

Journal *of the* American College *of* Dentists

AUXILIARIES
EXTEND THE REACH
of DENTISTRY

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- 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 potential 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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Cover photograph: Dentistry is evolving to include a team of many differentiated service providers.

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FROM THE EDITOR

PROFESSIONAL SERVICE ORGANIZATIONS

In the past quarter century, dentistry has enthusiastically embraced the business-boosting practice of catering to the highest-paying customers. It has also flourished by multiplying the number of auxiliaries in practices.

Hospitals, law firms, accountancy groups, and universities are examples of professional service organizations (PSOs). They are in a different category from soybean farmers, the housing industry, the county sewer department, and others who make and sell things you can drop on your toe. The business logic of products and professional services is not the same.

Most conspicuously, PSOs deliver value through direct contact: the customer has to be present and even participate to be enriched. These services have no “shelf life.” Hospitals cannot perform extra appendectomies in the spring so their surgeons can go on vacation during the summer. There is also something like a fixed ratio of professionals to customers. More firms needing audits mean that the auditing partnership must hire more auditors. Economies of scale through more equipment or automation are not especially effective.

PSOs do custom work. Customers also participate in significant ways in the services they receive. Patients and students have larger roles to play in health care and education than they do in online shopping. Effective PSOs study the role of customers and make it easier for them to play their part.

There is significant overlap between information and service. Manufacturing now accounts for about 10% of the

American economy. Allowing for overlap, service is about 70% of the economy, and information-based transactions of the PSO variety about 80%. Apple sells a notebook computer for around \$400. Roughly \$20 of this is manufacturing, perhaps \$100 is for sales, distribution, and inventory shrinkage. Information intensive R&D accounts for some of the expense, and the rest is profit.

The “professional” aspect of PSOs also matters. Accountants are certified, professors are tenured, nurses are licensed. Part of professionalism involves training. Controlled entry also matters as a mechanism for balancing the ratio of providers and customers and for collective reputation management. That is why PSOs often have a structure of partners and associates rather than corporate or public ownership. It is also a reason that PSOs use PR firms to burnish their image for high standards, integrity, and other general goods rather than product features or price.

There are two other aspects of professionalism that are drivers of the business models in PSOs. First, the value producers in PSOs are professionals. Lee Iacocca could not make a car; Steve Jobs could not build computers. The decision makers in law firms are lawyers; ditto accountancy offices and universities. The power flowing from control of an organization by those who live the values of a profession cannot be overappreciated. Second, professionals inherently have a dual identification. They feel a loyalty to the organization; but they also feel a loyalty to the profes-

sion generally. There would be nothing unusual in a nurse saying “I realize that the hospital would save money by omitting that part of patient care, but it does not meet the standards of professionalism I endorse.” Academic standards are more similar for similarly named departments at different universities in America than they are across departments within individual universities.

The business model for PSOs is necessarily different from the model that works for manufacturing, retailing, and vanilla service and information vendors. The work is customized, involves direct engagement with customers, is grounded in specialized knowledge, conforms to standards that are shared by the key individuals across organizations, and is directed from the top by professionals who share common values and also provide most of the value added. Researchers, such as David Maister, who study PSOs, have come to the conclusion that success is based on several important constraints. It is not possible to automate as manufacturers or information brokers do or to build on economies of scale by manipulating production schedules. There are also realistic limits on size: management by professionals precludes growth beyond what professionals can accommodate on a personal level, unless one is willing to make compromises in the direction of commoditizing the customer. The impact of PSO work is generally proportional to the number of professionals in the organization.

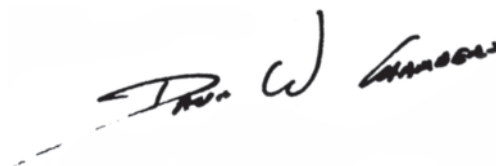
There are, however, two adjustments in this business model that successful PSOs use to leverage growth. First, the economic success of professional service organizations is a direct reflection of quality of their customers. If a law firm can only bill X hours because of the number of attorneys, it is preferable to bill clients such as Enron rather than Jake’s Brake Service. Hospitals do the same thing by discouraging Medicare and uninsured patients while advertising heavily for procedures that are predominantly private-pay. Universities compete for the best students.

The other adjustment to the business model for PSOs is to delegate services consistent with maintaining quality while reducing cost. It makes sense for a university to hire teaching assistants so a renowned professor can lecture to two classes rather than mark papers and teach a single course. Hospitals have long used residents for exactly this purpose. Law firms grow net profits to the extent that they can increase the proportion of billable hours performed by paralegals. The delegation model works well in PSOs to the extent that the most highly qualified professionals are engaged in the activities that generate the highest value.

The delivery of dental care is organized on the PSO model. The potential for its success is compromised by the fact that reimbursement is based on a

manufacturing scheme with billing by procedure codes—a fact that makes dentistry vulnerable to influence by insurance carriers.

In the past quarter century, dentistry has enthusiastically embraced the business-boosting practice of catering to the highest-paying customers. It has also flourished by multiplying the number of auxiliaries in practices. ADA data suggest that the correlation between what dentists bill annually and the number of auxiliaries employed is above $r = .84$. That means that 70% of the variance in office productivity is a function of effective use of ancillary personnel to extend the dentist’s reach (not 70% of the office productivity from auxiliaries; 70% of the difference in billings from one practice to another).



LETTERS TO THE EDITOR



The “tempest in the teapot” regarding licensure and licensure examinations has been brewing for decades.

RE: BOARD SERVICE

To the Editor,

The editorial “Authority and responsibility” is thought-provoking and worthy of deep reflection. I have served a quarter of a century on a similar-sized hospital Board of Trustees (including a stint as chairman). A big difference is we are a not-for-profit private hospital created under the Hill-Burton Act of 1962. We operate as a critical access hospital and have a healthier profit line; however, many of our issues are the same as those described in the editorial. And ethics is an underlying, common theme.

I have attended and participated in all the Special Ethics Seminars the ACD has sponsored lately. In Las Vegas, October 2011, we used a seven-step decision model for resolving ethics issues in a workshop format. I have come to think of this model [as a] “Bridge over Troubled Waters,” not because that was one of our ethics dilemma topics, but rather for how we deal with ethical issues, and it is indeed troubled waters.

The model and its steps include the following. (a) Determine the facts. The editorial’s narrative does this quite clearly. (b) Define the ethical issues. To me the “need another hip” attitude is most glaring. The issues of authority versus responsibility may lean more toward law than ethics in this scenario. When we compromise ethics for financial gain, we are tainting so many of our ethical principles. It seems to me it violates all five of our ADA principles of ethics.

(c) Identify major principles, rules, and values. I would assume the hospital has vision and mission statements, objectives, etc. Are these values being compromised by the board actions or are they being supported by the actions? (d) Specify the alternatives. In this case attempts to reframe the board seem to have failed, leaving the alternatives of going along or resigning. (e) Compare values and alternatives—clarify the decision. Perhaps this is where the matter now stands. (f) Assess the consequences. Did Dr. Chambers do the right thing? Did he show his values by resigning or did he “let down” those he represents? This was his decision and there is no right answer. (g) Make your decision!

In our workshop there was a quote by Michael Josephson: “Ethics is about character and courage, and how we meet the challenge when doing the right thing will cost more than we want to pay.”

This editorial is priceless. It brings out the subject of public ethics, an area many have no idea even exists. I cannot say Dr. Chambers did right or that Dr. Chambers should have taken a different path. I can say Dr. Chambers did some honest soul searching and that is really what ethics is all about!!

Jack C. Wesch, DDS, FACD
Fairbury, NE

RE: ASSESSING COMPETENCE TO PRACTICE

Sir;

I just recently read your editorial about the examination process for licensure in the United States. Without going into the myriad issues and complexities that are present, and that you ignored, I would strongly disagree with your stance. You make many analogies that do not stand up to thoughtful consideration. While it is true that many who pass the exam later lose their licenses, it is because of the list of problems you state at the beginning of your article, all of which deal with ethics. This quest for better ethics must be the torch for the College to pursue.

Of candidates who fail an initial clinical examination, some two to four percent NEVER pass a clinical exam. These are the “dentists” that the clinical exams are meant to weed out. The boards do a tremendous job of protecting the public and maintaining the high standard of American dentistry. Indeed the board requirements help guide dental schools from straying too far on unproven or questionable treatments. These board requirements are reviewed annually with the dental schools and when evidence warrants it the exams are changed! Over the years it remains evident that many dental schools either cannot or will not remove these unfit future practitioners from their graduation rolls. If they did then we would not need exams at all! As a board member for 10 years I have never seen a dentist lose their [sic] license because they were not capable of performing satisfactory dental work. Their performance has always been compromised by an ethical or moral issue.

Your comment about the California Board and the Western Regional Board competing to see who could be tougher is simply ridiculous and blatantly untrue; it is another of your biased comments

trying to sway the readers without facts. Until you have personally observed and participated in the clinical exams and see the work that is submitted along with the wide berth to allow candidates to be tested on their decision making process and not simply their “hands” you have no place criticizing the exam process.

If you and the College consider it acceptable for the ACD to become involved in what is clearly a state’s rights issue then perhaps this is not the College I thought it was. Pursue ethics, morals, and fair treatment of patients and I stand strong beside you. When ACD becomes a political organization that offers editorials by non-dentists obviously not experienced in the topics they are writing about, then ACD is no longer a college to which I can belong.

Robert J. Gherardi, DMD, FACD
Albuquerque, NM

Dear Dr. Chambers:

Your editorial, “Lessons in Shifting the Burden: #2. Competence to Practice,” is right on target.

The “tempest in the teapot” regarding licensure and licensure examinations has been brewing for decades. Recently we have seen a frantic movement to preserve initial licensure through various different vehicles: establishment of new organizations and different testing models. Is the purpose of state licensing boards “protection of the public” and is it to ensure continued competency of the practicing professional? If so, then initial licensure examinations as currently constructed (one evaluation period over a lifetime) cannot and will never accomplish these goals.

Continuing education, as it is currently structured and delivered, also cannot be even remotely measurable in the context of continued competency. We are at “the tipping point” for change. It has taken us over five decades to realize and understand that patients, in a one-time evaluation, are being dehumanized, exploited, and used for purposes that do not satisfy the fundamental tenets that exist for licensing—namely protection of the public and continued competency of the profession.

If “one shot” clinical evaluations and continuing education programs have failed to address these basic tenets, is the profession finally ready to study, evaluate, and design an appropriate program for evaluating the continued competency of the practicing profession? As external forces and organizations continue to challenge the profession, it seems to me that the dental profession should address the issue of continued competency before the legislators or other government agencies do it for us. Rather than something to be feared, this should be viewed as a wonderful opportunity for all of us to learn from and engage in an open public dialogue. We should all be excited and energized by the vast array of new information and technology at our disposal today more than at any other time in human history, which will provide us with tools to implement continued competency.

Arthur A. Dugoni, DDS, MSD, FACD
San Francisco, CA

To the Editor:

Your column in the fall issue of the *Journal of the American College of Dentists* was passed on to me, and, as a dental student, I have some concerns about restricted scope initial licensure testing using live patients.

It needed to be pointed out that there are definite shortcomings in the current way we manage the licensing process and that our continued study, minor adjustments, and consolidations are appropriate, but insufficient. As a student, I am not asking for an easier test, just one that treats patients in a way that is fair, ethical, and doesn't endanger them in any way.

I am the national president of the Student Professionalism and Ethics Association (SPEA). We don't have current policy on initial licensure, but we definitely support that of the American Student Dental Association (ASDA). ASDA has considered initial licensure and established policy by vote in 1998, 2001, 2002, 2005, and 2012 that consisted of the voices of each dental school across the country. Specifically, it is the policy of ASDA that "the following alternatives are preferable to the current licensure process: Initial licensure without an independent clinical licensing examination, graduates of U.S. CODA-accredited schools should be eligible for initial licensure without taking any additional clinical examination, and a portfolio-type clinical examination based on cases compiled during the final years of dental school" (should be used), among others. ASDA also has a position favoring a "curriculum integrated format" because this approach offers the best way of assessing the full range of competencies required for the modern practice of dentistry, while at the same time treating

the patient in the proper sequence and timing dictated by their needs.

The complete text of ASDA policies on licensure and other matters can be found online at asdanet.org. I, as well as other student leaders, stand by these policies, as well with those developed by the American Dental Association and the American Dental Education Association (which are also available online).

Thank you Dr. Chambers for bringing this issue to the forefront once again so that we as a profession can come to a solution that is best for our patients and that of dentistry as a whole.

Sean Gardner
Ostrow School of Dentistry of USC
Los Angeles, CA

To David W. Chambers, Editor, Journal of the American College of Dentists

This is in response to your article about Lessons in Shifting the Burden: #2. Competence to Practice.

The reason that a "one shot" examination is defensible is that a dentist will be expected by a patient to be minimally competent all of the time, not just some of the time. A graduating dental student should be expected to be minimally competent every day, one of which happens to be the day of the board exam. Things happen, and a competent candidate could fail and have to try again, but that should be very uncommon. When I was in dental school, the faculty demanded that I had to provide competent dentistry every time with every patient, although very slowly at first.

The pass rate a few years ago for nearly all of the various testing boards was about 75%. Who among us is willing to be treated by a dentist who can only practice minimally competent dentistry, as the dental schools define it, about three-quarters of the time? Any rational

person would conclude that something must be done to make the testing more effective in eliminating incompetent candidates. What was actually done in California? At the request of the five dental schools, the testing was transferred to an exam with a 90+% pass rate or testing was bypassed altogether.

The ethical arguments about patients being abused during the examination are simply wrong. If the examination process makes a candidate take longer than would otherwise be the case, that is also what happens in dental school, and the faculty do not believe they are acting unethically when they slow the treatment process to evaluate the student's work. Another more harmful rumor was that the examiners somehow preferred minimal lesions, causing the candidates to delay treatment until the exam. During my tenure as an examiner, the California Board tried everything to make it clear that the examiners did not care about that, to no avail. If the ethical arguments against the dental board exams have been ignored, it is appropriate to ask why.

The argument that the dental school faculty should have sole responsibility for licensure is flawed, because there is an inherent conflict of interest. All faculty members are not neutral on whether their school can adequately prepare a student to be a competent dentist. Also, if a student is found to be incompetent in the senior year and not allowed to proceed, a lawsuit is predictable. Former faculty members who subsequently became examiners also said that they had a tendency to hope that they would be able to rescue poorly performing students, and the school sometimes became trapped by the time it was clear that the attempt did not work, with the candidate hundreds of thousands of dollars in student debt. Does anyone think those are not factors for the school?

On the issue of taking responsibility, why should the boards take responsibility for failing an incompetent candidate? The schools are presenting the candidates as having completed the curriculum (they carefully do not openly contend that the candidates are competent—note the above reference to lawsuits), not the board. My suggestion would be to provide legal immunity to the schools and the faculty, although they would remain subject to some version of internal peer review, similar to the police or other regulating agencies charged with protecting the public.

You are correct that the licensure examination does not adequately protect the public against the six complaints made to you in the national committees. Why is that a basis for not testing what can be tested? The only reasonable conclusion to the complaints is that the licensing agencies and the dental schools are not adequately continuing to protect the public, unrelated to whether or not the dentists are clinically competent. In regard to continuing competency and discipline, here the lawyers have it right. Lawyers practice at the grace of the Supreme Court. A lawyer facing discipline has a hearing before three attorneys of the state bar, who then makes a recommendation to the Supreme Court, and if the lawyer is disbarred by the court the matter ends.

Your constitutional analysis is also inadequate. Although a failed one shot examination does not prove that the candidate is incompetent, it does indicate that the candidate was not competent that time. Similarly, a passed result indicates that the candidate was at least competent once, which is more than is known if the exam was never taken.

I served on the California examining committee for nearly 20 years, and was lucky enough to be asked to observe a WREB examination. Although the WREB examiners were highly qualified and

motivated, it was just not the same exam. For example, a distinct piece of calculus left after scaling would fail a California candidate for that portion (as recommended by the California dental schools), whereas for WREB it lowered the score from 100 to 95 (passing was 75).

Finally, if the skills possessed at graduation are not serviceable through one's career, I must not have been practicing dentistry for 40+ years. In school, I learned how to fill teeth, crown teeth, clean teeth, extract teeth, perform examinations, etc., all as part of treating my patients. I did some of those procedures today.

Arthur Schultz, DDS, FACD
Manhattan Beach, CA

Commentary:

The winter 2011 *Journal of the American College of Dentistry* carried an editorial titled, "Lessons in Shifting the Burden: #2. Competence to Practice." It raised significant and long-standing issues regarding the manner in which the field of dentistry manages initial licensure for practice and re-licensure. The editorial reminds us that early in the Twentieth Century cooperation between the examiner community and academia helped the profession lift itself up to become highly respected by the public. It is important that the profession of dentistry keep reminding itself of the need to continually improve.

Initial licensure of candidates to practice has been a recurring theme requiring more attention as the editorial reminds us. Placing most of the emphasis on initial licensing and little attention on the need for re-licensure given the staggering growth in science and technology that all practitioners must embrace requires the cooperation of the

As a student, I am not asking for an easier test, just one that treats patients in a way that is fair, ethical, and doesn't endanger them in any way.

The problem with the current system of licensure is that it is a marginal predictor of ethical competence; it is not being used for the potential benefits it could offer.

examining community and academia. Almost 20 years ago, the Institute of Medicine Report, *Dental Education at the Crossroads: Challenges and Change*, recommended that the American Association of Dental Examiners, American Association of Dental Schools (now known as the American Dental Education Association), along with professional associations and state and regional boards work closely and intensively to replace state and regional clinical examinations for a reliable and valid national examination; eliminate examinations using live patients; and periodically evaluate dentist competency through recertification. Finding a pathway for the profession to accomplish those recommendations requires us not to close the door on a difficult task.

Allan J. Formicola, DDS, MS, FACD
Madison, NJ

Letter to the Editor:

I read with interest an editorial in the *Journal of the American College of Dentists*, volume 78, Number 4. The author highlights several valid points. Those who complain about “some elements within the profession” without providing solutions are too common these days. In addition, the “one-shot, live patient test of mechanical skill under artificially created circumstances” is indeed an “independent assessment of minimal standards.” The author also pointed out the ethical issues of placing candidates in positions of treating patients in stressful and morally hazardous conditions and then not accepting responsibility for patients of candidates who fail. In addition, the argument put forward that the psychometric credentials indicating that the current testing procedures may not necessarily predict future competence, is especially interesting.

Also, the fact that the profession is aging with currently no reliable methods to reevaluate competency through the practice life of a dentist is trending toward a tipping point for this profession.

State dental licensure is the one governmental regulation that has the most influence on the profession of dentistry in the U.S. It has this dubious distinction because the licensure process influences everything from what is taught to who is allowed to work and what they are allowed to do. Therefore the licensure examination process has a profound influence on everyone involved. It influences dental school curriculums, dental students, and practicing dentists alike. In my opinion, the current dental licensure process does not reflect ethical comprehensive treatment of a patient. This, in itself, can have a negative influence on dental students and new dentists. Dental students or new dentists should never be exposed to less than comprehensive excellence when treating a patient, especially from a state sanctioned examination process.

The problem with the current system of licensure is that it is a marginal predictor of ethical competence; it is not being used for the potential benefits it could offer. The original reason for an examination, independent of the dental educational community, was to evaluate, without bias, the competency of a candidate to practice safely on the public and indirectly to evaluate the academic programs where the candidate was trained. The public or government has no credentials that would allow either to make any determination of competence of dentists. Therefore, they must rely on those who do have the proper credentials to make such decisions. A problem arises when the examination process either is biased or has insufficient information to make an evidenced-base decision. Due to its limited scope, the current examination process itself is marginal, at best, for determining

competency of an individual candidate. If it were not for the Solomon-like decisions made by examiners, the current system would fail completely. In addition, the examination process has become so convoluted that a candidate will have a better chance of passing if the candidate takes one of the available prep courses. This has led to a small but thriving industry and a substantial cost increase to the candidate. This also brings into question whether candidates are being prepared.

If, on the other hand, the clinical examination process for dental licensure duplicated ethical private practice, it would have a profound influence on dental educators and students to teach and learn the art and science of sound, comprehensive dentistry. In addition, it would make a statement to the candidate that the state will not accept less than ethical comprehensive care for its citizens. The current examination process is a frightening experience for the candidate, who is subjected to the "will of the State." This reinforces the idea that the process is about power rather than determining one's competency through the ethical treatment of a patient.

If the examination were to be changed by requiring a candidate to complete at least one complete board case from diagnosis through treatment planning and completion of all treatment on one patient, the board examiners would have enough information to make a more informed judgment. The benefits of a system where candidates are required to demonstrate a broad skill set of competence in all areas of general dentistry are multilevel. A clinical case such as this would take several months to complete; therefore, a controlled clinical setting would be necessary. This would be a good reason for requiring a

fifth-year residency following competency evaluations at the end of formal dental school. The residency could be completed in as little as six to eight months, during which time, the candidate would complete a clinical board case in addition to concentrating on any area of deficiency or area of interest. The ideal place for fifth-year residency clinics would be in or near underserved communities. The residences could then be used to treat the indigent and working poor from whom their clinical board case could be selected. Ethical credentialed private practicing dentists from the area along with one full-time faculty member from a sponsoring dental school would act as teachers or mentors for the residents.

Furthermore, a system such as this would involve the academic community and the private practicing community working together for the benefit of everyone, including the underserved public. Government would get the best bang for the taxpayer buck by having community clinics in underserved areas staffed with competent dentists on a full-time basis. The residents would have the opportunity to gain practical experience through the mentoring process. They would also have the benefit of additional training and an easier transition from dental school into private practice. The patients in the underserved area would have the opportunity for good dental health at no cost or low cost for those on a sliding fee schedule. The communities would benefit from having a clinic that would generate jobs and a community asset. The public would benefit by having assurance that the dentists who were given a license to practice by having completed a full, comprehensive case within a program such as this, had their total skill set of general restorative dentistry evaluated, and were shown to be competent.

Finally, with the aging professional population, who is to determine when a dentist is no longer capable of practicing

safe dentistry? Currently, it is left to the individual dentist to decide when it is time to retire. Another way is to have his or her license revoked because of a serious malpractice incident. The problem with this scenario is when a dentist has a license revoked because of unethical or incompetent treatment, this is usually the last of a series of similar incidents that have caused harm to the public and have gone on in some cases for years. In addition, there are those who work just under the legal radar screen. They practice on the borderline of ethics competence for years without notice. These two areas of concern, the aging of the dentist population and those who choose to remain stagnate with their competence, are issues that must be dealt with.

At some point, a continued competency evaluation will be put into effect for all dentists practicing within the U.S. Either this will be forced from outside the profession or it will come from within. The format of a current clinical case, evaluated by a dentist, would work well for continued competency evaluations. This could be a simple spot evaluation at prearranged periods during the practice life of a dentist. If there were indications of a potential problem discovered, then a more thorough evaluation of the capabilities of the dentist would be warranted. The best way to start a system of continued competency would be to develop a fair, effective, and simple evaluation process with input from all stakeholders, including the private practicing community, academia, the ADA, government, and the public. Then decide on a start date, at which all licensed dentists after

that date would be subject to continued competency. All licensed dentists prior to that date would be grandfathered in and participate on a volunteer basis only. This way at some point in the future, all licensed dentists within the U.S. would be subject to continued competency throughout their practice life. This will be good for the profession and the public trust.

If the dental licensure examination process is all about controlling borders or setting the number of dentists within the U. S. at statistical levels, the result will be a lowering of the quality and availability of competent dentists within the country. Public trust will suffer, which in turn will have the negative effect of giving government policy makers the excuses they need to initiate programs that will fragment the profession into sub-level dental health providers with limited skill sets. This will drive up the cost of dentistry by compartmentalizing treatment and reducing the longevity of restorative services through less competent individuals completing treatment. All that generations of ethical caring dentists have worked for will be lost and the public will suffer the consequences. If on the other hand, the licensure process is for determining the competence of dental graduates to work safely on the citizens of this country, a new approach is needed.

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Editor's Response

The editorial on assessing competence to practice appears to have struck a nerve. It gave pleasure to some and annoyed others. All of the responses received are published above; none have been edited.

I will make just a few comments because I think the issue will be better addressed if it can be made clearer.

Arthur Schultz is correct that the public expects minimal competence from dentists. But there is a difference between competence and one-time performance. A failure is 100% poor performance, but it is not 100% incompetence. If that were the case, practicing dentists who left an overhang one time after ten years of successful practice or had trouble seating a crown should turn in their licenses as soon as this happens. It is the total pattern of performance that counts. If testing were perfect one would be well advised to look very carefully at a single performance lapse. As the consistency of the live-patient, one-shot assessment approaches zero (which is what the evidence shows), the argument evaporates.

Robert Gherardi's letter is more troubling because it is more personal. I am not a dentist, so I do not treat patients or judge dentists. My concern is with the test. I have two advanced degrees in measurement practices so I feel I am competent to evaluate the process. I can also see that I have not been convincing about the 14% simultaneous drop in both the California and WREB exams that occurred in 2003. It was a one-shot event, with statistical significance at $p < .005$. The reference appears in the board-to-board consistency paper noted below, and the comments about comparative "toughness" of the two boards in the third paragraph and in the next to last paragraph of Dr. Schultz's letter above provide first-hand corroboration from a board member.

The matter of whether the American College of Dentists is sticking its nose in a states' rights political issue deserves careful consideration. The various state boards do have jurisdiction over licensure matters. But that does not mean they are the only ones entitled to an opinion about it. At its meeting in Las Vegas, the Board of Regents of the College considered the matter of how it should speak to various issues affecting the profession and voted unanimously to reaffirm its communication policy. This regularly appears on the masthead of this journal.

I have two regrets about the editorial I wrote in the last issue—both occasioned by my self-imposed 1,000-word limit. I should have provided at least some references to the literature. Those who are interested in the lack of consistency between various one-shot boards can consult my "Board-to-board consistency in initial dental licensure examinations" in the October, 2011 issue of the *Journal of Dental Education*, 1310-1315. For a description of the portfolio alternative that is now favored by ADA, ADEA, ASDA, and the Canadian Dental Association, see my "Portfolios for determining initial licensure competency" in the *Journal of the American Dental Association*, (2004), 135 (5), 173-184. With the exception of the Canadian licensure community, examiners do not publish in peer-reviewed journals.

My other regret is that I was not as effective as I had intended to be in suggesting that the best way forward is for boards, schools, and the profession to work together. We each have a piece of the puzzle. No one wins if one group isolates itself and threatens veto power over the rest.

INCREASING PRODUCTIVITY IN DENTAL PRACTICE

THE ROLE OF ANCILLARY PERSONNEL

Albert H. Guay, DMD
Vickie Lazar, MA, MS

ABSTRACT

Dentistry has achieved substantial improvements in productivity which have the effect of making more care available at reasonable cost. Data are presented documenting trends in productivity. These are analyzed with respect to number of dentists, hours worked by dentists, and the use of ancillary personnel in dental offices. There is strong evidence linking increased productivity to the use of ancillary personnel. The history of creation, recognition, and integration of ancillary personnel into dental practice is also presented.

Dentistry has a long history of increasing office efficiency and productivity in the delivery of oral health care. As a result, oral health care continues to be affordable and the availability of oral health care adequate to satisfy the demand for care for all except for those who experience various barriers to their seeking care that are difficult to overcome.

There are several factors that have contributed to increased office efficiency and productivity. That subject is very complex because of the number of factors involved and the very different categories that characterize those factors, including equipment, supplies, administrative practices, office design, treatment techniques, finances and dental benefit plans, use of ancillary personnel, the demand for care, the state of the general economy, and several others. Some have resulted in revolutionary changes, such as the introduction of the air turbine handpiece, and others have been evolutionary changes, such as appointment time management.

The goal of this discussion is to describe the role of the employment of ancillary personnel in the observed increase in the efficiency and productivity of dental practices. We look at old photographs of dental offices and dentists providing care with nostalgia, much like we view photographs of early automobiles, and with curiosity asking ourselves, "How could they practice like that?"

BACKGROUND

Real changes in the development of the "dental team" through the employment of ancillary personnel during the provision of care began in a formal manner early in the twentieth century, although dental assistants were found in some dental offices earlier than that. Several dentists trained their dental assistants to be "dental nurses" and delegated some therapeutic and preventive services to them. Connecticut was the first state to allow specially trained non-dentists to provide prophylactic treatment and later defined the scope of practice of these "dental hygienists." Massachusetts and New York soon followed. Schools of dental hygiene were established in these states (Motley, 1998). The American Dental Hygienists Association was founded in 1923.

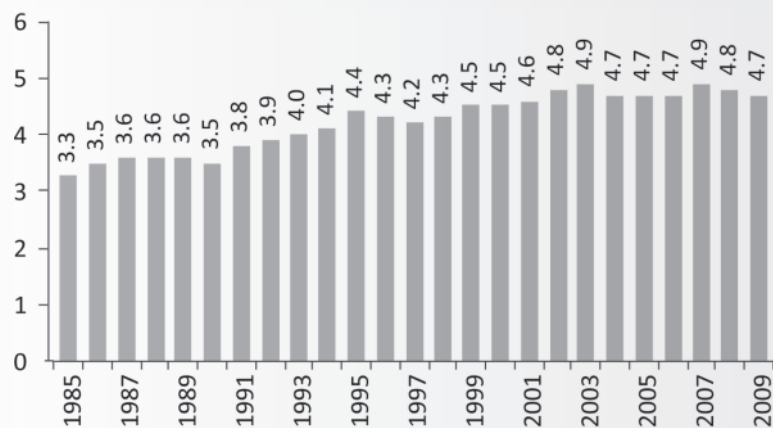
Juliette A. Southard, a dental assistant employed by a New York City dentist, is credited with founding the American Dental Assistants Association in 1924. Dental assisting was to be devoted to "better service in the dental office," freeing up time for dentists "for study and research," to help the dentist "to earn a



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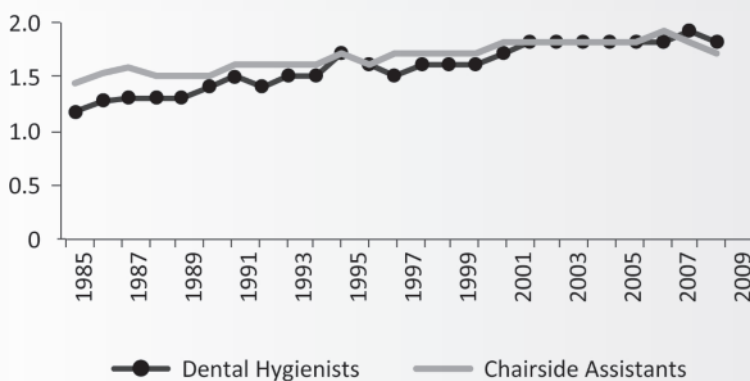
The views expressed in this publication are not necessarily those of the American Dental Association or its subsidiaries.

FIGURE 1. AVERAGE NUMBER OF NON-DENTIST PERSONNEL PER OWNER DENTISTS EMPLOYING PERSONNEL, 1985-2009



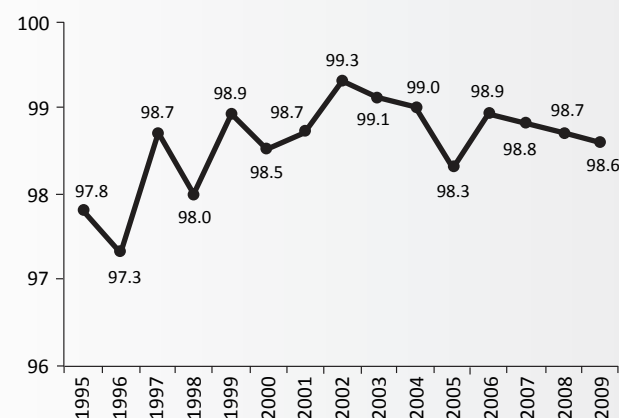
Source: American Dental Association, Survey Center, 1986-2010 Surveys of Dental Practice (data taken from individual published reports)

FIGURE 2. AVERAGE NUMBER OF DENTAL HYGIENISTS AND CHAIRSIDE ASSISTANTS PER OWNER DENTISTS EMPLOYING PERSONNEL, 1985-2009



Source: American Dental Association, Survey Center, 1986-2010 Surveys of Dental Practice (data taken from individual published reports)

FIGURE 3. PERCENTAGE OF OWNER DENTISTS WHO EMPLOYED ANY NON-DENTIST STAFF, 1995-2009



sufficient income,” to free the dentist from having to “spend any of his time on routine detail of office management,” being “courteous and cheerful at all times. Dentists do not always display sunny temperaments” and other things (Southard, 1922).

The basic educational requirement for licensure as a dental hygienist is the completion of a two-year training program at an accredited institution. Currently, there are programs of longer duration that lead to advanced degrees. Each state requires that dental hygienists be licensed, certified, or registered in order to practice specific functions outlined in state laws or regulations.

The education for dental assistants is much less structured, varying from on-the-job training to formal training at an institution of higher learning, often leading to a certificate or degree. Basic dental assistants are not regulated in 41 states and require licensure in two states, registration in six states, and certification in one. Three states require registration, certification, or licensure only for a radiology permit. Expanded-function dental assistants are not regulated in 17 states (seven additional states responded “not applicable” to the question), licensure is required in three states, registration in 11 states, and certification in 11 (American Dental Association, 2010).

Over time, many technical preventive and maintenance procedures have been delegated to ancillary personnel under the direct supervision of a dentist. Patient safety and the quality of the care provided by ancillary personnel have always been critical considerations in determining which procedures should be delegated and under what degree of dentist supervision. An advanced dental assistant has been developed who is allowed to perform many expanded,

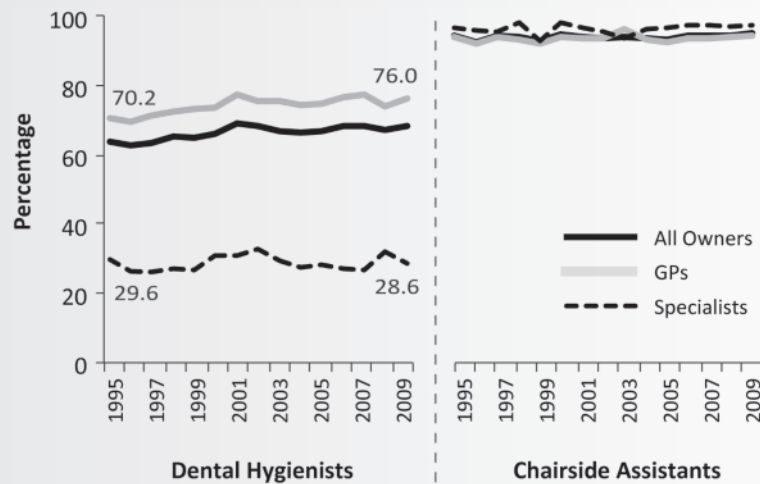
reversible functions, the Expanded Function Dental Assistant (EFDA). All dental assistants have been shown to increase dental office productivity. Currently discussions are taking place that may lead to an expanded scope of practice for some non-dentist personnel, termed by some as mid-level providers, to include some irreversible “basic” caries restorative and “simple” oral surgical procedures.

NON-DENTIST PERSONNEL EMPLOYMENT

The American Dental Association (ADA) conducts an annual random survey of dentists (including both members and non-members of the ADA) in private practice entitled the Survey of Dental Practice. Through this survey, the ADA collects the most comprehensive and reliable statistical information on the private practice of dentistry in the United States.

For the remainder of this section, the time period of 1995 to 2009 will be used. Another way of looking at employment of personnel is the percentage of owner-dentists employing various staff members. As shown, the majority (over 97%) of owner-dentists have consistently employed non-dentist staff between 1995 and 2009 - ranging from a low of 97.3% in 1996 to a high of 99.3% in 2002 (see Figure 3). Although not shown in Figure 3, the percentages were as high for general practitioners and specialists (as a group) The percentage of owner-dentists employing dental hygienists and chairside assistants is shown in Figure 4. As shown, more than 90% of all owners, general practitioners and specialists alike, have consistently employed chairside assistants throughout the period of 1995 to 2009. Specialists, however, are less likely to employ dental hygienists, although the rate varies by specialty. Among all specialists, 29.6% employed a dental hygienist in 1995. This percentage grew to its highest point in 2002,

FIGURE 4. PERCENTAGE OF OWNER DENTISTS WHO EMPLOYED DENTAL HYGIENISTS AND CHAIRSIDE ASSISTANTS, 1995-2009



reaching 32.5%. In 2009, 28.6% of specialists employed a dental hygienist, down from 32% in 2008. Among general practitioners, the percentage employing dental hygienists has ranged from a low of 69.3% in 1996 to a high of 77.2% in 2007.

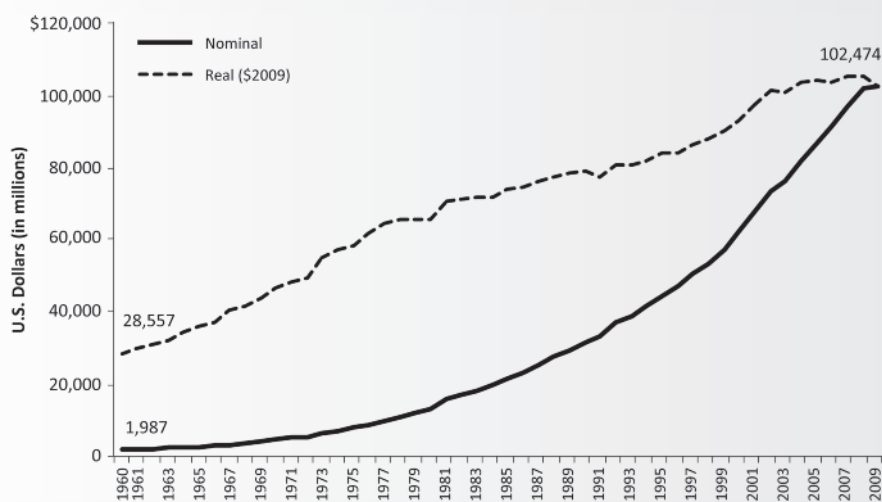
Productivity

There are several ways to think of dentist productivity. One common measure was employed by Beazoglou and colleagues (2001) in a study where practice productivity was defined as output per dentist and calculated using real (i.e., adjusted for inflation) dental expenditures per number of dentists. Figures 5 and 6 contain the summaries of trends in dental expenditures and number of dentists, and a calculation of dentist productivity. The term expenditures means the costs to patients or others paying for care.

Productivity (cost of care) approximately doubled during the period 1960-1974, probably as a result of the widespread use of high speed air turbine handpieces, the employment of an

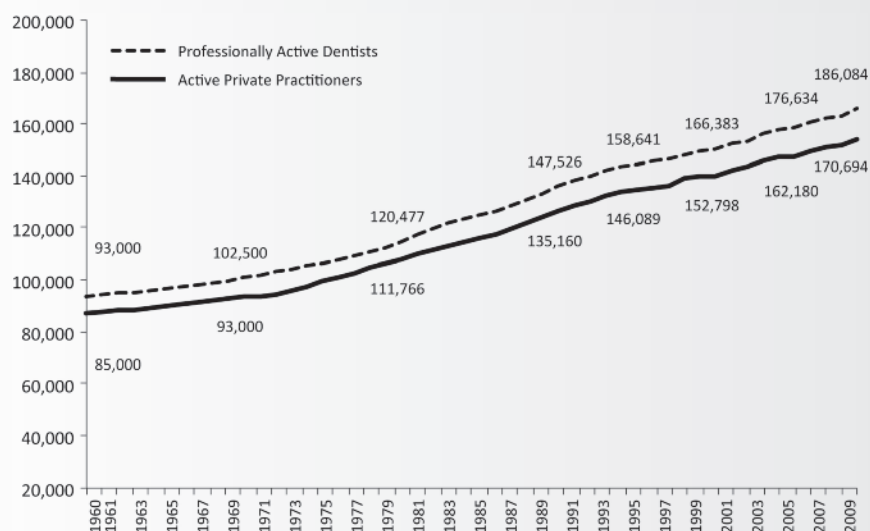
Productivity in dental practice is a very complex subject that must take into consideration many factors. One of the important factors to consider when discussing or evaluating office productivity is the degree to which ancillary personnel are employed.

FIGURE 5. NOMINAL AND REAL DENTAL EXPENDITURES, 1960-2009



Source: Centers for Medicare and Medicaid Services, NHE database (downloaded 3/15/2012).

FIGURE 6. NUMBER OF PROFESSIONALLY ACTIVE DENTISTS AND ACTIVE PRIVATE PRACTITIONERS, 1960-2009



Source: American Dental Association, Survey Center, Distribution of Dentists in the United States by Region and State (1960-2003 numbers were copied from an historical report; 2004-2009 numbers were copied from individual published reports; numbers for 1966-1967, 1971, 1973-1975, 1977-1978, 1980-1981, 1983-1986, 1988-1990 and 1992 were interpolated).

increased number of ancillary personnel, and the proliferation of dental benefit plans to finance dental care. Following that rapid growth, productivity has fluctuated.

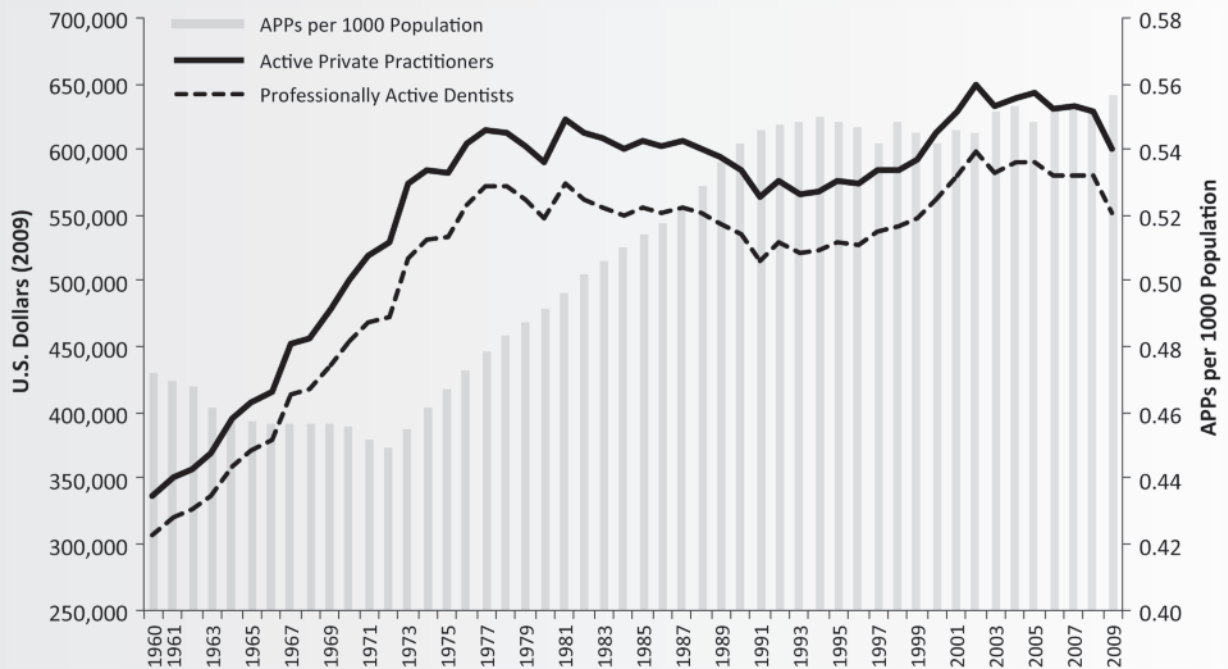
DENTAL EXPENDITURES

The Centers for Medicare and Medicaid Services (CMS) provide annual estimates of total dental expenditures in the U.S. As shown in Figure 5, total nominal dental expenditures increased from \$1,987 million in 1960 to \$102,474 million in 2009 (an 8.4% annual growth). When adjusted for inflation using the dental CPI (\$2009), real dental expenditures increased 2.6% annually between 1960 and 2009. For the period 1995 to 2009, nominal dental expenditures increased from \$44,775 million in 1995 to \$102,474 million in 2009—an overall increase of 128.9% and an annual increase of 6.1%. When adjusted for inflation (\$2009), the overall increase is 22% from \$84,028 million in 1995 to \$102,474 million in 2009 (or a 1.4% increase per year). While in nominal terms there is no decrease in dental expenditures during the period of 1995 to 2009, in real terms, dental expenditures decreased from \$105,411 million in 2008 to \$102,474 million in 2009 (or 2.8%).

NUMBER OF DENTISTS

Figure 6 shows the trends in the number of professionally active dentists and active private practitioners from 1960 to 2009. Professionally active dentists (PADs) are those whose primary or secondary occupation is private practice (full- or part-time); dental school faculty member; armed forces, other federal services; state or local government employee; hospital staff dentist; graduate student, intern, or resident; or other dental organization staff member. Active private practitioners (APPs) are a subset of the professionally active dentist category and

FIGURE 7. DENTISTS' PRODUCTIVITY IN THE UNITED STATES, 1960-2009, IN 2009 DOLLARS, AND ACTIVE PRIVATE PRACTITIONERS PER 1000 U.S. POPULATION



Source: The authors' calculations based upon data from Beazoglou et al, 2001.

are defined as dentists whose primary or secondary occupation is private practice (full- or part-time). As shown, the number of PADs and APPs doubled between 1960 and 2009. Between 1995 and 2009, the number of PADs increased by 17.3% (or 1.15% per year) and, similarly, the number of APPs increased 16.8% between 1995 and 2009 (or 1.12% per year).

DENTIST PRODUCTIVITY—1960-2009

Figure 7 shows dentist productivity calculated using both the number of professionally active dentists (PADs) and active private practitioners (APPs). As shown, the period of 1960 to 1974 experienced a high annual growth rate: 3.98% for PADs and 4.03% for APPs. During the period 1995 to 2002 there is also an increase in productivity (1.77% annual growth for PADS and 1.73 for APPs), while 2002 to 2009 is a more volatile period—with 2007 to 2009 showing a decrease in productivity.

This increase in productivity results from two basic enhancements in the production of care—increasing the efficiency of service delivery by the dentist and delegation of some functions from the dentist to ancillary personnel. Both of these enhancements allow the dentist to provide more care to more people in a given amount of time.

FIGURE 8. AVERAGE NUMBER OF HOURS WORKED PER YEAR, OWNER DENTISTS, 1995-2009

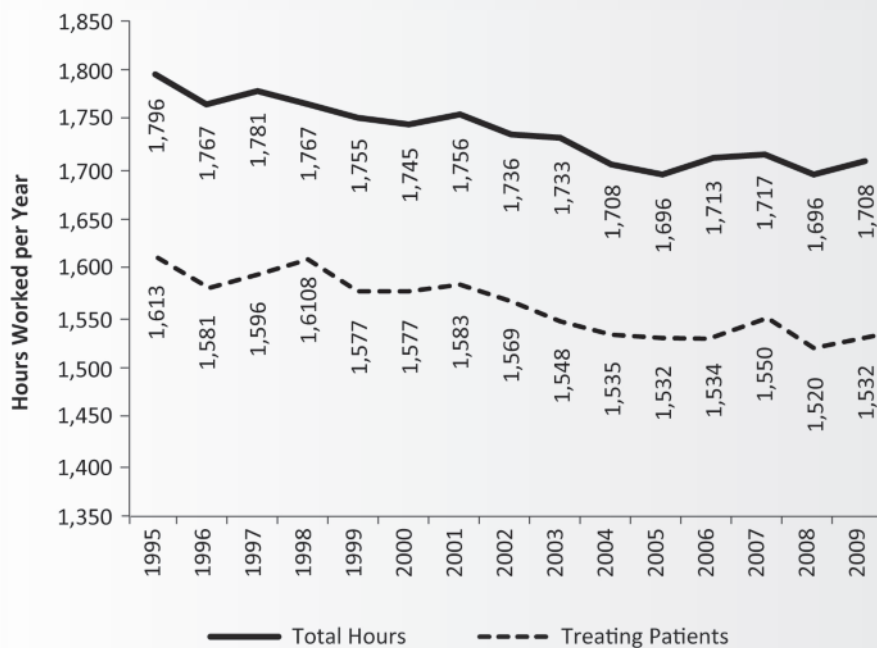
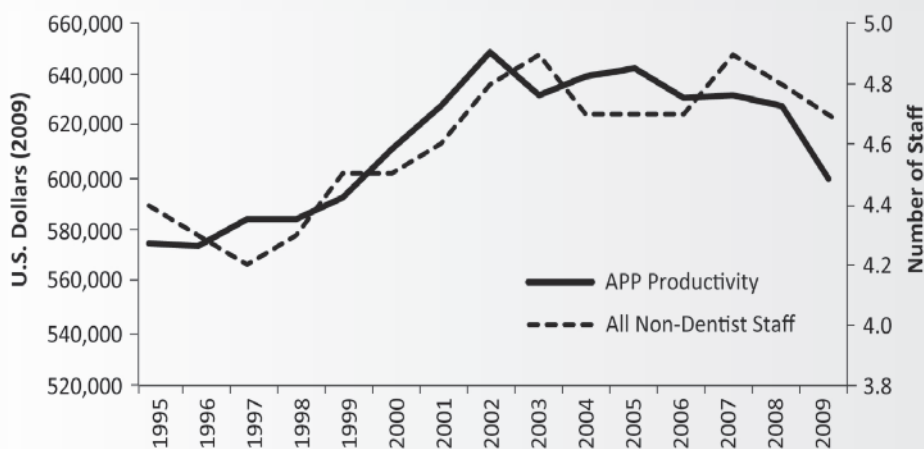


FIGURE 9. APP Productivity and AVERAGE NUMBER OF NON-DENTIST Staff, 1995-2009



DENTIST ANNUAL HOURS WORKED

The number of dentist hours worked in relation to the practice output is a key indicator of practice productivity. Figure 8 depicts the average number of annual hours spent in the practice and spent treating patients among all owner dentists. As shown, the average number of annual hours worked decreased from a high of 1,796 in 1995 reaching a low of 1,696 in 2005. Since 2005, the average number of annual hours increased to 1,708 in 2009. Overall, total annual hours have decreased 4.9% between 1995 and 2009—at a rate of 0.36% each year. Similarly, the average number of annual hours spent treating patients have also decreased—from 1,613 hours in 1995 to 1,532 hours in 2009 (decreasing .50% overall and 0.37% annually).

It should be noted that the increased output and productivity of dental practices occurred while dentists were working fewer hours per year. Other factors must be identified to account for this change.

PRODUCTIVITY AND STAFF UTILIZATION

In considering the relationship between the number of ancillary personnel employed in a practice and the productivity of that office, the productivity of active private practitioners (APP) and the number of non-dentist staff utilization are represented in Figure 9. The correlation coefficients were also calculated: All staff and APP productivity $r = 0.8456$, Hygienist plus chairside staff and APP Productivity $r = 0.8453$.

A key channel through which ancillary personnel increase productivity is by performing functions that would otherwise require the dentist to perform. An interesting analysis of the effects of delegation on the dental output and efficiency of general practices in Colorado, using the dental hygienist and the EFDA dental assistant as the basis for measuring delegation, i.e., the percent of delegable functions that were actually delegated, found that the effects of delegation were substantive and directly

related to the level of delegation. The practice factors examined were gross billings, patient visits, and value added (Beazoglou et al, 2009; Beazoglou et al, in press).

Table 1 quantifies the relationship between the actual level of delegation of functions and the additional net income realized per hour of dentist time, controlling for several factors that would also influence net income.

CONCLUSIONS

Productivity in dental practice is a very complex subject that must take into consideration many factors. One of the important factors to consider when discussing or evaluating office productivity is the degree to which ancillary personnel are employed.

It has been shown that the employment of ancillary personnel has a significant positive influence of office productivity. This increase in productivity results from two basic enhancements in the production of care—increasing the efficiency of service delivery by the dentist and delegation of some functions from the dentist to ancillary personnel. Both of these enhancements allow the dentist to provide more care to more people in a given amount of time. This has allowed the costs for care to be moderated and access to care increased.

In assessing future dental workforce needs it is important to consider dental office productivity (Beazoglou et al, 2002). The capacity of the oral health care system to meet the demand for care should be measured by the number of dentists available to provide care and their productivity and efficiency. It may be less expensive and require less time to expand the capacity of the oral health care system by increasing the productivity of dental practices rather than to educate more dentists. That could be achieved by more effectively employing already existing cadres of ancillary personnel and expanding their numbers. ■

Table 1: IMPACT OF DELEGATION LEVEL ON NET INCOME PER DENTIST HOUR

<i>Delegation Level</i>	<i>Net Income</i>	<i>Percent Change in Net Income</i>
Zero	\$110	NA
20%	\$122	10.9%
40%	\$134	21.9%
60%	\$145	32.8%
80%	\$157	43.7%
100%	\$169	54.6%

Source: Beazoglou et al, in press.

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The capacity of the oral health care system to meet the demand for care should be measured by the number of dentists available to provide care and their productivity and efficiency.

READINESS REQUIRES A TEAM

David Hartzell, DDS

ABSTRACT

The mission of the Navy Dental Corps is to ensure combat readiness. In addition to commissioned dental officers, oral health care is provided by auxiliaries such as dental hospital corpsmen, the traditional dental hygienist, and the independent duty corpsman.

The Navy Dental Corps was established by the 62nd Congress on August 22, 1912, which means we are celebrating our 100th birthday this summer. Our 100 years of existence has been served with distinction by Navy dentists, but also contributing to this distinguished period of service has been our auxiliaries in the Navy.

OUR MISSION

The Navy dentists' role in ensuring dental readiness and optimizing dental health for our sailors and marines have been well documented; but what has not often been mentioned, are the auxiliaries that multiply the level and quality of care provided to our active duty members. Today, the Navy Dental Corps consists of 1,051 dental officers. In our daily effort towards achieving high dental readiness and dental health, we would be remiss not to mention our auxiliaries, who are just as instrumental and key players in the "Global Force for Good."

In this article, the dental hospital corpsman, the dental hygienist, and the independent duty corpsman and their contributions will be highlighted to showcase their valuable assistance to the mission.

- *Population supported:* 524,000 Active Duty (Navy and Marine Corps)
- *Mission:* Ensure Dental Readiness (Class 1 or 2 with current exam)
- *Vision:* Optimize Dental Health (Class 1 with current exam)

HM-8701: DENTAL CORPSMAN

Today, our approximately 1,800 dental corpsman are capable of performing myriad procedures under supervision to include prophies, exposing radiographs, and fabricating lab prosthesis to mention a few, all contributing to and assisting the Navy dentist in reaching high dental readiness and health. Our dental corpsman can further expand their skills by attending 8702 "C" school, called Advanced Dental Assistant School. When they graduate from the 8702 program, they immediately make an impact for dental readiness with new skills for multichair dentistry.

HM-8708 DENTAL HYGIENIST

As of December 2011, we have a total of 87 active duty hygienists in the Navy, and our manning level is at 91.2%. The dental hygienist has the knowledge and clinical competence required to provide current, comprehensive dental hygiene service under the direction and supervision of a dental officer. Dental hygiene includes but is not limited to: clinical



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infection control procedures; data gathering; exposing and processing radiographs; dental hygiene assessment and dental hygiene treatment planning; oral health education including health promotion, disease prevention, behavior modification and nutritional counseling; cleaning removable appliances and prostheses; polishing restorations; provision of therapeutic dental hygiene services including, but not limited to, periodontal scaling and root planing; application of pit and fissure sealants and anticariogenic agents (fluorides); application of chemotherapeutic agents; pain control and other patient services as identified by the dental officer; and evaluation of dental hygiene services.

The dental hygienist's mission is to educate patients on preventive oral health care and provide quality care to service members and their families of Fleet Marine Forces and forces afloat, in isolated units, and overseas locations and their families. Therefore the biggest role in helping the dentist would be sustaining high operational readiness and maintaining the dental health of service members.

A Navy dental hygienist is an instrumental member of a dental team on board an aircraft carrier. I saw first-hand the immense contributions that a dental hygienist can make for the crew's dental readiness and dental health index when I was the department head of the USS Ronald Reagan (CVN-76) from 2004– 2006.

Dental Technician Second Class Jason Camiling, RDH, U.S. Navy, practiced aboard the ship that took him all over

the world. Surrounded by multiple dentists and dental technicians, he was the lone dental hygienist aboard the USS Ronald Reagan; at the time, the world's newest nuclear-powered aircraft carrier, which can house up to 5,200 sailors, crew, and personnel while on battle deployment.

Camiling received his two-year program of Navy "C" school training at Pensacola Junior College in Pensacola, Florida. The program earned him an associate's degree and prepared him for the national board exams to become a registered dental hygienist.

As the sole dental hygienist aboard a ship the size of a large town, Camiling routinely saw at least eight patients each day in 45-minute increments per appointment. Even though overtime pay does not exist in the military, Camiling routinely worked extended hours or skipped his lunch in order to accommodate as many patients as he could. During our two-year tenure on the ship, the Ronald Reagan had the highest record of production and readiness of all Pacific carriers.

HM-8402, 8403, 8425, AND 8494 INDEPENDENT DUTY CORPSMAN

Another auxiliary personnel member intimately involved with dental readiness and dental health is the Navy independent duty corpsman (IDC). Although not directly in the dental profession, the IDC does receive some dental training during independent duty corpsman "C" school.

The Navy dentists' role in ensuring dental readiness and optimizing dental health for our Sailors and Marines have been well documented; but what has not often been mentioned, are the auxiliaries that multiply the level and quality of care provided to our active duty members.

Most ships with an IDC do not carry a dentist on board. Prevention of dental emergencies is therefore mission essential.

An IDC serves at various isolated duty stations and special warfare commands independent of a medical officer and performs patient care and associated operational administrative and logistical duties, basic diagnostic procedures, advanced first aid, basic life support, nursing procedures, minor surgery, basic clinical laboratory, and other routine and emergency health care. The IDC conducts and directs preventive medicine and industrial hygiene surveillance programs; advises special operations personnel on measures for the prevention and treatment of illness and injury associated with swimming, open and closed circuit scuba diving, airborne and amphibious operations in the prevention and treatment of illness associated with diving and high-pressure conditions. An IDC operates pressure chambers and submarine rescue apparatus; enters pressure chambers to care for patients suffering from decompression sickness or other conditions requiring such treatment; and performs diving and other duties related to underwater rescue and provides medical assistance in support of special combat operations. IDCs can teach and provide health education to junior medical and all nonmedical functions set forth in Chapter 9, Manual of the Medical Department. Senior personnel assigned to shore and operational staffs provide medical assistance, training, and inspection services to operational forces and operational units. Additionally, when assigned to garrison medical treatment facilities, IDCs serve primarily as non-physician healthcare providers.

Most ships with an IDC do not carry a dentist on board. Although the IDC is very skilled in treating emergencies and getting patients out of pain temporarily, they are limited in the ability to provide definitive dental care. Prevention of

dental emergencies is therefore mission essential. A ship's operational dental readiness is achieved by the ongoing support of the local dental clinics. IDCs proactively work with the clinics to maintain dental readiness by ensuring 100% of all crew members have been screened by a dental officer and that none are expected to have dental complications for the duration of a deployment period. IDCs also provide annual dental healthcare training for the entire crew. In the event that a dental emergency occurs while under way, IDCs are trained to manage these emergencies until the patient can be referred to a higher level of care on amphibious ships, aircraft carriers, or shore-based dental facilities. They receive initial training and must be recertified every two years in temporary restorations and pain management for the most common emergencies which include: Dental abscess, symptomatic caries, lost restorations, fractured teeth, lip or tongue laceration, jaw fracture, and mobilized traumatically injured teeth. Management of these conditions ensures that the patient is triaged and managed for pain-free treatment until definitive treatment can be provided when the ship goes back to shore. Thus the ship can keep on course of its primary mission.

In conclusion, the Navy Dental Corps has and will serve proudly and stand up with the U.S. Navy as a "Global Force for Good." Dental corpsman, the dental hygienist, and the independent duty corpsman are vital to helping Navy dentists achieve the No. 1 Mission of combat readiness. They are truly valued auxiliaries. ■

THE HUMAN CAPITAL CRISIS IN ORTHODONTICS

Marc Bernard Ackerman, DMD,
MBA, FACD

ABSTRACT

The economics of dental practice are changing. The author reflects on the loss of a long-term, highly effective, and dedicated assistant in an orthodontic practice. Changes in technology, numbers of dentists, expected benefit levels, and a competitive workplace environment are combining to put pressures on the traditional model of oral health care. Whatever the solution turns out to be, the profession should take the lead in actively developing alternatives, and these will necessarily involve development of human capital in the dental practice.

Human Capital: Noun; the skills, knowledge, and experience possessed by an individual or population, viewed in terms of their value or cost to an organization or country.

“Lisa” was the most phenomenal orthodontic assistant I have encountered in my fourteen-year career. (Lisa represents a composite picture of several different assistants that I worked with in practice. All the assistant’s names in this essay are fictitious.) She could process between 15 and 20 patients in her chair each day, maintain the practice’s inventory of clinical supplies, manage the in-house surgical orthodontic laboratory, repair any mechanical device in the office, and construct archwires that were far superior to anything from my own hands. After 20 years as a key member of our clinical staff, Lisa left during my first few months as an associate in the practice. The initial explanation for her departure was that she could not report to two “bosses” after having a negative experience in a similar practice early in her orthodontic assisting career. However, the real reason for her departure became clear years later.

By all accounts, Lisa was a hard-working and very socially active member of her high school class of 1980. While most of the other girls in her class were pursuing dreams on the sports field, Lisa always had a part-time job. In the eleventh grade, Lisa decided that working at the local supermarket was no longer cool and decided to look for other work. Fortunately, she saw an ad in the local paper for an after school clerical job in

our orthodontic office. Never having had braces, she was not quite sure what to expect but was certain that it would be better than bagging groceries.

Lisa started work in our practice filing charts, licking envelopes, and doing the odd jobs that the other administrative staff deemed below their pay grade. After a year of hard work and when we lost a clinical assistant to maternity leave, Lisa was trained to perform sterilization and instrument tray setup. She liked spending time in the back of the office, speaking with the patients and watching the orthodontic assistants work. As she approached the end of high school, she started to look into enrolling in a dental hygiene degree program after graduation. The tuition at the local community college was not that high, and she had saved quite a bit of money from her high school jobs. Then it happened.

At lunch one day, a 20-year veteran assistant named Donna asked Lisa why she did not want to become an orthodontic assistant. Donna had been trained right out of high school and was our practice’s head assistant. It just so happened that the person who was out on maternity leave decided not to come back to work, and consequently we were looking to hire a full-time assistant.



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They all sought career changes that provided an opportunity for personal growth, advancement within organizations, and fringe benefits beyond what a job in orthodontic assisting could offer.

The entire lunch table of five assistants all chimed in that they had been trained either in our office or a similar practice and that Lisa should not waste her money on hygiene school but get her training “in office” and then take the Pennsylvania expanded function dental auxiliary (EFDA) exam (current Pennsylvania requirements for EFDA certification require matriculation from a formal degree program). It was a compelling argument at the time and young Lisa decided to take her co-worker’s advice.

Over her 20-year career in our office, Lisa excelled at everything she did. So why did she ultimately leave orthodontic assisting? It turns out that during those two decades, the practice lost four amazing assistants, about one every five years. Two decided to study nursing; one became a sales representative for a medical device company, and the last enrolled in dental school. They all sought career changes that provided an opportunity for personal growth, advancement within organizations, and fringe benefits beyond what a job in orthodontic assisting could offer. Lisa had kept in touch with all of her former co-workers and for quite some time was baffled as to why they had left the practice. All of our staff for years had been given full medical and dental benefits and paid vacation time (Keim et al, 2005). The mean hourly wage in our practice was at least several dollars higher than in other local orthodontic practices. In later years, a profit-sharing plan was implemented. However, when Lisa heard that one of her old co-workers, who was now a nurse, was going to be able to retire early due to the hospital retirement plan (8% employer match), she started to reconsider her future in the practice. Lisa found a position in a distribution center for a major pharmaceutical company with similar hours, a comparable hourly wage, but exceptional benefits, including

a very generous retirement plan. When Lisa left the practice, we placed an advertisement for an orthodontic assistant in five local papers and over a six-month period received only three replies. Two applicants had no dental experience and one had worked as a receptionist in a general dental practice. Two were college graduates.

So what is the moral of the story? The key to our suburban Philadelphia practice’s historic success was in our ability to develop and nurture human capital, which in turn allowed us to deliver a very high standard of orthodontic care while at the same time satisfying the financial demands of a practice with a high overhead. The business plan driving our cottage industry was based on a simple formula. How many patients in a given year did we have to treat at a particular fee in order to cover expenses and derive modest doctor’s salaries? Upon calculation of that magic figure, we could then plan on how many days per week we needed to work, how many patients were needed to be seen per day, and how many assistants we needed to process all of those patients. The practice was entirely fee-for-service.

As I critically reflect on that boutique model of orthodontic practice that had served my father and grandfather for the majority of the twentieth century, it is now clear why that paradigm is not sustainable in the twenty-first century. The problem with our practice over a 25-year period was that the overhead expenses rose at a much higher percentage rate than orthodontic fees, which translated to a reduction in revenue and ultimately a trend of needing to start far more patients in order to achieve the desired income. For example, the per capita increases in health insurance premiums had risen annually by double digits and in one particular year by 18%. When faced with this type of challenge, there are several options for the practice owner. First, one could summarily cut

this benefit. Second, one could cap the benefit and require the employee to make up the difference. Or third, one could try to reduce overhead in other budget lines in order to preserve the complete benefit. Aside from the last option, these types of decisions are bound to produce ill will among staff and potentially result in staff transition out of the practice, especially among single mothers. Anything that compromises one's ability to adequately compensate staff (salary and benefits) will affect a practice's ability to recruit, develop, and nurture human capital, as well as decrease the overall quality of the patient care.

Today's marketplace for orthodontic services is segmented between general dentists, pediatric dentists, and orthodontists. Although the national data on how many patients receiving orthodontic care from non-orthodontists is different depending on the reporting source (American Dental Association, 2007; Brown & Nash, 2009), there is general agreement that the number of patients in orthodontic treatment is not increasing at the same rate as that of new orthodontic providers in the market and that the rate of retiring orthodontists is decreasing. Technological advances in orthodontic materials have allowed patients to select from conventional labial appliances (clear or metal), lingual appliances, and clear thermoplastic aligners to treat their malocclusions. These same advances have likewise made it easier for the practitioner to fabricate appliances and regulate tooth movement. Competition within the orthodontic specialty for capturing patients is at an all-time high, with most markets experiencing an increase in the fee spread. The number of patients with private insurance benefits are increasing, and patients covered under Medicaid are contracting in some states due to fraud (www.wfaa.com/

news/local/State-Senate-To-Hold-Medicaid-Dental-Hearings-135763223.html). The practices that are making the most profits are those operating with the highest volume and the lowest overhead. New orthodontic graduates are leaving residency with debt in the six figures, which raises a whole host of questions about their ability to practice with integrity and veracity.

With greater economic pressure on most practices, there has been and will continue to be a contraction in employee benefits. I believe that this is one of the current obstacles in the recruitment, development, and retention of human capital. As well, in places like suburban Boston and Philadelphia, there are few men and women who elect not to pursue a college education or a career track with potential for advancement and incremental benefits. What will this decrement in available human capital mean for orthodontic practice operations, patient access to care, and quality of care and would a mid-level provider in orthodontics be a solution to the problem?

For the past 40 years, orthodontists have been running in place harder, faster, and longer. That is to say, in order for orthodontists to continue generating the same relative income and attain their desired retirement goals, they have had to dramatically increase the volume of patients they see, increase the amount of auxiliary personnel seeing those patients with them, increase their years in practice, and at the same time decrease practice expenses (benefits) which consequently affects their ability to recruit, develop, and retain human capital. Historically, the closest analogue of a mid-level provider in orthodontic practice has been the EFDA (www.pacode.com/secure/data/049/chapter33/s33.205a.html). However, the definition of a medical mid-level provider is "a medical provider who is not a physician but is licensed to diagnose and treat patients

under the supervision of a physician" (<http://medical-dictionary.thefreedictionary.com/midlevel+provider>). Medical and dental diagnosis seek to determine or identify a disease or disorder and understand its etiology, e.g., bronchial pneumonia and dental caries. Orthodontic diagnosis is an exercise in the classification of dentofacial traits with little emphasis on etiology. In fact, at present, we know remarkably little about the etiology of many orthodontic problems, and that is why there are so many different ways to treat the same Class II problem. By and large, the creation of a new educational track and rebranding EFDA's with the new certification of mid-level provider will not improve access to care nor the quality of care. What it will certainly accomplish is an increase in orthodontic practice overhead by virtue of higher salary and benefit requirements, perhaps even lowering the quality of care.

The crux of the matter is that a more sustainable model for orthodontic practice needs to be explored. The orthodontic specialty is in the midst of a human capital crisis, which has no impact whatsoever on patient access to care. What is increasingly at stake is the practitioner's ability to attract and process the requisite number of patients needed to achieve their desired financial targets without sacrificing quality of care. ■

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The Alaska Native Tribal Health System Dental Health Aide Therapist AS A DENTIST-CENTRIC MODEL

Mary Williard, DDS

ABSTRACT

Differences in disease patterns and living circumstances should play no role in the quality of oral health care or in dentists' role in directing this care. Such differences, however, very likely suggest that the delivery model that works in many circumstances may not be best in all. The Alaska Tribal Health System Dental Health Aide Therapist (DHAT) model is one alternative whose potential is being evaluated. These teams are managed by dentists and have several features in common with general practice residency training programs. Alaska dentists supervising DHATs customize their practice protocols based on the skills of the therapists and the needs of the communities served. The emphasis of therapists is on prevention and basic oral health services, leaving the dentists to focus on higher level treatment that better uses the skills for which they have been trained. The characteristics of effective dentist team managers and the economic and social realities of this program are discussed.

In a number of small Alaska Native villages, the nearest dental practice may be hundreds of miles away by plane, with no roads to make travel easy. In the summer one might be able to get to the dentist by boat or in winter by snowmobile. Most villages have populations of fewer than 1,000. Dental care is sporadic, depending on the number of dentists working in the larger communities who can manage to schedule visits out to the surrounding villages.

Historically, the Alaska Tribal Health Organizations around the state that provide healthcare services to the remote and isolated rural communities and villages sent dentists from the larger, hub communities in planes to visit the villages for a week or two at a time. A village may only have a dental provider visit once per year. During these visits, the dentists typically focus on school-age children and sees adults with urgent needs in the evenings. Services are usually limited to prevention, basic restorative care, and extractions. Higher level specialty care, such as dentures, root canal therapy, and crown and bridge work, has not been a realistic goal due to the overwhelming need for basic care and the limited time the dentists are in the communities. Many of the residents need extensive prosthodontic work and have for years. The problem is that more basic periodontal and restorative needs must be addressed first. The cost to fly to Anchorage for higher level services is prohibitive, especially for those in the

economically challenged rural areas of Alaska. Most members of the community have had to do without. Bringing a general dentist to the community often enough to obtain and maintain baseline oral health in preparation for higher level care has not been possible. Without good baseline oral health, advanced services are not justified.

Since 2006, teams consisting of a supervising dentist and a dental health aide therapist (DHAT) have been assigned to provide basic care in some of these Alaskan villages. The DHAT living and working in the community, with a dentist supervisor back in the regional hub clinic, is able to provide a local presence for oral health and continuity of care. The basic restorative and preventive services are taken care of by the DHAT locally. In many communities served by DHATs, the number of patients ready for specialty treatment has increased to the point that it makes sense to fly dentists into the community on a periodic basis to provide this higher level care. We have seen denture, pediatric, endodontic, and crown and bridge work being provided in villages by dentists. This ability to



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provide a wider range of dental services at the village level has been a wonderful change for village residents. Oral health literacy and oral health status can be improved with the use of dental extenders, like the DHAT who enhances the reach of care provided by the dentist. In turn, the dentist can focus on more technically demanding services for which they have training and education beyond that of a DHAT. The dentist-DHAT teams provide more local care, helping to avoid the devastation that can occur when care is inaccessible and increasing efficiency by allowing each provider to perform to the top of his or her skill set.

INDEPENDENT PROVIDERS OR TEAM MEMBERS?

It is unfortunate that the use of dental therapists has been framed as a trade-off between access to care and quality of care. Any new model of care should include both of these desirable characteristics. The conversation in dentistry about workforce innovation has become extremely polarized. Much of the time open discussions are difficult and seem more like a boxing match than a rational sharing of information. There are many models to be evaluated. Over the past decades, several of them have been tested, modified, and put in place. Orthodontists have steadily increased the number of auxiliaries per dentist. The advantage has been clear: orthodontists focus on what they are trained for, providing the maximum patient benefit.

Hygienists have been granted privileges in some jurisdictions in specific care settings, such as nursing homes. In British Columbia, hygienists can assume the financial and managerial responsibilities of independent practice treating patients who have been referred by a licensed dentist who, at least implicitly, assumes responsibility for the overall oral health management of patients.

The image of the New Zealand dental nurse has become the dominant projection of alternative dental workforce models. Variations on mid-level providers who function remotely from their supervising dentist and perform procedures historically reserved for dentists seem easy to criticize. Many dentists question whether such an approach would be suitable for study in the United States.

The preliminary evidence is that dental therapists can be educated to perform certain routine procedures, including some that are irreversible, under the general supervision of dentists using dentist-developed protocols. In an October 2010 study by the Research Triangle Institute of North Carolina (“Evaluation of the Dental Health Aide Therapist Workforce Model in Alaska”), the DHATs who were evaluated were found to provide safe, competent, and appropriate care. It is necessary that therapists be technically competent

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within their scope of practice, although focus on the procedures alone only addresses technical competence. Another issue has often been a misunderstanding of the implementation and employment of new dental team members, often driven by a fear that they will become independent providers. A better way to understand the Alaska Tribal Health System DHAT model is to view it as a dentist-centered community health model with dental providers educated to provide a limited scope of care, working under general supervision of a dentist to enhance the total oral health care offered.

THE SUPERVISION MODEL

Following graduation from The Ohio State University College of Dentistry and a two-year general practice residency (GPR), I served as an Indian Health Service dentist, first in Shiprock, New Mexico, and later in Bethel, Alaska. I am now living in Anchorage as one of the IHS Area Dental Officers for Alaska. I am assigned to the Alaska Native Tribal Health Consortium as the DHAT Educational Program Director and the Alaska Dental Clinical and Preventive Support Center Director. In leading these programs, I have a goal of reducing the disproportionately high rate of dental disease in Alaska Native and American Indians living in Alaska.

My GPR training in Charlotte, North Carolina, was a great learning experience, allowing me to extend the range of services I could competently provide and to improve my understanding of

medically complex patients. All of this learning was under the general supervision of an experienced team of instructors. The Alaska Native Tribal Health Consortium DHAT initiative works something like a GPR or an Advanced Education in General Dentistry program. In postdoctoral general dentistry, a dentist director, with the help of part-time and often volunteer specialists, practices dentistry in a clinic setting and also oversees less-experienced dental residents. Normally, these clinics treat patients with demanding medical and dental needs who cannot access or afford care in private offices. The director is paid a salary, and perhaps an incentive. The director's reach of care is extended by using several recent graduates from dental school as they are receiving additional training. They may be licensed, but not necessarily. In some states, such as Delaware and New York, dentists cannot be licensed until they have completed a residency. Although residents have all graduated from dental school, their cases are by definition more complex than they encountered in their dental training—they are learning. Residents are also paid salaries. Program directors establish protocols that guide care and assign patients to residents based on their perception of the particular skills of each resident. Some residents fail to complete their programs because the director determines that the resident is not competent to perform at the required level.

In the DHAT model, each dental therapist is assigned to a clinic and works under the supervision of the clinic's dentist. Procedures are performed within the federally authorized scope of practice and according to protocols developed by the supervising dentist.

Therapists have individualized standing orders which limit what they can do under general supervision based on specific level of experience. Standing orders are usually a subset of the full scope of practice in the federal standards. What therapists do is determined by the supervising dentist and the dentist is responsible for the level of care provided. In the Alaska Tribal Health System clinics, both dentists and therapists are salaried, plus benefits. Services are billed to Medicaid and private insurance, some are covered by Indian Health Service funds, and some are uncovered services billed directly to the patient.

DENTISTS AS TEAM LEADERS

The ideal dentist supervisor working with a dental therapist is very much like my residency director, Dr. Peter Lockhart. First, the effective supervisor must be an excellent dentist, keenly aware of quality and what can be safely delegated. Supervisors must be aware of the regulations concerning supervision and delegation and be willing to monitor and enforce these. The third set of skills is interpersonal in nature, including listening, coaching, and supporting. With a good team leader, the dentist-DHAT team can function efficiently and effectively to provide care to those that previously could not access regular and timely dental services. Communities also benefit from having a DHAT by bringing in additional dental jobs and salaries to help the local economy. DHATs are also significant role models in their communities. They represent positive health and cultural values, even to those who are not in need of immediate dental care, because they are visible in these small communities.

Supervision is the key to how this model works so well. The dental therapists working as part of a team, led by the dentist, allow this provider to require less time in school, yet be perfectly

suited to provide safe, appropriate, and competent care within a limited scope of practice. Education for a DHAT is radically different from that of a dentist because the role of a DHAT is so different from that of the dentist. The DHAT works within the range of normal and understands that concept very well. Things that fall outside normal—uncommon lesions and unusual findings or significant medical co-occurring conditions—are cues that the DHAT must consult with the supervising dentist. A significant portion of a dentist's training is in understanding the etiology, definitive diagnosis, and appropriate management and treatment procedures for difficult and uncommon conditions. This training is not appropriate for therapists. What they demonstrate competence in is the ability to distinguish between the normal situations they can handle and the ones that require a dentist's intervention. It is similar to how we learn CPR as a method of triage but are not expected to intubate or start IVs on patients in dental offices. Those tasks are for others with that specific training, and we know how to access those providers by calling emergency services.

ECONOMIC REALITIES

The economics of the model are critical. The cost of not providing care is enormous. Emergency rooms are full of people with toothaches, yet emergency rooms are an extraordinarily expensive place to access dental care. The availability of care in a community with a provider who can be educated in two years instead of eight (a dentist's four years of undergraduate and four years of dental school) is a great asset. Therapists can be out in the community working and billing for services on behalf of the clinic headed by a dentist six years sooner than the dentist. A dental therapist will

not command as large a salary as a dentist. DHATs are paid about half that of a Tribal Health System dentist. They are educated to "put down their handpieces" and provide disease prevention services leading to savings in avoided dental care needs. The cost to cover a dental therapist for malpractice will likely be quite a bit less than it costs to cover a dentist because the international safety record is well documented. Patient acceptance is high and technical competence has been demonstrated in study after study. The PEW Charitable Trusts has a great interactive model of the economics of alternative practice models in its December 6, 2012 report, "It Takes a Team: How New Dental Providers Can Benefit Patients and Practices." Dental therapists are efficient and effective providers. Because they are being required to work in underserved areas and Medicaid practices, failure of the model will likely only come because of cuts to the state and federal healthcare funds.

In my work, I have supervised and been intimately involved in the education of DHATs. I have also had an opportunity to talk with both dentist supervisors and therapists about what they like and do not like about the Alaska DHAT program. I have sometimes been surprised by the comments about how they would like to see the program changed. Some favor a more conservative approach emphasizing continuous preventive care over episodic treatment. What has been interesting to me is that some would like to see the scope of practice opened, especially in the surgical (irreversible) procedures. Some of the supervising dentists want their therapists to increase office productivity by

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performing more surgery and restorations, not focusing as much on the prevention aspects as much they could. I attribute this to the difference in how DHATs are educated compared to dentist. Dentists are surgeons of oral tissues and spend a lot of their time in school honing these skills. The dentist's ability to produce a high volume of billable services in order to run a successful private practice has long been their goal and the mindset behind their educational programs.

Dentists need to be educated about how the dental therapists can be efficiently and effectively utilized differently than dentists. The DHATs are educated with prevention as the cornerstone of a community practice model and improved health outcomes as the target.

SOCIAL REALITIES

From my perspective, the correct question is: What is the level of care that can be provided by teams of dentists and therapists? In those settings where culture, economic constraints, and physical access to care barriers exist and create a pattern of chronic need for emergency care, it may not be realistic to address the problem with the traditional dental private practice model. In fact, there are many areas in the United States where access rates are so low and disease rates so high that we have effectively proven that the traditional model of private practice dentistry does not adequately address everyone's needs. For many people, the traditional dental care delivery system is not working. These underserved areas exist even though we

have loan repayment programs, dentists willing to provide volunteer services, and many dentists who will see Medicaid patients. To refuse to change is to turn a blind eye to the very people that we as healthcare providers have a social responsibility to serve. A team which includes a dentist and dental therapists has the potential to provide not only greater access at a level of quality comparable to what dentists provide, it also furnishes the platform for a higher level of overall oral care and literacy.

Using general dentists or specialists to attempt to meet the oral health needs of widely scattered populations with large burdens of disease and limited financial resources is a doubtful model. A model of a team, led by the dentist, with appropriately trained and educated supervised providers including hygienists, dental assistants, and dental therapists is a great opportunity for improvement. It is already working well in Alaska. As leaders of the dental profession, we dentists need to keep an open mind, review the science, and study innovative pilot programs. We then have a duty to move in the direction that the evidence points. ■

LOOKING AT THE PAST TO SEE THE FUTURE

THE ROLE OF THE DENTAL HYGIENIST IN COLLABORATING WITH DENTISTS TO EXPAND AND IMPROVE ORAL HEALTH CARE

Ann Battrell, MSDH

ABSTRACT

As dental hygiene approaches its 100th anniversary in 2013, it is clear that the profession has evolved far beyond the initial vision of Dr. Alfred Fones. Much of this evolution has been driven by changing oral health needs of the public as well as the way dentists practice, based on innovations in dentistry, to concentrate on more advanced procedures and delegate other duties to the dental hygienist. By and large, these changes have been achieved by dentists, dental hygienists, and other team members working together. We have an opportunity to overcome initial resistance and, based upon evidence of successful outcomes, further extend the reach of the dental team for the benefit of patients, especially the most vulnerable among them.

This article examines a few examples of changes in the dental team. It poses the question, Is now the time for the dental team to collaborate in evolving yet again to address the unmet oral health care needs of the public? This is a timely question, coming nearly 12 years after the release of *Oral Health in America: A Report of the Surgeon General*, the report that brought to light the “silent epidemic” of oral health diseases in the United States and confirmed that total health cannot be achieved without optimal oral health.

Much work remains to be done to address the multifaceted issues within the access to care crisis in this nation. Lack of access to dental care forces too many Americans to seek treatment for preventable dental conditions in hospital emergency rooms that are typically ill-equipped to handle them. The nation lacks an effective dental safety net.

Oral disease rates among children and adults continue to climb despite the fact that most oral disease is completely avoidable with proper preventive care. Preventing oral disease can positively impact total health and is also cost-effective. Research indicates that children in low-income families who have their first preventive dental visit by age one incur dental related costs approximately 42% lower over a five-year period than children who receive their first preventive appointment between the ages of two and three (\$262 before age one, \$449 between ages two and three). Preventive care can diminish the need

for more costly restorative and emergency care, saving valuable healthcare dollars in the long run.

Looking Back

When the concept of the dental hygienist was first proposed by Dr. Fones in the early the 20th century as an individual trained to perform the dental prophylaxis and disseminate information mainly to children in schools under the direct supervision of a dentist, it was not met with a warm reception by many in the dental field. In a 1949 article in the *American Journal of Public Health*, K.M. Walls, DDS, describes the situation as being a “tumult that raged within the profession.” He noted that as late as 1949, when 38 states had approved the licensure of dental hygienists, the “tumult” was still felt each time a new state considered licensure.

Over time, however, as dentistry evolved and became more complex, it made sense to delegate prophylactic procedures and education to dental hygienists, and the concept gained wider acceptance. Walls continued that within years of the introduction of the dental hygienist, she or he “without proving a threat to the established form of dental practice, has so conclusively demonstrated



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her/his worth to both institutional service and the private dental practice that she/he has become as essential to dentistry as the registered nurse is to modern medicine.”

As the dental hygiene profession matured, it moved largely into the private dental practice and out of the schools and institutions where it began. Hygienists working in private practice under the direct supervision of a dentist increased office production and allowed dentists to treat more patients. But among many populations, access to care was still an issue. In his 1949 paper, Walls described a shortage of dentists and the need for new workforce models and delegation of some duties to other members of the team so that more people could access the oral healthcare system.

Over the next decades, there were a few stops and starts in reimagining the dental team to treat more patients outside the system, but little real progress was made. According to a 1958 article by James Dunning, in the *American Journal of Public Health*, in 1949 the Massachusetts Department of Health received a grant from the Children’s Bureau to test the concept of the school dental nurse—a concept used quite effectively in New Zealand. The Massachusetts legislature approved changes permitting the tests to take place at the Forsyth Infirmary. The initial trainees were selected from volunteer members among Forsyth’s first-year dental hygiene class. Unfortunately, once word of the project spread beyond the more progressive public health circles in the state, and before the test could be completed, a group of dentists in Western Massachusetts initiated legislation to repeal the law that permitted the experiment on concerns of safety. Interestingly, the “Forsyth Experiment” was eventually completed in the 1970s with dental hygienists included in the

study being trained to provide limited restorative services for patients. Results of the study concluded that, within their scope of restorative practice, participants were able to provide safe and effective care for their patients.

Over this same period, other advances in the way that the dental team worked in practice helped to better serve patients, including dental hygienists practicing under general supervision and administering local anesthetic.

The term “general supervision” can have different definitions as determined by each state’s regulatory language, but in lay terms general supervision allows dental hygienists to provide services within the scope of the practice act to patients within the dental practice when the dentist is not onsite. General supervision enabled the dental practice to make better use of its time and, in turn, see more patients. Though this concept met with initial resistance from dentists in many states, the long history of dental hygienists safely and successfully providing these services and the increase in the number of patients served helped greatly in its eventual acceptance in 44 states by 2008.

Yet another advance made possible by the collaboration of members of the dental team was the administration of local anesthetic by dental hygienists. Once again, in spite of initial resistance from organized dentistry in many states, this practice proved effective in improving the flow of patients through the dental office by freeing up the dentist’s time chairside and is now acceptable in 44 states.

Another successful outcome of collaboration by the dental team is the idea that the dental hygienist be recognized as a periodontal co-therapist with the

dentist to improve patient care. Ancell proposed the idea in 1972 in a paper presented to the Dental Hygiene Section of the AADS (ADEA) Annual Meeting. Others suggested that it was imperative that dentistry and dental hygiene collaborate and combine forces to better address the periodontal needs of the public. According to the article, collaboration between dental hygienists and dentists as co-therapists would allow for comprehensive employment of the dental hygienist’s knowledge and skills and would promote a stronger working relationship between the two professions.

The concept was tested at The Ohio State University by matching baccalaureate-level dental hygiene students with postdoctoral periodontology students in treating patients with periodontal disease. By sharing the responsibility in providing care, the students developed mutual respect and trust. Postdoctoral students developed an appreciation for the keen assessment abilities of the dental hygiene students, particularly their ability to summarize data findings and identify potential areas of periodontal breakdown. Together, they learned how each professional’s skills and abilities augmented the others. They learned how to function together in a collaborative approach to patient care.

THE DENTAL TEAM OF THE FUTURE: COLLABORATIVE LEADERS

There is a historical record of changes involving members of the dental team collaborating to improve the way patients receive care. There is no reason why this should not continue. Working collaboratively to begin to solve the access to care crisis in this nation should be no different. The dental team will need to engage in collaborative leadership to begin addressing access issues. Collaborative leaders engage people and groups to work toward common goals that rise above their traditional roles,

disciplines, and past experience and beliefs. Through collaboration, the oral healthcare team would evolve by using each member in a highly productive and cost-efficient manner based upon their level of education, skills, and experience. Using this theme of collaboration, I present data about the dental hygiene profession and the experiences that dental hygienists have had in working collaboratively as a member of the dental team to address access to care issues.

Currently, 35 states have “direct access” policies that allow dental hygienists to work in community-based settings (like public health clinics, schools, and nursing homes) to provide preventive oral health services without the presence or direct supervision of a dentist. Direct access to dental hygiene services is especially critical for vulnerable populations like children, the elderly, and the geographically isolated who often struggle to overcome lack of transportation, lack of insurance coverage, and other barriers to oral health care. It is essential that the oral healthcare team expand to create an integrated, true system of care. With the growth of technology, dentists and dental hygienists can work together collaboratively to expand their reach and provide oral health care through the use of teledentistry. ADHA policy defines collaborative practice as “an agreement that authorizes the dental hygienist to establish a cooperative working relationship with other healthcare providers in the provision of patient care.”

WHAT DOES COLLABORATIVE DENTAL HYGIENE LOOK LIKE?

In South Carolina, dental hygienists employed by or contacted through the Department of Health and Environment Control may provide an oral prophylaxis, fluoride therapy, and dental sealants under general supervision without a prior

examination by a dentist in settings such as schools or nursing homes. In order to practice in this manner, the dental hygienist must carry professional liability insurance.

A school-based program in South Carolina brings dental hygienists directly to low-income students in 341 schools in 38 targeted school districts. Importantly, the program has 12 dentists who agree to see the referred children in their private offices, thus ensuring that students receive the required restorative services. Data from the state demonstrated that in the five years since the program effectively began, sealant use for Medicaid children increased while the incidence of untreated cavities and treatment urgency rates decreased for that population.

Another example exists in Michigan, where a category known as the PA 161 dental hygienist helps reach the underserved. In this case, a dental hygienist with grantee status can practice in a public or nonprofit entity or in a school or nursing home that administers a program of dental care to a dentally underserved population. While a collaborating dentist is required, he or she need not authorize nor be present for treatment, although the dental hygienist must have continuous access to a dentist to establish emergency protocol and review patient records. PA 161 dental hygienists can provide a full scope of dental hygiene services allowed under general supervision, including prophylaxis, sealants, and fluoride treatments. An example of a PA 161 program is Smiles on Wheels, run by three dental hygienists, which brings care directly to nursing home patients who are not able to travel for dental care.

Over time, however, as dentistry evolved and became more complex, it made sense to delegate prophylactic procedures and education to dental hygienists, and the concept gained wider acceptance.

For more than a decade, California has recognized a category of provider called the registered dental hygienist in alternative practice (RDHAP). The RDHAP is a dental hygienist who can provide dental hygiene services unsupervised in homes, schools, residential facilities, and in dental health professional shortage areas. RDHAPs can offer a patient care for up to 18 months and provide additional care if the patient obtains a prescription from a dentist or physician. RDHAPs must have a bachelor's degree (or equivalent) and three years of clinical experience, complete an additional 150 clock hours in designated courses, and pass an exam. The RDHAP must provide the state dental board with documentation of an existing relationship with at least one dentist for referral, consultation, and emergency services. A recent study of RDHAPs in California found that "alternative care delivery models such as RDHAP are essential to improving oral health and reducing health disparities."

An example of the RDHAP's impact can be seen in Sonoma County, which has a population that is a mix of the very well-to-do and very poor. In Sonoma, a person without dental insurance typically has poor access to dental services. Close to half of the children are on Denti-Cal, a state program for the poor with few resources in the area. In response, a coalition was created in Sonoma to bring dental services to federally funded Women, Infants, and Children (WIC) sites. As a prevention specialist, the RDHAP working collaboratively with a dentist was the ideal

provider for the WIC model, essentially creating a "preventive dental home" for a population in great need.

TECHNOLOGY ENABLES COLLABORATION

The advent of computer and wireless technology has also enabled the dental team to practice in new and exciting ways. Teledentistry is the next phase of oral health care delivery, first launched in 1994 when the U.S. Army conducted its first study using 15 periodontal patients. The patients were first referred to Fort Gordon, Georgia, for surgery. One week afterward, each patient reported for suture removal at Fort McPherson, Georgia—120 miles away. Using a dental image management system in conjunction with an intra-oral camera, the staff transmitted color images of each patient's mouth from Fort McPherson to Fort Gordon. Only one of the 15 patients needed to return to Fort Gordon. The group's overall consensus was that they received better care than normal and appreciated the elimination of the long trip.

Apple Tree Dental in Minnesota uses teledentistry as part of a comprehensive oral health delivery system. "Apple Tree has a history of being early adopters, especially when it comes to communication technologies," according to its Chief Executive Officer Mike Helgeson, DDS. "Apple Tree has also pioneered bringing oral health care to places where people live, work, go to school, or receive other health and social services." Deborah Jacobi, RDH, MA, director of policy and advocacy for Apple Tree, also states, "Teledentistry is very effective and efficient, especially in rural areas where dental appointments are scarce. You're not making healthy people make long drives for multiple dental visits, and the people that do have disease are going to be able to be seen more rapidly... because the system is less clogged with healthy people."

NEW PROVIDERS AND MID-LEVELS

Finally, as we consider the access to oral healthcare crisis in the United States, it is important that we think broadly and collaboratively about solutions and innovations that extend the current dental delivery system to those beyond its present reach. Increased reimbursement, broader recognition of reimbursable providers, and improving oral health literacy are important issues in improving access. We must also consider workforce innovations, such as new provider models, and better use of the existing team members to extend the reach of the current system.

Mid-level providers have proven effective and successful in a number of medical fields. ADHA supports exploring new workforce models and better ways of using existing dental team members to improve the oral healthcare delivery system. ADHA believes that patients will benefit most from mid-level providers built upon the knowledge and skills of a dental hygienist working in collaboration with dentists and other health professionals.

COLLABORATION TO PUT THE FOCUS WHERE IT BELONGS—ON THE PATIENTS

As the examples show, a collaborative leadership approach can achieve true innovations in patient care. Working together as dental professionals in concert with our partners in medicine and other healthcare organizations allows us to achieve more progress for our patients than we could ever achieve alone. When each of us brings our individual strengths and experience to the table, the whole is definitely greater than the sum of its parts. Collaborative leadership will allow us to shape the dental teams, or even dental teams of the future. Together, let us create a future where no one needs go without access to excellent oral health care. ■

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THE PERSON WHO WEARS THE WHITE COAT

David W. Chambers, EdM, MBA,
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ABSTRACT

Legal practice, charity care, and professionalism are the outward signs of dental competence, symbolized by the white coat. Ethics, the transformation of character, is a reflection of the person wearing the white coat. Patients and others assume the first three from the title "doctor." What they want to know is what kind of person is wearing the white coat.

Let's begin with a paradox. You were selected from a highly competitive field because you are the best students this school could find. For all of your lives you have excelled in academics. But not a single one of you will graduate because you are a good student. You will receive a degree only when you become a competent dentist. The white coat symbolizes the beginning of your journey to a new identity. You are starting a professional transformation; you are literally becoming a new person. We should reflect for a few minutes about what it means for you to grow into your white coat.

The competency of a dentist is a combination of knowledge, skills, and values. I have no concern about your reaching the expected level in knowledge and skills by the time you graduate. Your patients are counting on it: your faculty will insist on it.

It is your values that will mark who you are. Your life as a student to this

point has probably been focused on becoming "good enough" in somebody else's eyes: your parents and friends, teachers, the admissions committee. The essence of your growing into your white coat will be to make your own decisions about what it means to be a dentist. Some of you, including perhaps those sitting beside you today, will set minimal standards. But you will only feel comfortable in this new role when you make it a habit to practice to your own high standards. Joseph Campbell, the late American scholar of the transformative myth, was fond of reminding people, "From time to time as you clamber up the ladder of success, pause to make certain it is positioned in the right place."

Dental practice should be legal, charitable, professional, and ethical. These are all good values, but they are not the same, and they cannot be substituted one for another.

Here are some examples of illegal activities: "Upcoding" involves claiming reimbursement for a higher priced procedure than what was actually



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performed. Perhaps you completed an extraction on a partially boney site that was exceedingly difficult and the patient was outrageously uncooperative. Upcoding might appear to be fair compensation, say by altering a single digit on the CDT code to make it a full boney impaction. Perhaps a loyal, financially strapped patient needs a crown but cannot afford it at the moment because of insurance eligibility. Performing the work now and post-dating the claim so it would be covered may seem like the noble thing to do. However, these are breaches of contract, and they are illegal. Also, watch what you do with your triplicate form. Keep your hands off patients. You can lose your license for these kinds of indiscretion.

In legal matters, somebody else decides what you must do or cannot do, and you are penalized for transgressing laws, rules, regulations, and so forth. You do not get to decide what is legal and what is not, and you get no points for conforming to the law. Civil disobedience is normally a dumb move for dentists. If you do not feel the rules are right, get into politics. Your component society, organized dentistry at the state and national level, your local school board, state and national office are all within your reach as concerned dentists. Start now with student government, with ASDA, and by following the issues facing organized dentistry.

Being clear about what is legal will entitle you to put your first arm into the white coat. The second sleeve is charity. In some ways, charity is just the opposite of legal matters. You get to decide what you want to do and no one will blame you for not doing it.

The current generation is the most charity minded of the past century. You volunteer, you are informed, you want

to make a difference. You know what is going on in countries and in neighborhoods near you that your parents may not even know exist. The ADA estimates that 5% of all dental care in America is donated. By my own calculations, dentists collectively pay more in taxes each year than the federal government spends on oral health through Medicaid, in the armed forces, through the Indian Health Service, and for prison and other programs.

I expect that you will carry your current involvement in health screenings, food and clothing drives, mission trips, and health education in grade schools into your professional lives.

As you make this transition, recall that the single largest decision in this regard will be where you choose to practice. That will determine who you treat and what kind of care you provide, and you will live with the consequences of that decision every day of your practice life. I would also mention that there are ethical implications of your charity work. There can even be conflicts. A mission trip to Haiti is clearly an act of charity. But what about competency and licensure, continuity of care, impact on local provider networks, values and expectations on the ground? I suggest that every mission trip or community outreach program begin with a consultation and discussion with a trained ethicist.

The third good is professionalism. Professionalism is about what members of a group decide among themselves is in their own interests and best for others. Patients were not involved in the creation of the *ADA Code of Professional Conduct*, and at first, the code was not generally available to the public. You should bookmark the Code on your computer. You will realize as you work with it that it is actually two documents printed as though they were one. There is a section called the Principles of

Ethics and another called the Code of Professional Conduct. Historically, such codes were called “codes of professional etiquette.” They set the standards for the behavior of one’s colleagues and offer advice about how patients should be treated. Almost all professional codes begin with something like this: “place the patients’ interests first.” But in practice, this often defaults to “Since patients are not competent to make professional decisions, I will have to act on the patient’s behalf.” This view is known as paternalism.

An example of professionalism would be the expectation that patients referred by general dentists for treatment by specialists should be returned to the referring general dentists upon completion of care. Similarly, it is professional for general dentists to refer rather than attempt specialty care that may be beyond their competence. We know that there are problems in both areas. Dentists feel that defining the “standard of care” is similarly a professional prerogative. (In reality, lawyers, a panel of 12 “reasonable men and women,” and insurance companies have a great deal to say about this.) The Canadian Dental Association Code of Professional Conduct defines a dentist’s appearing in commercial endorsements as unprofessional. The ADA code is silent on this matter.

Consider the case of justifiable criticism. C.4 of the ADA Code states: “Dentists shall be obliged to report to the appropriate reviewing agency as determined by the local component or constituent society instances of gross or continual faulty treatment by other dentists.” But to be honest about it, this is one aspect of professionalism that just is not done very often. Disciplinary boards report that most of their complaints come from patients, with quite a few from office staff members; and insurance companies are also active in this area.

I have done the following exercise with many groups so you should not feel embarrassed. When I ask individuals such as you to raise your hands if you consider yourself to be basically unethical, very few hands go up (and they usually come back down very quickly). When I ask members of the same groups to raise their hands if they feel there is significant cheating going on in dental schools and in the profession, all but a few hands shoot up quickly. A possible explanation is that there are a very small number of folks who are doing the cheating on behalf of others. More realistically, we can say that most cheating is done by people who consider themselves to be basically ethical.

If you expect that I am about to say “It is your professional duty to report all your colleagues whom you know to be cheating,” you will be mistaken. Such advice has fallen stillborn from the lips of everyone who has given it. Whistle-blowing is a delicate business and, when appropriate and when done properly, it is beneficial. But cheating is a group problem, not an individual one. The number one reason given for cheating is that “those around me do it.” There are three corollaries: (a) if I do not follow the behavior patterns of my colleagues, I will be at a disadvantage in a competitive world; (b) cheating seems to carry few penalties and little danger of being detected; and (c) an odor seems to attach to those who finger their colleagues. Even though we cannot manufacture saints, we can change cultures. Every organization is uniquely designed to produce the outcomes it produces and will continue to do so indefinitely.

The way to fix cheating is to change what is rewarded, what is talked about, and by very simply saying “I find that

disgusting” when your friend brags about taking advantage of the common trust society extends to professionals. Minor adjustments in attitude at the very heart of your culture of professionalism will outweigh all the rules and all the pompous declarations that any group can make. In fact changing the attitudes about cheating is exactly in your hands and doable in a positive fashion by every one of you. For those who would go farther, get involved in student government. Support the ADA position on licensure exams without patients or the ASDA’s position on fixed testing dates for National Board Exams to reduce “item banking.” At every meeting with faculty and the administration, ask whether there any ways all of us can succeed by working together.

Today is about the symbolism of the white coat marking your entry into a profession. The law and charity will get both arms into the sleeves, and professionalism is what will hunch that coat up onto your shoulders and allow you walk away with your head held two inches taller than before.

But we have not talked yet about ethics. There is a reason. Ethics is not about the white coat: it is about the person who wears it. You have to grow into your white coat.

Steven Covey tells the story in his book, *The Seven Habits of Highly Effective People*, of a man visiting the optometrist because of concerns that his eyesight might be changing. The optometrist greets the patient cheerfully and asks a few questions. Then he says “Here, try these glasses. I’m sure they will work for you.” The patient protests

The real number of full-time altruists is so small that “always put the patient’s interests first” begins to sound like hyperbole. At the fundamental level, you and your patient and all others are ethical equals.

that the doctor has not even performed a basic examination. How can he be justified in prescribing a remedy? The doctor replies, with just a tinge of wounded professional pride, “Trust me. I know they will work. They work for me.” The optometrist in this story has made a fatal confusion between ethics and professionalism. Professionalism, like glasses, and like white coats come in various sizes and can be put on and taken off. Not so for ethics.

Ethics is not about academic theories; it is the fundamental relationship between two people. It is what the dentist and patient (or you and your staff or your patients or your friends) are left with after the accouterments of professionalism have been laid aside. Of course you know more than patients do about their oral conditions. Certainly you will be uniquely skilled in repairing or preventing dental damage. You will automatically come from a position of high trust and status. You are in charge of the situation in the office. After all, patients are flat on their backs with a bright light in their eyes and you are wearing a white coat. If you deal with others only on that basis, you are engaged in transactions which all too easily slip over into commercial arrangements. You are using your patients and they are using you.

The ethical relationship is one that assumes that others are in charge of their own lives, are capable of and intend to honor their agreements, and present their views honestly. You also assume that others are capable of rational choice, unless there is a legal reason such as age or mental impairment why that is not the case. You should also expect that everyone else treats you that way. It feels good to talk about “always putting the patient first,” but the real number of full-time altruists is so small that this begins to sound like hyperbole. At the fundamental level, you and your

patient and all others are ethical equals. You should be able to say, “I can see myself in that other person and that is the basis upon which all else will be built.” I suggest that when you start there, it will be all but impossible to be unethical. And that is true even if you cannot spell nonmaleficence.

When patients look at you, they will see the white coat you have earned, and they will assume you are a professional. But what they really want to know, and what they will test you on, is: “Do you see me as a unique individual?” “Do you grant me dignity and respect, even though you know I am flawed?” “Is there enough of a real person there that it is not necessary to hide behind superior knowledge, skill, and status?” “Are we both really the same where it counts?” “Are we interchangeable as human beings?” What patients and others want to know is, “Is there a real person in that white coat?”

The Tao Te Ching is a collection of poems written in China 2500 years ago. Number 38 says roughly: “When the Way is lost, there is ethics; when ethics is lost, there is formal right (professionalism); when the formal right is lost, there is rectitude (law); ...and rectitude is the beginning of disorder.”

Today I want to challenge you to live your life to the maximum extent at the high end of this scale. Be ethical. Your colleagues who are sitting beside you expect it of you. Your families who are sitting behind you have been praying this for 20 years or more.

Today the University of Colorado and the professional honoraries of the American and International Colleges of Dentists and the Pierre Fauchard Academy are giving you a white coat so that you will look professional. But it is your job, and one that only you can do, to grow into that white coat. ■

SCHADENFREUDE

AN ALL TOO COMMON AFFLICTION

Charles Solomon, DDS, FACD

ABSTRACT

The *ADA Code of Professional Conduct* requires that care be taken that criticism of colleagues' work is justifiable. Several cases are presented where this standard appeared not to have been met, and the consequences were dire for all involved. Sometimes unjustified criticism can be as inadvertent as ambiguous body language; sometimes it is possible to interpret unjustified criticism as being driven by envy or by what the Germans call *schadenfreude*—satisfaction at others' misfortunes.

Instead of speaking to the broad principles of ethics, I have chosen to address today, a specific item in the *ADA Code of Ethics* that has always troubled me. In Section 4.C [Justice (fairness)], it states: "Patients should be informed of their present oral health status without disparaging comments about prior services." Then in the very next paragraph (4.C.1): "The dentist should exercise care that the comments made are truthful, informed, and justifiable." This is the concept of "justifiable criticism."

I see an inherent dichotomy in these two statements. We are asked to walk a fine line, which unfortunately has led many dentists into serious entanglements with their patients and colleagues.

As chair of the Ethics Committee for New York County for several years, and now more recently on the State Board for Dentistry in the New York State Department of Education, I have helped

to adjudicate the relatively rare felonious cases of drug abuse, sexual abuse, insurance abuse, extortion, and others.

The vast majority of cases that arose, however, were disputes between very decent dentists that revolved about the two conflicting guidelines of the *ADA Code of Professional Conduct* just elucidated: Informing patients of their oral health status and doing so without making disparaging remarks while still being honest and justifiable. It seems to come down to communication.

Wearing another hat, I have been an expert witness for more than 20 years in over 100 endodontic malpractice cases. At first, my assumption in these cases was that, even on his or her worst day, an endodontist is not going to deliver substandard care and that, therefore, in only a small fraction of the cases, the defendant would be an endodontist. I was astounded to see, however, that 50% of these cases were against endodontists. Again, the problem seems to be an issue of communication. Careless, casual comments and the body language that we put behind them lead to the majority of our problems: "Who put these fillings

Careless, casual comments and the body language that we put behind them lead to the majority of our problems.



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in?” and “WHO put THESE fillings in?” convey totally different images in the patient’s mind.

Differences of opinion should never be communicated in a manner that implies mistreatment. The standard of care allows for variance; reasonable minds can disagree.

Let me share some examples with you.

1. A patient went to a new dentist and was told that all her new restorations, done six months earlier to replace her 30-year-old “blackies,” were now leaking, had decay, and were not the porcelain that was apparently promised. This led to a major lawsuit and confrontation between the two dentists. Assuming that there was some substance to the second dentist’s judgment, he certainly did not know whether the restorations were placed six months or six years ago. He also did not know what restorations were promised or the condition of the old amalgams prior to treatment. Some patients are able to provide accurate information, and some are not.

2. A patient was having her mouth rehabilitated for \$35,000 by a periodontist and prosthodontist because it had been allegedly destroyed by an orthodontist. The patient was suing the orthodontist for \$500,000. Another periodontist, testifying for the orthodontist, said in court, with only preoperative records to go on and having never examined the patient, that the rehabilitation was totally unnecessary and completely wrong. The jury awarded \$500,000 to the patient and

this was upheld on appeal. The insurance company then sued the rehabilitating dentists for indemnification, and these dentists in turn sued the second periodontist for character assassination.

3. Although comfortable with her dentist, a patient chose another periodontist to place three maxillary implants rather than accept the suggestion of her dentist. The superstructure was finally cemented after the periodontist gave his approval. The periodontist’s records show no mention of any problems with the bridge or occlusion. The periodontist then referred the patient to his choice of prosthodontist to rehabilitate the mandible. Along the way, one of the original maxillary implants fractured, and the new prosthodontist, in a “To whom it may concern” letter one and a half years later, stated that the fracture was due to overloading caused by the first dentist. Unfortunately for the prosthodontist, his records never alluded to any occlusal overloading, and it was he who actually changed the occlusion when he rehabilitated the mandible. Armed with the letter, however, the patient sued the first dentist, but lost. The first dentist then sued the periodontist and his prosthodontist for defamation of character.

4. A fractured implant bridge led to increasing tension between a general dentist and a periodontist who placed the implants. Disagreement over the length of the implants, the occlusal forces placed on them, and who was to pay for the remake escalated to open hostility. Several e-mails were exchanged, and in each case the e-mails were copied

to the patient. For example, one e-mail from the periodontist to the general dentist read, “Let me remind you! I recommended splinting from #12-#15, countless times orally and in writing. It is your responsibility to have radiographic and clinical verification that the components are coupled and that coupling is maintained. You are the restorative dentist and it is your responsibility to work ethically, morally, and professionally to ensure that the superstructure has no discrepancies. I will not do what you are supposed to do.” To put this in writing and copy the patient is insanity. Montaigne, the French philosopher said, hundreds of years ago, “We dignify our stupidities when we put them in print.”

5. A patient wrote to our committee that his new dentist led him to believe that the former dentist was guilty of malpractice and that he should be compensated. The patient stated, “When I first met the new dentist, he could not stop maligning the work in my mouth. He explained repeatedly that my discomfort was solely the result of malpractice committed on me by his predecessor. He said that the work was not only improperly done, but unnecessary as well. He further told me that if I didn’t correct the work immediately, my mouth would quickly deteriorate, requiring extensive surgery and reconstruction. He offered to write a report of his findings that would permit me to be compensated for the expenses and pain that I had experienced. This report was to cost me \$600 in addition

to his fee for services.” The report was insufficient for the patient’s lawyer to proceed with the lawsuit, so the patient became enraged and contacted the dental society.

6. The last case is a very personal story. After practicing endodontics for 40 years without even a hint of litigation or disharmony from either a patient or colleague, I received an irate call four months ago from a patient I had seen six years prior. She had recently changed dentists and apparently mentioned some soreness in the tooth that I had treated in 2003. The new dentist sent her to his endodontist who proceeded to tell her that there was obviously another canal that I had missed, which was infected and that the infection had now spread to the other treated canals. She demanded her money back from me, and fortunately as it turned out, sent me a copy of the new pre-op X-ray. On comparing the new X-ray with my old record, I was pleased to see no change. There was no periapical pathology then or now. My notes of six years prior showed that after the endodontic therapy she had returned a week later with slight sensitivity. After minimal occlusal adjustment, I told her that there may be a microscopic incomplete fracture line, and if her sensitivity continued, I would suggest full coverage. She never contacted me or her regular dentist with this problem again. Although it is not a good idea to refund money, I was so convinced that there was no extra untreated canal that I told her that if she sent me a new X-ray showing this elusive canal, I would send her a total

refund. I also advised her against retreatment, because it could exacerbate the situation and make things worse. The new endodontist re-treated the tooth and found no extra canal. Her pain immediately became acute and the tooth was extracted.

It is readily apparent to me from these six cases, as well as many from my voluminous files of similar cases, that we dentists too often slip over that fine line and denigrate a previous dentist. Psychologists tell us that there is a trait in our psyche called *schadenfreude* (from the German), meaning feeling happiness at another’s misfortune, or put another way, it is our competitor’s delight at hearing of our problems. People of low esteem are more likely to feel *schadenfreude* than those with higher self-esteem. *Schadenfreude* is closely correlated to another unenviable trait, that of “envy.” I fear that *schadenfreude* is an all too common affliction in our profession.

My plea today is that we be ever mindful of this tendency or instinct to disparage the previous dentist.

Let’s treat him or her as we would want to be treated. Remember the old adage attributed to Edward Wallis Hoch over 100 years ago: “There is so much good in the worst of us and so much bad in the best of us, that it hardly behooves any of us to talk about the rest of us.”



Schadenfreude [means]
feeling happiness at
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ENERGY

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

ABSTRACT

Energy is the capacity to do the things we are capable of and desire to accomplish. Most often this is thought of in terms of PEP—personal energy potential—a reservoir of individual vivacity and zest for work. Like a battery, energy can be conceived of as a resource that is alternatively used and replenished. Transitions between activities, variety of tasks, and choices of what to spend energy on are part of energy management. Energy capacity can be thought of at four levels: (a) so little that harm is caused and extraordinary steps are needed for recovery, (b) a deficit that slightly impairs performance but will recover naturally, (c) the typical range of functioning, and (d) a surplus that may or may not be useful and requires continual investment to maintain. “Flow” is the experience of optimal energy use when challenges balance capacity as a result of imposing order on our environment. There are other energy resources in addition to personal vim. Effective work design reduces demands on energy. Money, office design, and knowledge are excellent substitutes for personal energy.

Although it is a mild epithet to say of someone “that guy is sure energetic today—too much caffeine, perhaps,” I do not know anyone who has complained about having an excess themselves. Energy allows us to get things done. In fact, that is the technical definition: capacity to do what we want and are competent to achieve. “Work” here really means anything we want to do. Just look at the TV commercials: the “creative class” texting while dancing, multitasking moms and their monster SUVs, grandpa at the ballgame with junior, and grandma getting every dollar’s worth from her investment in her active retirement community.

The Japanese word for too much energy is *karoshi*, literally “working one’s self to death.” But Americans have written it into our Constitution. Seventeenth-century English philosopher John Locke coined the catch phrase “life, liberty, and property” as the basic package of entitlements of free and civilized men. Thomas Jefferson made the adjustment to “life, liberty, and the pursuit of happiness.” Energy is our capacity to pursue happiness. Don’t mess with our rights. Energy is part of our distinctive national character—so much so that we resent those who do not seem to be sufficiently energetic in pursuit of their own interests.

If this is really true, energy policy should be prominent in our national political debates, so should health care, unemployment, and the national debt (negative energy). Having looked at the current discourse on these big topics, I have decided instead to focus on the

more manageable topic of how individuals can husband what personal energy they do have in the most effective fashion in their routine daily activities.

Are there really “morning” and “afternoon” people? What should we do about that dip in productivity between three and four in the afternoon? Do diet and sleep and exercise matter? Can work be designed to be energy-efficient? Can we build up our supply of energy? How do social and mental dimensions alter our energy bank account? Are knowledge and money energy?

PEP

PEP means brisk energy, initiative, and high spirits. It is also an acronym for personal energy potential. The emphasis is on individual physiology and how one feels about engagement. It is not the whole of energy, but often what we think of first.

ENERGY AS RESERVE CAPACITY

We use energy in the routine conduct of our daily activities. When we put off making a decision about what to do this weekend, take longer than usual to complete a procedure, forget where we put something or answer a question incorrectly, miscalculate the speed of merging traffic, derive less joy from holding our four-month-old granddaughter than we should, experience difficulty adjusting to take advantage of opportunities or get out of the way of unexpected problems—all of these are

symptoms of depleted energy reserves. Energy is about what we typically do: it is not for lack of energy that I cannot dance the male lead in Swan Lake—I never could and it would be an offense on common decency if I tried. If I do not come in to work because the roads near my house are flooded, that also is not an energy problem. Energy is the flywheel that keeps our routine centered and in motion.

The best metaphor is a battery. We lose power for two reasons. Use depletes energy levels. The seventh amalgam is not as quick, precise, or interesting as the first one each day. Energy is also depleted by being spent elsewhere. The third amalgam is low energy if one has been drinking or fighting with the office staff.

The good practices of eating five or six, small, low-sugar meals a day; getting seven or eight hours of sleep at regular times; avoiding alcohol or drugs; and engaging in frequent and moderate, age-appropriate exercise all contribute to energy management. They replenish energy, but they also help by reducing the dangers of energy mismanagement. When we ignore the symptoms of energy depletion we borrow trouble. Exhaustion, errors, irritability, and cravings are physiological signals that energy is getting low. When I must concentrate over long periods of time, I get hungry. I weigh myself every day, and I have clear records of my most productive scholarly work reflected in upward swings of the weight curve. Of course, I tell myself that the human brain is only 2% of my body weight but it consumes 25% of its

oxygen and almost 20% of its ready calories (read ice cream). These are true facts, but we must make sure the causal arrow is pointing in the right direction. I have never heard of anyone eating himself or herself to intellectual brilliance. There are times when it is necessary to borrow energy. If my open heart surgery takes two hours longer than expected because of complications, I do not want my surgeon to stop and take a nap or go out for pizza when things get tough. On the other hand, if I knew I had a choice between a surgeon who had scheduled five surgeries for today and had plenty of coffee on hand or a surgeon who had scheduled only a warm-up and then me, I would go with the latter.

We must distinguish between routine management of a steady state of appropriate energy and energy overrides caused by either accidental happenstance or an ego-driven policy of regularly taking on more than one can handle. There are habits of healthy energy maintenance and habits of unhealthy compensation for an energy level that does not support outsized aspirations. All of the good advice about maintenance that is already known and in many cases hard-wired into our physiology should be followed.

Pulsing

Often overlooked in energy management is the requirement for pulsing. We have a natural energy capacity. Energy is used and energy is restored. I have heard a

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few times that for a person who lives to be 70 years old, his or her heart muscles will have been constricted for 30 years and relaxed for 40. The exact numbers do not matter; the concept is that energy maintenance is a matter of alternating demands on our systems and rest periods for their replenishment.

That is why several small meals are better than the same number of calories in one or two sittings and a little nap in the afternoon really does contribute to overall higher productivity. The circadian (24-hour) cycle is well-known. But there is also good evidence that most human activity is bundled in 90- to 120-minute packages. Regardless of whether the activity is performing periodontics, participating in a meeting, playing golf, or watching TV, the natural energy drain is reached within an hour or two and effort beyond that point has both the effect of drawing (compensatory) energy at an increased rate and of making it difficult to switch to new activities. The technical name for this trap is called “perseveration,” and it means over-concentration and repetition. Among the dangers of perseveration is that the longer it persists, the more narrow the definition of success becomes.

Pulsing—short breaks that allow for recharging—includes the typical healthy activities of sleep, exercise, and a (low-sugar) snack. These can often be very natural activities such as scanning a professional journal, taking three extra minutes to socialize with a patient, or phoning a colleague or one’s spouse. The character of the rejuvenating activity does not matter much, but positive social interactions get very high marks. I know a famous former dean of a dental school who made it part of his daily routine

several time each day to either write a short thank you note or walk through the building to find someone to compliment. No man I know ever worked longer and harder than he did. But it was not because he kept his nose to the grindstone; it was because he knew when to let up.

TRANSITIONS AND VARIETY

Inserting transitions between major activities also matters. There is good evidence that transitions are real activities that, if managed well, enhance the effectiveness of subsequent activities. Going directly from one difficult procedure to another (in order to save time) is a practice that predictably leads to poorer performance on the second procedure. Taking three minutes to review the charts or talk with staff or the patient normally returns much more than three minutes in quality performance on the ensuing activity. My commute is about an hour. It is through some of the most beautiful country in the world, I listen to music or NPR, and I pay no attention to other drivers who are trying to shave four minutes off their commute time. The transition between work and home is a vital activity that I have learned to manage. This was especially the case when, as academic dean, I was bombarded with a steady stream of problems that others brought to my office and knew I would be jumping into issues of my boy’s schoolwork, dating, and Little League when I got home.

It is not always possible to insert rejuvenation breaks or transitions into one’s busy schedule. It is part of the personality of some folks to place their energy expenditures exactly at the hoped-for outer limit of human performance. Even if unavoidable, this is not a sound general policy. First, there is no room for miscalculations (most hard-chargers also believe they are smarter than the rest of us), no allowance for unanticipated irregularities, and no

recognition that the long-term accumulation of coping costs will have to be paid with interest. I know this person. If it cannot be avoided, one should at least vary the mix of tasks that consume all of one's energy. Alternating an hour and a half on taxes and professional reading for two 12-hour days is better than a 12-hour day on taxes followed by 12 hours of journal reading. Alternating a mix of high-demand activities is a distant runner-up as an effective energy management strategy. Type A personalities are no fun on vacations either. Intensive focus on one task, especially when it is overdrawing our reserves, reduces energy available for other tasks, even to the point of making it difficult to recognize that one is in trouble elsewhere.

RESERVES AND Multiple USES

Energy that is expended for any purpose comes from a common reserve and diminishes the energy available for other uses. But if our energy capacity is really like a muscle that builds up oxygen debt when used and is restored with resting, should we not build up our energy capacity through repeated exercise? This is a very problematic area in scholarship on personal energy. Think of the question does sleeping for 24 hours straight increase one's alertness? The academic researchers generally say, based on physiological studies, that there is very little if any possibility to increase long-term general energy capacity through exercises. But it seems pretty clear that energy capacity can be lost through disuse. There are personal differences grounded in biology and age effects that are well-documented. By contrast, there are commercial companies, such as LGE Performance Systems and The Energy Project, that offer programs for athletes, celebrities, and executives that promise to noticeably enhance energy capacity

overall. It is possible that the advocates of energy exercises are really pointing out ways to more effectively bring spent energy back to resting levels or that they are offering a placebo. But what is a placebo anyway other than a non-sustainable energy boost?

Energy spent on one activity is not available for others. Having to pay attention to a distraction or thinking about a previous problem diminishes performance on the task at hand. Just "paying" attention is energy consuming, as the term implies. There is an interesting set of research studies showing that imposing a distracting energy-consuming task disrupts mental calculations and consideration of alternatives. It has even been reported that groups of individuals who were distracted were more honest than the same folks were when unencumbered. This is not to say that people who work out are unethical. But it appears that immoral behavior consumes large amounts of energy—something that should be recognized by anyone who has tried to consistently maintain a deception.

FOUR ENERGY ZONES

Think of PEP in terms of four zones. There is a normal range of effective capacity, and fluctuations within the zone hardly matter. Being awake and attentive at a meeting is fine, but being a bit more lively adds nothing. If your ideal weight for your height and age is 175 pounds, nothing really hinges on 165 or 185. This is the normal energy range.

There is also a normal deficit zone. Being drowsy or being too light causes problems with performance. The normal deficit tends to be self-correcting. Sleep and normal eating should bring energy back to the normal zone.

Extreme deficits function in a different way. This level of energy both compromises performance and has a complicating role in precluding normal

recovery. Its effects spill over to other areas. Falling asleep in public or while driving or suffering from anorexia require dramatic, often professional, intervention.

The fourth zone is extension above normal. Perhaps capacity can be increased through practice and stretching. Athletes, actors, artists, and politicians maintain a high level of performance with abundant energy reserves—but only through heavy and continual investment. If that is in fact so, it is also the case that once the pressure is relieved, regression to the normal zone is likely.

This concept of four zones of PEP can be illustrated by considering vitamin C. A body level in the normal range is typical and not predictive of any unusual effect. A normal deficit exposes individuals to risk of infection, but a healthy diet restores the gap. Significant deficiency leads eventually to damage, as in scurvy, and requires substantial intervention. Megadoses might have a benefit, but perhaps not for individuals who are exposed to normal challenges. The point is that "more" is not automatically better—it depends on where one is on the curve. It is also the case that within a normal set of circumstances, energy gravitates toward a workable, functioning level.

Flow

Having a large store of energy on hand is no guarantee of feeling fulfilled. Think of the squirming four-year-old boy sitting through his first Sunday school lesson; or any intelligent dentist in a CE lecture that has gone on way too long and was not particularly informative to begin

with; or the emergency patient. Of course, there is the panic of realizing that the speaker is talking about new state regulations the office is not ready to comply with or that one is 20 minutes behind schedule or that the boy in Sunday school may be over-energized to learn for the first time where he is going when he dies unless he makes some adjustments. What it requires to feel energized is to approximately balance capacity with challenge.

The personal experience of being at one with one's world and productively engaged is called "flow." The term was coined by the "father of positive psychology," an Italian-Hungarian emigrant to the United States from the region near Trieste with the impossible name of Mihaly Csikszentmihaly (pronounced CHEEK sent mu HIGH ee). He holds that "the optimal state of inner experience is one in which there is order in consciousness. This happens when energy...is invested in realistic goals and when skills match the opportunities for action." Pretty straightforward: It matters not only how much energy one has but also on how much is needed and for what purposes. The pursuit of happiness has to be an orderly and civilized sort of thing.

Consider the case of listening to the CE speaker. Most of us talk at about 125–150 words per minute. We are capable of listening at 650–750 words per minute. The danger comes from the surplus 500 or 600 words. If we use the capacity productively—as in calling to mind examples and applications of the speaker's comments—so much the better. We have to control our attention. In fact, the brain at rest engages in a constant low level of random neural firing. It is white noise that keeps the circuits functioning. The tragedy of schizophrenia is that its victims lack the ability to ignore this

mental stimulation. Managing our attention is what allows us to direct energy. We must control the randomness and impose order on chaos. Television is literally addictive because it provides this service of ordering randomness for those who are otherwise incapable of doing so. Ever notice the tendency to watch TV, eat surgery foods, or take a drink when energy is low? "I will just get this little help (to put a bit of predictable order in my life now) to get over the hump." Lack of order—the all too human dangerous condition we must address on a continual basis—comes from two extremes: boredom and pressure.

Flow is the perfect management of energy. In flow, sense of time recedes, there is identification with the task, we lose track of ourselves, and when we snap out of it, we realize that we have somehow grown. Athletes, musicians, and actors are intensely aware of flow, but it is not uncommon. Csikszentmihaly's research model was to fit a large cross-section of individuals with electronic devices that randomly got their attention throughout the day, and he asked them to record what they were doing at the time and how they experienced it. Here are some of the things he found. Americans spend 40 hours per week on a paid job, and they actually work 30 of those hours. Not counting maintenance activities such as picking up the dry cleaning, sleeping, and eating, our 20 hours of leisure go to social activities (seven), watching television (seven), reading (two) and physical activities (two). But we are four times as likely to report flow experiences at work than while engaged in leisure activities. Actually, many of us are fair at making our work effective but lousy at managing our free time.

Here are some suggestions for balancing energy with the challenges of our situations so as to maximize flow. Seek challenging activities that demand some level of skill. Minimize self-consciousness:

the goal is not to measure how well you are doing but to become one with the activity. Concentrate on the task at hand and avoid planning ahead. If this sounds counter-intuitive, I will explain in the next section how planning is its own overarching activity that can produce its own flow. Surrender control. This is paradoxical and the goal is not to be in control or have control, but to exercise control; it is not the having of energy that matters so much as the wise use of it.

DON'T MAKE IT PERSONAL

Personal energy potential does matter. Those who abuse themselves lose the opportunity to make a difference and to derive satisfaction from work and leisure. They are vulnerable to disruptions. But the concept of energy—as capacity to accomplish what one intends to do—extends beyond personal capability. Our individual capacity can be multiplied by smart work design and by recruiting other resources to compensate for an inevitably declining personal energy level associated with age and as a buffer against big insults from a capricious environment.

WORK DESIGN

Some of the earliest research in management was done by F. W. Taylor at about the time of the World War One. The question was how to design the job of men shoveling coal into railroad cars. Longer hours and faster work backfired because of fatigue—although stronger men mattered. The key was finding the right-sized shovel, and that differed for each man. Shovels that were too small burned energy without moving all the coal possible; shovels that were too large accelerated fatigue.

What was stressed in the first section of this essay was energy as a personal, physical feeling of being "up" for activities; a level of PEP. In the section on flow, the

emphasis was on managing our power of attention to organize the chaotic world to bring a balance between demands and ability to respond. Now let's take a higher-level view. How can activities be organized when many tasks of related natures are involved, and what energy resources can be used beyond personal get-up-and-go?

The challenge is to design an office routine or a family life or one's community involvement or a hobby or recreational activity so that flow is given every opportunity to emerge and so that one is not fighting a losing battle against energy drain. Consider as an example a case of volunteering to help a political candidate. At first it is appreciated that you are told exactly what to do, how to do it, and when. Gradually you see opportunities for improvements, but these are not welcome. Your candidate has an disconcerting habit of saying that much of the campaigning at the grass-roots level does not matter much in the long run. It remains a bit of a mystery to you both how your candidate is doing and whether he really values your efforts. One little annoyance is that there really is not enough work for all the volunteers, so they are continually stealing jobs from each other. You start to stuff envelopes and somebody else takes some of them and begins to do the work in a different manner. Regardless of how enthusiastic you are about the overall cause and regardless of how much sleep, breaks, exercise, and good food you receive, it is obvious you will not last long in this project. If you stay with it you will become ineffective, discouraged, and an irritation to others.

This imaginary project violates the five principles of good work design. There are characteristics of the work

itself that are important. First, it must be meaningful—one should be able to immediately describe exactly how it contributes to someone else's happiness; there must be some variety; and the various tasks have to be seen as fitting together into an organized whole. To avoid becoming an energy sink, the task must have some basic level of autonomy. This means that there is freedom in how tasks are done and what order they come in. Finally, there must be feedback. No one can long continue to remain engaged in an activity without knowing whether it is producing the hoped for results. It does not matter how much one enjoys bowling or even how good one is at it if there is a curtain in front of the pins.

In research I have done with the construct of work design, dentists consistently score high on meaningful work and autonomy. The challenge is getting feedback. Regardless of how much PEP one has or whether opportunities exist for good flow, stumbling on any of the five characteristics of good work design could sabotage a dental practice, drawing away energy that should be contributing to satisfaction.

OTHER ENERGY RESOURCES

Energy is all the resources that can be brought to bear to do what needs to be accomplished. Too much attention to the personal and physiological ones is both egocentric and misses some opportunities. Work design has already been mentioned. In a head-to-head between high personal energy individuals working in a poorly designed job and compromised individuals working in an optimized job, there is no particular reason to bet on the former—certainly not in the long run. And there are other resources of the same large caliber.

Just for shock value, first consider money. It is true that small businesses

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create more jobs in the American economy than do large industries. It is also true that they contribute more unemployment than to the large firms. The reason half of all small businesses fail within the first five years is not the energy level of the owners. (Often small businesses are voracious consumers of human energy.) It is failure to have or be able to get sufficient funds to survive swings in the cash requirements of the typical business cycle. Staying up nights wondering about making payroll or loan payments robs individuals of physiological energy. It also prevents purchase of equipment that would streamline work and increase productivity. Money can be substituted for sweat, and often should be.

The four-zone concept of energy can be applied to financial resources. Most people live within their means or fairly close to it. There are swings between the beginning and the end of the pay period, but it is almost impossible to determine by watching others' behavior whether they have more cash in hand today than they did a year ago. Those who are financially pinched can usually maintain a healthy life by adjusting expectations and working hard. But there are some who, because of disability or inability, extreme misfortune, or dullness cannot return to normal on their own. Finally, there are those with more funds than needed for a normal life. To them I recommend the balm of charity.

Knowledge is also energy. It is a resource that can be applied to activities to make them faster, less costly, and better. This might be obvious in the case of the advantage an experienced dentist has over one who is just beginning. Experience seldom makes one work faster, but it almost always reduces wasted effort. All the wisdom in a dental office is not in the dentists' head and hands, however. A good front desk and a smooth-working team contribute substantially to a very effective office. When the office hits a rough patch, it is

almost never entirely because the dentist has forgotten to go to the gym. There is also wisdom in the physical layout of the office, in the business routines and records system, and the scheduling and patient flow. I have heard more than one story of locum temps dentists whose productivity and quality rose dramatically in one office and pooped out completely in another.

Finally, consider social relationships as a source of energy. Of course, everyone in the office knows when the dentist is having problems with a spouse or child or significant other. That is a personal energy drain. But the space between people can also be filled with magical, enriching, healing, energizing warmth.

I am imagining a little choice exercise. I am given the descriptions of several dentists and asked which I would prefer to trust with my personal care and which I would predict has the most personally rewarding and outwardly successful practice. Each of my four choices has one characteristic that is outstanding and I am to assume that the dentist is "average" on all others. How should I rank the energy resources I value most in a dentist?

- a. Works out, is trim, eats a low carb and almost vegetarian diet
- b. Is financially successful by completely ethical standards to the point of being able to invest in the community and the practice
- c. Possesses deep knowledge about dentistry and dental treatment and has a well-trained and efficient staff
- d. Is warm, has important friends and is involved in the community



RECOMMENDED READING



The selections below will be of interest to those seeking a deeper understanding of energy as the capacity to do those things we feel should be done. Each reference marked with an asterisk is about five pages long and uses extensive quotations to convey the tone and content of the original source. These summaries are designed for busy readers who want the essence of these references in 20 minutes rather than 20 hours. These summaries are available from the ACD Executive Offices in Gaithersburg. A donation to the ACD Foundation of \$15 is suggested for the set of summaries on energy; a donation of \$50 will bring you summaries for all the 2012 leadership topics.

Roy F. Baumeister and Kathleen D. Vohs (Eds.)

Handbook of Self-Regulation: Research, Theory, and Applications*

New York: The Guilford Press, 2004.
ISBN 1-57230-991-1; 573 pages; price unknown.

Self-regulation is the appropriate balance of dominant and current activities with potential alternatives for the long-term benefit of individuals and society. This book contains a comprehensive summary of current research and theory on self-regulation. There are 28 chapters ranging from brain physiology to control of impulse buying. This is a scholarly publication, with extensive references.

Mihaly Csikszentmihaly

Flow: The Psychology of Optimal Experience*

New York, NY: Harperperennial, 1990.
ISBN 978-0-06-133920-2; 303 pages; about \$15.

Flow is the experience of balance between challenges and adaptive capacity that leads to a sense of being lost in an activity while growing from it. The conscious self (not self-conscious preoccupation with how one is doing) is a buffer between the physical and social worlds that permits a transformation process in the healthy individual, converting the given world into a potentially satisfying one. The natural state of the mind is chaos or certainly a large measure of disorganization caused by multiple complex stimulations. We use external structure (work routine or television) to passively promote structure or, in our creative acts, create our own structure through consciousness. The book is a seamless combination of psychological studies and philosophy and general remarks on civilization.

Jane E. Dutton

Energize Your Workplace: How to Create and Sustain High-Quality Connections at Work*

San Francisco, CA: Jossey-Bass, 2003.
ISBN 978-0-7879-5622-6; 200 pages; about \$33.

Energy—the sense of being eager to act and capable of action—is a critical, limited, but renewable resource that enables excellence in individuals and organizations. High-quality connections are marked by mutual positive regard, trust, and active engagement.

Shane Frederick

Automated Choice Heuristics

In Thomas Gilovich, Dale Griffin, and Daniel Kahneman (Eds.).

Heuristics and Biases: The Psychology of Intuitive Judgment

Cambridge, UK: Cambridge University Press, 2002, 548–558.

This is the reference for research showing that greed requires the expenditure of energy.

Jim Loehr and Tony Schwartz

The Power of Full Engagement*

New York, NY: Free Press, 2003. ISBN 978-0-7432-2675-2; 245 pages; about \$25.

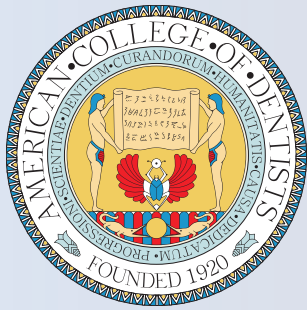
There are four dimensions of energy: (a) physical; (b) emotional; (c) mental; and (d) spiritual. Energy should be thought of as a resource of capacity that requires alternating phases of use and renewal.

J. R. Hackman and G. R. Oldham

Work Redesign

Reading MA: Addison-Wesley, 1980.

The classic text on work design. Interested individuals are referred to the American College of Dentists website for an online survey instrument that will reveal how well their offices are designed: www.dentalleadership.org/content27.shtml



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