Dentistry in America Trusted Profession or Duplicitous Trade What will the future be?

INTRODUCTION

The infectious disease of dental caries is the most prevalent disease process known to man. At some point, every human on the planet must combat this disease or deal with the consequences of it. Therefore, everyone, at some point, will be a dental consumer because of either dental pain or the need to repair defects caused by dental caries. If trends continue, the number one problem looming over the American public will be finding a restorative dentist who is competent to manage complex restorative cases for long-term success.

Due to political, social and internal influences that are outside of ethical dental care, we are at a tipping point in the delivery of oral health in this country. Who is doing what, and for what reason are the seminal questions of our time. How the answers to these questions are developed will determine what the future of dentistry in the United States will be. Some changes have the potential of leading to a time unheard of in this country since the twenties and thirties: a time when many Americans do not have all their teeth for a lifetime.

The future of dentistry in this country has not been decided. Unless new ways to select, educate and license new dentists are developed, the trends of mediocrity will continue. This will lead to fragmentation of the dental profession into fractionally trained dysfunctional groups, providing dental treatment options to the public that will be more costly and less effective. Excellence in restorative dental care will be confined to those who are able to find one of the few dentists capable of managing complex restorative treatment for long-term success.

Dentistry in America developed from self taught, unregulated and often destructive barber surgeons, to the pinnacle of excellence in the restorative and preventive arts of dental health. This did not happen overnight or by accident. Dr Horace H. Hayden and Dr Chapin A. Harris, two dental practitioners in Baltimore Maryland, instrumented the founding of the first dental school in the world, The Baltimore College of Dental Surgery, in 1840. This new dental school served as a prototype for the formation of dental schools in other American cities. This led to the development of a formal foundation for dental education in America based on sound knowledge of general medicine in conjunction with the development of the technical skills needed to perform reproducible long-term restorative dentistry. Only with formal training could dentists such as Dr G.V. Black, known as the father of dentistry, develop restorative techniques that have proven to be as effective today as when they were developed. In addition, countless dentists, too numerous to name have been responsible for the development of procedures and materials that have made the art of modern dentistry cost effective and available to anyone who values good oral health for a lifetime. The ultimate outcome for years of devotion to excellence and a persistent nurturing of dental students and new dentists, by those who valued ethics and excellence, is a profession that has a high level of public trust and expectation. It has also led to highest quality of dental health for the citizens of the US and has elevated the practice of dentistry throughout the world.

Current trends are pointing to fragmentation of the profession into areas of pseudo competency by inadequately trained individuals and fragmented competency from dentists not being competent in all disciplines of restorative dentistry. This trend involves resurgence by those who wish to have the respected place dentists have earned, without the work or technical competence needed to accomplish these goals. It also involves an increase in specialization, along with a trend not to utilize all available restorative techniques when considering treatment options. As has been the case with medicine, this will lead to an increased complexity of treatment with decreased long-term success. The net result will be an increase in the cost of delivery of dental care and a decrease in trust by the public at large.

The trend to fragment the delivery of dental services in this country is coming from many directions. Some seem well intended, such as a desire to help with access to care or to cut dental healthcare cost. However, in many cases, the under lying reasons for these movements are based on self-interest with agendas that are self directed and not honest. The ultimate outcome of developments based on duplicity and greed, whether inside or outside of dentistry, will have the effect of lowering trust and expectations of the American public with the dental community at large. It will also lead to a decrease in the long-term success of restorative procedures. This will have the negative effect of increasing cost, therefore lowering the value of dentistry in America. It will also put the American public at risk of dental procedures needed to correct failed restorations more often than has been the general experience for the past 50 years. The net effect will be an increase in dental disease and tooth loss. This will lead to poorer health in general. The ultimate losers will be the American public.

Factors' influencing the direction dentistry is taking for the foreseeable future in America can be categorized into the following areas.

Political	Licensure
Global	Generational
Social	Technical
Educational	

The following are multiple ideas, with different solutions to complex issues the dental profession / nation faces for the future of oral health care. All statements of issues, proposed solutions and conclusions within this document are my thoughtful assessment, based on 25 years of leadership experience from local, district, state and national positions within organized dentistry. They are not policy of the Florida Dental Association or the American Dental Association. The intent is to stimulate a broader national discussion in the hopes of developing solutions to these critical areas of concern.

POLITICAL

With the dental school act of 1840 by the General Assembly of Maryland, the love-hate relationship between the profession of dentistry and government began. This relationship is at times cooperative and at times adversarial. State government regulations and programs conflicting with federal regulations and programs further complicate this relationship. In addition, state and federal governments tend to complicate issues by acting without solid (evidence-based) data with which to make policy.

Government tends to want quick solutions with limited fund-

ing. Bureaucrats equate the solution as a numbers game, which could be solved by hiring sublevel providers to work independently of a professional based team at reduced fees. All are missing the fact that the whole issue of dental caries is a complex problem involving a preventable disease process. Equally alarming is that the basic cause of the problem, dental caries, is so prevalent that everyone including policy makers and the public at large consider it normal. Therefore, treating our way out of the problem without a substantial preventive and educational component will not work.

New ideas will be needed if leadership in government is interested in solving the access to care issue, not just using it as political leverage. For example, the feds along with state/local governments and the business community could work together to place permanent dental clinics in underserved communities. The feds/state could either purchase or build a new dental clinic and equip it with the latest dental equipment needed to practice general dentistry. They could then work with the local business community to contract with a graduating/new dentist to run the practice for a period of 10-15 years. During that time, the dentist would pay a low interest loan to purchase the practice/realestate. The contract would be written in such a way that the dentist would be obligated to see a certain percentage of indigent/working poor within a fee for service private practice. It would also obligate the dentist to a 10-15 year working obligation. At the end of the contract, the dentist would own the practice and facility. Because the dentist would ultimately own the building and practice there would be incentive to grow the practice and maintain the facility. In addition, because the dentist would be obligated to live and work in the community for 10-15 years he/she would become incorporated into that community and would be less likely to want to leave at the end of the contract. There would be a tremendous community asset from the operation of a dental practice or small business within that community. This would create jobs and tax revenue for the community and State/Fed that did not exist previously. The indigent population and working poor would have access to ethical dental care within their own community. They would not have to go to a government run facility, usually some distance from where they live, to be treated by people they do not know where they do not have a relationship. This system has the ability to create permanent centers of treatment in areas that were previously underserved or not served at all.

Increasing participation in access to care will require the development of programs that create incentive, are simple and cost effective to participate in for both the provider and the patient. One solution would be to create a program for dental health care delivery similar to the food stamp program. Indigent and working poor within a defined poverty level would be issued federal dental vouchers that could be "spent" at any licensed dental office or dental school in the US. The dental vouchers could be given, without cost, to the patient or sold, at reduced cost, depending on the level of income. The vouchers would be restricted to basic restorative, surgical and preventive dental services.

The dentist would accept the dental vouchers on a dollar for dollar basis, for payment of fee for service, based on reasonable and customary fees for the area in which the practice is located. The vouchers would then be deposited, at the provider's bank, into a federal tax account for the tax ID account of the doctor of record. The process could also be done electronically. These deposits would become a line item tax credit for federal income taxes for the year in which the deposits were made. The tax credit could be set up so that the dentist would get 50 cents per dollar credit for each dental voucher deposited within his/her tax ID account. In addition, there would be an annual maximum tax credit of, for example $3000. The net effect at this level of tax credit would be; the government would get $6000 annual dental health care for $3000 annual tax credit. For example, if 45,000 dentists across the nation participated fully, the government would get $270 million indigent dental health care for a tax credit of $135 million. The system would have no reimbursement forms to be sent to a government agency, therefore would be more efficient and cost less to manage. It would be simple for the provider and the patient to participant. There would be no money involved other than tax credits that would reduce the amount of income tax owed by the provider. This would be a win-win incentive to attract dentists and patients. Because the current system of Medicaid is not user friendly for the provider or the patient, dentists and patients have a low participation rate. Another benefit of a system such as this would be the patient would retain the right to choose the doctor they want to complete their treatment.

Government tends to want quick solutions with limited funding.

LICENSURE

State dental licensure is the one governmental regulation that will have the most influence on the direction dentistry will take in the US into the future. 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. The licensure examination process has a profound influence on everyone involved. It influences dental school curriculums. In addition, the process influences dental students and new dentists. The current dental licensure process does not reflect ethical comprehensive treatment of a patient. This 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.

Who is allowed to take the licensure examination will ultimately determine where and how dentists are trained. This will become more significant because the Commission on Dental Accreditation {CODA} has been given the green light to approve dental schools outside the territory of the United States. CODA is the government agency that is tasked to determine if a dental school meets educational standards that qualify its graduates to take a state dental licensure examination.

If the intent of government is to increase the number of dentists by accrediting more dental schools, this should have the effect of increasing the number of candidates taking licensure examinations. Government/bureaucrats look at the dentists to population ratio as a valid indicator to determine the number of dentists needed within a population. This number alone does not take into consideration the distribution of dentists within a population. Location, location, location, as the saying goes; is the information that will indicate if an area has enough dentists to serve its population. The distribution of dentists within a population, not the number of dentists, will have more to do with whether there is adequate access to dental care.

It appears the licensure process is headed in the direction of one national examination for everyone. Due to past failure rates and subsequent lawsuits, dental licensure examinations in general have been sanitized to the point they are not the exams they once were. If

the examination process continues in the direction it is going, there is a high probability at some point it will be shown to be irrelevant. When this happens, government and academia will have the excuse they need to eliminate the licensure examination. This will satisfy the desire of government to get out of the examination business and of academia to consolidate complete control over certification of competence, without outside interference. This will leave the public at risk of a system for evaluating the competence of dentists and hygienists without credible checks and balances. There would seem to be a potential for conflict of interest by asking the dental schools to evaluate and certify the same students they have taught.

The problem with the current system of licensure is not only is it a poor predictor of ethical competence, it is not being utilized 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 in order 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 the 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 prep course industry and a substantial cost increase to the candidate. This also brings into question whether candidates are being prepared.

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 on the competency of a candidate. The benefits of a system where candidates are required to demonstrate a broad skill set of competence in all areas of general restorative dentistry are multilevel. Most important, if the clinical examination process for dental licensure duplicated ethical private practice, this would have profound influence on dental educators and students to teach and learn the art and science of ethical 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. 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. The residency could be completed in as little as six to eight months, during which the candidate would complete a clinical board case in addition to concentrating on any area of deficiency, or area of interest, following formal dental school training. The ideal place for fifth year residency clinics would be in underserved communities. The residences could then be utilized to treat the indigent and working poor from whom their clinical board case could be selected. Ethical credentialed private practicing dentists from the area would act as teachers/mentors for the residents. They along with one full time head of the clinic from a supporting dental school would comprise the teaching /supervisory staff of the resident clinic. This system would involve the academic community and the private practicing community in the teaching and mentoring of future dentists to work together for the benefit of everyone including the underserved public. This would be an ideal transition from the academic environment of dental school to the practical world of ethical decision making in private practice. This concept should be a win-win for everyone. Government would get the best bang for the taxpayer buck by having community clinics in underserved areas staffed with competent dentists. 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 phase 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.

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Another area of licensure that is in need of improvement is how specialists are evaluated for competency and the kind of dental license they are given in order to practice their specialty. Most States have one examination for all dental licenses; a one-size fits all. The examination is a general dentistry evaluation and the license given is a license to practice dentistry: general and/or a specialty. The first problem with this system is asking a specialist, who has not done a restoration in several years, to do a restoration on a patient. This is not ethical or even safe in some cases. Having an oral surgeon or an orthodontist for example, take a license examination for general dentistry in order to practice their specialty makes about as much sense as having an airline pilot take a driving test in order to fly commercial jets. Everyone should be concerned about what kind of surgeon an oral surgeon is, not if he/she can do a filling. The best way to test specialists is through a specialty board. Every specialist should be required to be board

certified by their specialty board. This is a rigorous multi-year process and would have the benefit to the public of raising the bar for specialty training. It would also benefit the specialty organizations by making the board examination more meaningful and necessary. When a specialty board certifies that a specialist is competent, they should be able to go to any State to practice. They should be credentialed into a State by the fact they are board certified by an ADA/CODA approved board examination process that is more comprehensive than any current state license examination. Likewise, by having all general dentists do a board case, that has been certified and evaluated by dentists, for the clinical part of their licensure examination during an ADA/CODA approved residency program, all dentists in the US would be board certified to practice whatever area of dentistry they have been certified to practice. If this were the law of the land, there would be no need for separate and specific State examinations. All dentists would be required to complete a board case, demonstrating competency in all areas of their arena of practice. They would then complete the written examination for whatever state they wished to practice. Upon successful completion of both the clinical case and written examinations, they would be issued a license to practice their field of competence in that state. In addition, the public would have confidence that all dentists have been certified competent to do any procedures they are licensed to do because they have demonstrated clinical competence in those procedures by completing a board case, under supervision by a licensed dentist, which is subsequently evaluated by board examiners. In this day of mobility, it makes sense to make the movement of dentists, who have been shown to be truly competent, easier than the current system does.

With a system like this, if a dentist has adverse actions brought against his/herself, he/she should lose the right to be licensed everywhere? The day of losing a license in one state, then moving to another that you might also have a license in should be eliminated.

With the aging 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/her license revoked because of a serious malpractice incident. The problem with this scenario is when a dentist has his/her 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 without notice for, in some cases, years. In addition, there are those who work just under the legal radar screen. They practice on the borderline of ethics and/or competence for years without notice. These two areas of concern, the aging of the dentists' population and those who choose to remain stagnant with their competence, are issues that will be dealt with.

At some point, a continued competence evaluation will be put into effect for all dentists practicing within the US. Either this will be forced from outside the profession or it will be a voluntary process. 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 stake holders, including the private practicing community, academia, the ADA, government and the public. Then decide on a start date, when 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 voluntary basis only. This way at some point into the future, all licensed dentists within the US would be subject to continued competency through out their practice life. This will be good for the profession and the public trust.

The primary intent would be to generate high profits through volume. The public does not understand that often, the difference between a restoration that is an "A" with maximum longevity and one that is a "C-" with minimal longevity can be 10 minutes of extra time spent paying attention to all the small details involved in restoring a tooth.

If the dental licensure examination process is all about controlling borders or setting the number of dentists within the US at statistical levels, the result will be a lowering of the quality and availability of competent dentists within the US. 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.

GLOBAL

With globalization, and the effects of technology making the exchange of information and knowledge easier and much less costly, the world has become a much smaller place and according to Thomas Friedman is being flattened. Add to this the fact that now CODA had been authorized to accredit dental schools outside the borders of the US, and you have major changes in who and how candidates for licensure within the US are selected. CODA is the government run organization that is mandated to insure that minimal standards of education are being met at all dental, dental hygiene and dental assisting schools within the US. It now appears this will happen globally, at least with dental schools. There has been controversy over the years about the "job" CODA does within the US where CODA is bound by the laws of this country. Needless to say there is trepidation about the job CODA is capable of doing outside the boundaries of regulation imposed by the laws and rules within the US. According to proponents, there should

be an elevation of dental education standards around the world. However, some worry that the unintended consequence of this action will be to allow internationally trained dentists, who have not met the minimal standard for graduation from an accredited dental school within the US, the ability to sit for licensure examinations within the US. This is another reason for changing the licensure examination process to an effective way of determining complete clinical competence of all candidates.

Another concern should be the formation of for-profit dental schools outside the laws and rules of the US. These schools would more than likely cater to citizens of the US who are unable, for various reasons, to get into dental school within the US. The problem with this scenario is the potential for commercial interest to take precedence over dental education. Profit centers could generate high profits for investors. Large clinics just offshore, where less oversight would exist would be difficult to regulate. This could increase dental tourism to new levels because these clinics would be convenient too the American public who would not understand the difference between these clinics and similar clinics within the US. Centers such as these would most likely be set up with a business model for high volume at reduced fees. The primary intent would be to generate high profits through volume. The public does not understand that often, the difference between a restoration that is an "A" with maximum longevity and one that is a "C-" with minimal longevity can be 10 minutes of extra time spent paying attention to all the small details involved in restoring a tooth. In addition, these profit centers would need a steady source of dentists to work in the facilities. Directly supporting the offshore dental school through grants and/or direct building support could accomplish this. In addition, they could interact directly with the dental students by contracting for tuition payment in exchange for a period of indebted work within their clinics following graduation. This would be a form of indentured servitude similar to what wealthy land owners in Europe did to get workers for their holdings in the new world. Even though it would be legal, it is still an abuse of human resources. This kind of activity has no place in a profession. Another source of clinical staff would be internationally trained dentists. Because these clinics would be outside the borders of the US, licensure requirements within the US would not apply.

After reading "The World is Flat, A Brief History of the Twenty First Century" by Thomas L. Friedman, I came to the understanding that in all areas of commerce, education, information and knowledge exchange, the world is indeed flat and getting flatter. This includes the profession of dentistry. With the increase and ease of transfer for information and knowledge globally, there is and should be an opportunity for American dental educators and American trained dentists to influence the world and generate a revenue source for themselves and the institutions they represent.

The driving force for immigration into this country has been the fact that until recently, there was no better means of advancing ones economic or social status, than by taking advantage of the educational and entrepreneurial opportunities associated with a free democratic-capitalistic system like the one found in the US. Now however, with the advent of technology and the subsequent ease and cost effective means for the transfer of information and knowledge, people are no longer forced to come to this country in order to participate in the economic growth of the world economy. Combine this with the slow but inevitable move to more democratic and open governance systems within countries that were once closed to everyone, including their own citizens, and you have a leveling of the economic and intellectual playing field between the US and the developing world.

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While dentists in this country are preoccupied with the fear that internationally trained dentists will gain access to the licensure process, we may wake up one day to a world where the best dental education and opportunities for economic success as dentists can be obtained, not in the US but in India or China. If you combine, the technological explosion of information and knowledge transfer, with the down turn in funding for dental schools in this country, the future of dental education could move to countries where the need is great and the will to fund excellence exist.

With current and developing technologies, dental educators and dental entrepreneurs, in this country, have a window of opportunity to influence dental education and dental practice in the developing world. There will also be a limited window of opportunity to reap the benefits by being in leadership positions for such development. When dentists worldwide are trained to the same high standard of excellence and governance systems allowing free and open entrepreneurial ventures by citizens of developing countries are adopted, the influx of internationally trained dentists coming to this country just might dwindle. In fact, the future could change in ways where dentists, who have been trained in the US, want to emmigrate to once developing countries to live and practice.

In whatever direction globalization pushes the profession of dentistry, dental education standards of excellence and licensure standards that reflect ethical practice will need to be adopted worldwide.

GENERATIONAL

The one constant for all societies is change. Dentistry is not immune to this phenomenon. Changes from generation-to-generation are due in part to life experiences unique to each generation. For example, the greatest generation was influence by the need to fight and win the Second World War. Each subsequent generation has had or will have its Gestalt moment. With constant exposure to world events through the media and the internet, subsequent generations may very well experience several Gestalt changes during their lifetime.

Every generation looks at problems with different eyes. Each generation processes information in ways influenced by their life

experiences. For example, the current generation of dentists tends to work in groups, which at some point, may lead to the demise of the solo practitioner as the dominant practice mode in this country. In addition, they tend to look at procedures from the past as obsolete, even though evidence base studies show these procedures are still valid, in some cases having better results that are longer lasting than the current or modern techniques and materials. The current generation tends to be more influenced by the internet, advertising and the media; a reflection of the society they are a part. They tend to want and expect monetary success faster and at higher levels than previous generations. They look and think about ethics with different attitudes than previous generations. They tend to accept failed restorative procedures more readily as normal, with a "fillings are like light bulbs, they need to be replaced" attitude. Youth and inexperience tend to push the current generation toward the misplaced priority of production as the path to happiness. Fortunately, the future will change for some when, with experience and understanding, they come to the realization that a patient has needs that should take preference over wants. They will then discover the correct path to success in a practice. For these reasons and for the benefit of their patients, the current generation of new dentists would benefit greatly from exposure to ethical mentors from previous generations of dentists. Somehow, this should start as early as possible, rather than allowing a generation to be lost to duplicity.

There is very little time within current curriculums of pre dental or dental school for developing ethical thought processes for patient care. In addition, timing is critical for this understanding to happen. If exposure to patient centered treatment occurs too early or too late in the development of a young dentist, it is not assimilated. An excellent time and vehicle for this would be during a required residency following dental school. This is a time when the new graduate has the technical skill sets but not the understanding of how to deal with the pressures of private practice. This is also a very delicate time for the new graduate, a time when the new graduate can be easily influenced in many directions, depending upon whom and what philosophy they are exposed too. There should be a time for transition from academia into private practice, within a controlled and ethically mentored environment. At present, the best ones are the armed forces general practice residency programs. There are others, however, they are few and not available to everyone. It is time to mandate a postgraduate residency for numerous reasons, all of which would be a win-win for the new dentist, the public and the profession of dentistry. A residency would be a time to coalesce the new graduate's natural caring and giving attitudes with the technical skills learned in dental school into an effective ethical practice model. A postgraduate residency would be best suited to this because the resident would not yet have the life issues of private practice getting in the way of learning to incorporate ethical thought process into a practice model. This concept will take involvement from everyone: government, academia and private practicing dentists. Only when everyone gets involved in the educational process of the next generation of dentists will ethics truly be part of everyday life for all new dentists.

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SOCIAL

What society wants and expects from the dental health care system in this country is also related to generational attitudes. The media and a propensity to place cosmetic concerns above health influences what the public wants, not only in dentistry but also with most health concerns. This is due in part to a lack of understanding on the part of the public combined with a lack of information from the dental community about the consequences of elective dental treatment. It is the responsibility of all dentists to understand that the term Doctor is synonymous with teacher. Therefore, they have a responsibility to teach patients about the consequences of dental health choices. Another factor contributing to poor choices by the public is the fact that dental caries is so prevalent that everyone considers it as normal. Therefore, the health issue of caries control prior to cosmetic concerns is often placed as a secondary consideration. The inexperienced dentist or the dentist who is practicing a wants-based practice instead of a needs-based practice can also contribute to the potential damaging effects of placing cosmetic issues ahead of health issues.

Dental health issues in the future will not be isolated to the segment of society traditionally most vulnerable, the poor and indigent. Historically problems came mainly from caries, due to a high sucrose diet, poor home care, lack of understanding of the disease process, lack of community water fluoridation and lack of access to care. As water fluoridation has become more prevalent, early childhood, prenatal dental health preventive education becomes available, and access to care is dealt with; caries within this group should subside.

A new threat to dental health is beginning to show up in affluent society. As the decision to place cosmetic concerns before health increases, the unintended consequences of these decisions are taking their toll with increased caries and tooth loss and periodontal disease in a segment of society previously not affected. The decision to place veneers routinely, without understanding the consequences to oral health is becoming more prevalent. In addition, the tendency to over bleach teeth, especially without professional guidance, has unintended consequences. The predilections to body piercings have already started causing dental problems. Piercing in and around the mouth cause fracturing of teeth and alter the oral flora causing periodontal issues in patients at a much earlier age than has been the case in earlier generations. It should be the responsibility of the dental community to educate the public of the dangers of altering nature beyond acceptable biological limits. Unfortunately, there is a segment of the profession that use these procedures for profit instead of developing treatment plans, that appropriately include elective cosmetic procedures, within a healthy-choice regime of treatment.

TECHNICAL

Technological developments can be a blessing and a curse. They have lead to the development of procedures that allow dentists to

save teeth and offer restorative options that would have been impossible just a few years ago. The problem arises when a dentist focuses on one material or technique to the exclusion of everything thing else. There are a lot of older materials and techniques that have been shown, through evidenced based results, to be as valid today as they were when they were developed. In addition, often these procedures are more cost effective, with longer life expectancy, than newer materials and procedures. The attitude that older techniques, materials and procedure are irrelevant, limits restorative options available to patients, increase cost and decrease longevity in many cases. Over time, this can lead to a decrease in trust by the public with dentistry in this country. Restorative dentists should be competent to deliver all available restorative options to their patients. They should also have the ability to make discerning decisions based on outcomes and benefits when deciding which material or technique to use. For example, there are times when amalgam is still the best restorative material to use for both health and longevity. This is counterintuitive to the current cosmetic, metal free generation of dentists.

One of the most important considerations when deciding which material or technique to use when restoring a tooth is the predictable longevity of the restoration. This is most important when restoring virgin or first time caries. In these cases, if the restorative material choice has a relatively short life span of a few years, the patient is placed into a cycle of restoration, failure and re-restoring the tooth. If this cycle is repeated in a less than ten-year cycle, there is a high probability that the patient will not have the tooth for a lifetime. Restoring and subsequent failure of a restoration leads to further tooth loss and a weakening of the remaining tooth structure. The patient will then be subject to more complex and costly restorative procedures. If however, the restorative dentist chooses to use a restorative material with a predictable life span of 40 to 60 years, there is high probability that not only will the patient have the tooth for a full life time but the tooth will remain intact with simple and cost effective procedures having been done. Technology should add tools to restorative options not eliminate viable and tested materials or procedures just because they were developed in another day.

The problem with using the latest technology and procedures, to the total exclusion of older techniques, can be attributed to the human response of wanting the latest gadget or the newest toy. There are also social and media components to these decisions. It also reveals a lack of a solid foundation for treatment planning based upon a needs and outcomes assessment for all treatment options. In addition, there is an indication that training in all restorative options has not occurred in the educational life of the dentist. The old adage, "you do not know, what you do not know" comes to mind!

EDUCATION

Dental education, within the US, has gone through several major changes from the beginnings of dentistry as a trade or vocation learned through apprenticeships, OJT or self taught by barber surgeons in informal settings to the current dental school system. The first formal dental schools were two-year programs with non-standardized requirements for acceptance. There was no universal standard for graduation from these early programs. Slowly, with the advent of a permanent academic staff, dedicated to dental education, dental schools became associated with colleges and universities. As technology and new procedures were developed and curriculums expanded, dental schools were developed into four-year upper level degree programs. National standards for acceptance into dental school and graduation from dental school were adopted. Because specialty disciplines were not developed, early dental schools were primarily general restorative based with little specialty training. Students were taught to do most specialty procedures as general dentists. Deans were general dentists with broad understandings of restorative dentistry. There was an unobstructed vision to teach dental students to practice competent comprehensive general restorative dentistry. There was also an excellent relationship with the private practicing community, utilizing this resource as a part time instructional pool. In addition, State support for dental education was at a much higher level than it currently is. New graduates were capable of practicing safe and competent dentistry right out of school, without supervision. Most did not associate with anyone. Start up cost was much lower and banks were willing to loan to new dentists because they knew they were going to be successful. Needless to say, it was a different time.

Now the majority of dental schools Deans are specialists with little or no private practice or general restorative dentistry experience. They are forced to spend a large part of their time developing revenue sources. Due to substantial cutbacks in state/federal funding, dental schools have been forced to create alternate revenue streams or close down. A number of dental schools were forced to close during the seventies and eighties due to funding cuts. To increase funding, many dental schools have dramatically increased their commitments to research, shifting recourses away from a primary mission of teaching general restorative dentistry. They have also increased the size and scope of their specialty residencies and departments with a net result of more influence for curriculum development from a specialist perspective. Some dental schools have limited or eliminated the restorative or operative dentistry department. This was at one time, the backbone of dental education. Restorative/operative dentistry has been absorbed into several departments; the net result being a disjointed educational experience for one of the foundational skill sets for general private practice. Combine this with a significant national decrease in the dental school instructor pool and you have a crisis within dental education in this country. The down side of all of this, and it all boils down to money, is the current graduate has less understanding of complete comprehensive restorative treatment and how to organize an effective long term treatment plan, right out of school, than his/her counterpart of 30 years ago. The current graduate is in need of more exposure to the art and science of ethical needs based treatment planning. They need a better understanding of the consequences of all restorative options along with the technical skills to deliver all available restorative options with competence. They are in need of a dedicated time to learn from and be mentored by ethical and competent private practicing restorative dentists.

New ideas within non-traditional frameworks will be a familiar theme in dental education into the future. One possible solution will be to develop dental schools that incorporate part of undergraduate college directly into dental school curriculums. By doing this, cost can be shared along with an increased efficiency for the overall process of teaching someone to be a competent dentist. An increased utilization of the private practicing community could help with the crisis in full time dental educators. Exposure to ethical private practicing dentists would also help the dental student have a better understanding of practice models that demonstrate balanced responsibilities to self, patients, community, and their profession. In addition, new dental schools will need to have an increased emphasis in general restorative dental education and become even more community based within their clinical facilities. This will be a better fit with government-funded access-to-care programs and with what is needed in dental education today.

Dental schools should take advantage of the full eight years most students spend in college and dental school combined. By restructuring and placing emphasis in different areas within the first two years of college, a revised pre dental curriculum can be created that could be completed during the first two years of undergraduate college. Students could then be accepted into dental school at the completion of the sophomore year of college. This would give six years for a combined dental school and upper level college curriculum that would lead to both BS and DDS or DMD degrees. Incoming class sizes could be increased to compensate for those who decide to drop out after achieving their BS degree. The benefits of moving dental school into the last two years of college are multiple. Most important there would be enough time to expand the curriculum to produce a more rounded person by including liberal arts humanities and business classes. It should never be forgotten that a dentist is a human first. Another benefit is that the upper level science classes could be tailored for dental students. This would give the dental student more meaningful information and would eliminate time spent duplicating basic science instruction during current dental school curriculums. This program design would give the dental school more time and a better evaluation of a student's ability to continue to the DDS degree. It should give the dental school better options of taking responsibility to eliminate those who do not have the skill sets to be competent and ethical dentists. It would also shift the burden of proof away from grades to a total evaluation of the individual's intellect and character for determining future ethical success.

Within a program such as this, the first three years would be pre clinical with the last three years devoted clinical training. The student could also have clinical exposure during the first three years by assisting fifth year students in the clinic and starting to have patient interaction in other ways during this period. The forth and fifth years would be completed in a traditional dental school clinic setting. These two years would be utilized similar to the traditional dental school clinical experience. The student would learn the art and science of restorative dentistry and would be required to pass competency evaluations in all disciplines by the end of the fifth year.

The sixth and final year of the curriculum would be spent away from dental school in a community clinic. The student would be under supervision of credentialed ethical private practicing dentists while working in the community clinic setting. The clinics would be set up in underserved areas, allowing indigent and working poor access to quality dental care at no cost or reduced fee for service. The clinics would have at least one or more, depending on the size of the clinic, full time dental school instructors to monitor treatment, teaching and the running of the community clinic. These clinics would need government funding. The feds could build the facility with fed/state support to operate the clinic. Revenues earned from fee for service/Medicaid patients would remain with the sponsoring dental school. Because this would not be a residency program, but the last year of dental school, the students would not be entitled to stipends. These three conditions: government funding, fees for service collections and no residency stipend, should make the clinics doable, from a cost standpoint. Benefits again should be obvious. Government would get the most benefit for the use of tax payer dollars, the dental schools would have an additional funding source at least to the point that the clinic would be revenue neutral, the student would have the benefit of a full year exposure to ethically private practicing clinicians, the communities would get an asset for the whole community. In addition, during the sixth year while working in the community based clinic the student would have the opportunity to complete a clinical board case that would be the clinical part of the licensure examination process. The student would complete the licensure examination process during this last phase of dental school therefore would have an active dental license with the ability to go where they wished to practice upon graduation.

CONCLUSION

The future of dentistry in this country remains fluid. If patient centered solutions for how dentists are selected, trained and licensed are not developed, public opinion will force government policy makers to make changes that will fragment the profession. If solutions are not developed, that bring new dentists and dental students into communities, where they become part of the solution to access to care, those outside of dentistry will fill the void. Oral health in America will suffer; therefore, health in general will be reduced and the American public will lose an asset that the world emulates and it takes for granted. If the profession, including organized dentistry, the academic and private practicing communities, does not engage in global changes, dentistry in this country could become an historical footnote.

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