternative interpretations, discretion is required in offering this unasked-for help.

Reading for clarity and completeness is difficult. It requires an expert to know what is missing. This type of critique is best started on the initial reading. First, the tables and figures should be examined to see what they have to say on their own. On the initial read of the manuscript, question marks and brief phrases should be added in the margins where uncertainty is encountered. If the manuscript is accepted for publication, each of these notes should be examined in detail.

The reviewer's comments on clarity of communication normally comprise most of the review. They must be positive and constructive. It is insufficient to say that the sample selection is unclear. (That remark is equally unclear.) The best criticisms are a suggested rewording or a question that is sufficiently specific so that the answer is the desired rewrite.

Step Four: Copyediting

The fourth step in reviewing a manuscript is entirely optional and in some journals is discouraged by the editor. This consists of copyediting and rewriting small portions of a manuscript to improve it. Some professionals have acquired the habit of reading with a pen in hand and reacting almost instinctively to misspelled words, lack of agreement between subject and verb, inappropriate punctuation, or poor word use. All of these corrections are appreciated by editors. Different publications have their own standards for capitalization, the serial comma rule, and other elements of style. Reviewers are best advised to avoid comments in this area.

It is also inappropriate to rewrite sections of the manuscript which have the effect of altering its meaning. If reviewers have the time and the inclination for detail editing, most editors would prefer their help in verifying the accuracy of the references and in checking the consistency of numbers in tables.

Some Logistical Considerations

The four steps of manuscript review are sequential. If a paper is judged to be of little or no interest to the readers of the journal, a short and courteous note to that effect should complete the reviewer's obligation. Where there is some interest in the material covered in a manuscript, the second step, checking for potential bias, should be completed. A more strongly worded and detailed explanation of bias is needed if it is detected. Most of a reviewer's time will be spent improving the communication clarity of the manuscript. This task requires familiarity with the general literature and the specific topic. Detailed, constructive suggestions are appreciated for any manuscript being considered for publication. The final step, copyediting, is entirely optional.

Editors choose their reviewers based on diverse criteria. For the *Journal of the American College of Dentists*, it is customary to select six reviewers. One will be a Fellow of the College with an interest or previous work in the area covered by the manuscript. A second will be a nationally known expert in this area who is not a Fellow. One of the reviewers normally will be an officer of the College, and a fourth reviewer will be a Fellow in private practice without an academic affiliation. Two additional reviewers are chosen from these categories depending on the nature of the manuscript. It is the combination of perspectives and opinions from multiple reviewers that helps the editor reach a decision about each manuscript.

It is the custom in professional journals that authors are anonymous to the reviewers and authors do not know the identity of those who review the manuscript. This practice is intended to encourage objectivity and candor. Occasionally it is possible for reviewers to guess or in fact to know the identity of an individual writing a paper if, for example, they heard the manuscript presented as a speech, are active in this area of research, or find a bibliography filled with self-references. This should not disqualify a reviewer; true conflicts of interest are rare. If such a conflict does arise, the reviewer should quickly decline the invitation to review.

In the *Journal of the American College of Dentists,* it is policy to share feedback among the reviewers. The editor's decision regarding publication and copies of other reviewers' comments are returned to all reviewers. This feedback improves reviewing skills and helps establish common standards. In no case is the identity of reviewers revealed to authors.

Timeliness in responding to reviews is important. If there is a straggler review, the editor must choose between delaying everyone else's work or disregarding a tardy review.

The development of a professional literature is a cumulative process. No paper stands alone; it must be evaluated for what it adds to current knowledge. Development of the literature is also a cooperative effort between authors, editors, and reviewers. As each improves his or her skills, the entire profession benefits.

Editor's note: Two versions of this paper were reviewed by eighteen individuals, with outstanding qualifications as critics. I decided to publish it anyway; but it is certainly shorter, clearer, and more useful because of their help.

The Manuscript Referee Process

Thirteen unsolicited manuscripts were considered for possible publication in the *Journal of the American College of Dentists* during 1995. Six manuscripts were accepted and five were declined following peer review. Two were deemed to be inappropriate in content for the *Journal*.

Of the reviews received, 89% were consistent with the publisher's decision. Cramer's V statistic, a measure of consistency of ratings was .782 (with 0.0 representing random agreement and 1.0 representing perfect concordance). There is no way to compare the consistency of the reviewers for this journal with agreement among other reviewers because it is not customary for other journals to report these statistics. The College feels that authors are entitled to know the consistency of its review process.

The College thanks the following professionals for their contribution to the dental literature as reviewers for the *Journal of the American College of Dentists* during 1995.

David C. Anderson, DDS, FACD
Alexandria, VA

Rafael I. Aponte, DDS, FACD
Santurce, PR

Samuel Walter Askinas, DMD, FACD
Tufts University School of Dental Medicine

James D. Bader, DDS
University of North Carolina School of Dentistry

Muriel J. Bebeau, PhD, FACD
University of Minnesota School of Dentistry

Richard E. Bradley, DDS, MS, FACD
Lincoln, NE

Roger Bulger, MD
Association of Academic Health Centers

Paul S. Casamassimo, DDS, MS, FACD
Ohio State University College of Dentistry

Jack F. Conley, DDS, MEd, FACD
USC School of Dentistry

Stephen B. Corbin, DDS, FACD
Office of the Surgeon General

Eric K. Curtis, DDS, FACD
Safford, AZ

Ronald L. Ettinger, MDS, FACD
University of Iowa College of Dentistry

Charles V. Farrell, DMD, FACD
Bellingham, WA

Robert T. Ferris, DDS, MSc, PhD, FACD
Altamonte Springs, FL

Paula K. Friedman, DDS, MSD, FACD
Boston University School of Graduate Dentistry

Patsy K. Fujimoto, DDS, FACD
Hilo, HI

Barbara Gerbert, PhD
UCSF School of Dentistry

Thomas K. Hasegawa, DDS, MA, FACD
Baylor University College of Dentistry

Peter Jacobsen, DDS, PhD
University of the Pacific School of Dentistry

William R. Maas, DDS, MPH, MS, FACD
Agency for Health Care Policy and Research

Victor J. Matukas, DDS, MD, PhD, FACD
University of Alabama School of Dentistry

Alston J. McCaslin, V, DDS, MSD, FACD
Savannah, GA

Christopher McDonald, DDS, FACD
Billings, MT

Robert Mecklenburg, DDS, MPH, FACD
US Public Health Service

Virginia A. Merchant, DMD, FACD
University of Detroit Mercy School of Dentistry

Lawrence H. Meskin, DDS, FACD
University of Colorado Health Science Center

Kathy I. Mueller, DMD, MS, FACD
San Francisco, CA

Edward S. Nacht, DDS, FACD
Plantation, FL

David B. Nielsen, DDS, FACD
University of the Pacific School of Dentistry

Linda Niessen, DMD, MPH, MPP, FACD
Baylor College of Dentistry

John G. Odom, PhD
Ohio State University College of Dentistry

James L. Palmisano, DDS, FACD
Toms River, NJ

Cherilyn G. Sheets, DDS, FACD
Newport Beach, CA

L. Donald Shumaker, DDS, FACD
Cleveland, OH

Charles F. Sumner, III, DDS, JD, FACD
Orinda, CA

Harry M. Tuber, DDS, FACD
East Orange, NJ

Gerald Vale, DDS, JD
USC School of Dentistry

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American College of Dentists
839 Quince Orchard Blvd., Suite J
Gaithersburg, MD 20878-1614

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