Patients on Clinical Board Examinations: An Examiner’s Perspective

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In the interest of fact and reality, ADA Resolution 64H2000, which calls for the elimination of “live, human subjects” (let’s just call them “patients” since we must assume they are both alive and human) from dental clinical licensure examinations by 2005, was rather like the drunk who lost his wristwatch in a dark alley but is looking for it under the street lamp because there is more light there. The issue has never really been patient utilization on examinations.

The real issue changes from organizational acronym to acronym. For the American Dental Association (ADA), the issue is membership and demonstrating support for the American Student Dental Association for future membership needs. For the American Dental Education Association (ADEA) the problem is submitting to independent third-party outcome assessment and examination logistics in their schools. For the American Student Dental Association (ASDA), the dispute is the flaming hoop called board exams and being forced to submit to such an indignity. For the testing agencies, the issue is to provide their member states a mechanism for competency assessment. For the state boards, the problem is to protect the consumer from the traveling miscreant or the recent graduate who is not quite ready to enter our profession. If we keep looking under our own self-serving street lamps, we will never find the answer.

This resolution, sponsored by ASDA, was supported by the Reference Committee and approved by the 2000 ADA House of Delegates with absolutely no discussion of patients on exams. In both forums, the issue was one of support of ASDA and future membership needs of the ADA. This article, however, will address the actual issue of patient-based clinical examinations and why the entire examining community is polarized on the opposite side of the issue from the other acronym groups. Let’s begin with that and perhaps also address the real issues along the way.

History

Clinical licensure examinations have changed dramatically in the last twenty to twenty-five years. Throughout the 1960s and ’70s, the hue and cry from both dental educators and students was that board examinations were neither valid nor reliable and should, therefore, be eliminated. The use of patients in board examinations was also challenged at that time. With the resources and expertise made available through the formation of regional boards, the ensuing years have brought many revolutions in testing. Gone are the “good ole boy” exams conducted in prisons or the basements of courthouses. In their place are clinical examinations conducted in modern clinical facilities with an administrative protocol that is founded on accepted and psychometrically sound principles of clinical evaluation. These principles include candidate anonymity, comprehensive candidate manuals, pre-determined performance criteria, well-calibrated examiners, standardized assessment procedures, standardized sampling of performance, patient variables equalized or controlled, appeals procedures, and comprehensive statistical analysis. With these changes, dental testing agencies have moved to the forefront of experience and expertise in methodologies for the valid and reliable assessment of clinical competence.

Recently, the traditional licensure examinations have been placed under increased scrutiny while some prefer that entry-level examinations not be conducted at all. This opposition to exams has reached a new level of expression fueled by contemporary social and political concerns, such as access to care and the portability of the dental license. With the possibility that technology may provide a satisfactory replacement for the patient, the opposition has crystallized and redrawn the argument to define new standards that eliminate the use of patients. Computer-based
and interactive or simulated manikin-based exercises are being offered as viable alternative instruments for licensure competency assessment. From a technological, financial, and regulatory framework perspective, the use of these simulations raises important concerns.

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**Technology**

There is little argument that the rapid advances in computer technology will redefine how students will be educated. The instructive process now includes the semantics of remote education, distance learning, interactive education, and computer-based simulation. Terms that were once futuristic are becoming commonly used in everyday discussion among educators and professional testing agencies. The development and implementation of these technologies must occur within a time frame that recognizes the difficulties inherent in weaving the desired intent into practical reality.

Where current technology stands in its ability to fulfill educational and licensing criteria is debatable. While we may be supportive of the opportunity that new technology presents, so must we recognize that the implementation of this technology must be able to perform all the tasks for that which it is intended to replace.

Technology is, at present, a useful adjunct to the traditional mechanisms of education and licensure. The effective use of that technology to completely replace existing modalities has not been proven. The issue, then, is not a question of the present but of the future. Is it prudent to mandate implementation when products upon which the mandate is based are neither existent nor have been shown to demonstrate the fidelity, validity, and reliability necessary to replace the human patient?

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**Computer Simulation**

The interactive computer-based examination was never intended to replace patient-based clinical examinations. It was intended to be an adjunct to the assessment of patient treatment skill, testing an essential part of the domain of dental skills that has heretofore not been specifically measured in board examinations.

Present computer simulation technologies have not evolved sufficiently to test the broad array of skills inherent to dental practice. While the leading available technologies purport to have assessment capabilities to measure restorative dentistry tooth preparations, they lack the capability to assess caries recognition and removal as well as the final restoration of those preparations. Educational models of computer simulation as well as licensure models that might utilize computer simulation must have the capability to measure the candidate’s ability to properly restore teeth to a mechanical, functional, and esthetic standard. Until that capability exists in computer simulation, as a technology it falls short of meeting clinical licensure requirements and assuring the public that the licensee, having completed a simulation examination, is competent in the domain of restorative dentistry.

As to testing the broad scope of services rendered by dentists and dental hygienists, a modality does not exist to assess periodontal clinical skills. Measurements of operative cavity preparations alone are not a sufficient indicator of candidate preparedness to enter the general practice of dentistry. Many simulations and so called interactive “patient-based” exercises measure a candidate’s ability to know what to do, but do not evaluate the candidate’s ability to actually perform the motor skills necessary to satisfy the treatment demands that must accompany competent decision making.

A host of concerns needs to be addressed prior to the implementation of computer simulation as a viable alternative to the actual treatment of patients in the clinical licensure process. One of the main concerns will be security. While educational programs may be structured to instruct interactively, the licensure process will be more structured toward assessment of skill sets without instructional prompting. Safeguards are needed to ensure that the program materials unique to the licensing community are secure. The ability to secure computer-based programs from unauthorized use is only as good as the most recent firewall and is equally fragile to the next generation of computer hackers. Entry or access to computer-based technology prior to an examination session could invalidate that session’s results for all candidates taking the examination and would require immediate reprogramming and restructuring of examination materials. Failure of technology to remain secure will impact all candidates. During the traditional patient-based clinical examination process, each candidate’s performance is independent of another candidate’s effort. A catastrophic breakdown of security in the patient-based clinical examination...
process is unlikely as each candidate demonstrates proficiency on his or her own patient.

The potential for breach of security is not the only issue in test construction. An equal concern will be familiarity of exam content and its dissemination. As candidates take the simulation exercises, either from site to site (inter-site) or from day to day within one site (intra-site), the program material, test construct, and scenario of case presentation will become increasingly disseminated. In a patient-based clinical examination this issue is minimized as candidates are graded upon how criteria were applied to their patient. The ability of simulation to create the diversity found in the patient may become problematic. The simulation of today may quickly lose its challenge to test candidate performance as the “game” is learned and information regarding “game performance” is transferred from candidate to candidate.

The patient-based examination endures time. It is not a simulation that requires continued maintenance and evolution; it is the essence of what practitioners do on a daily basis in its purest form. It does not attempt to construct anything. Variations in the patient are not failures of technology but presentations of reality of private practice and the “real world.” Where patient variability may impact examination reliability, clearly defined and consistently enforced patient acceptability criteria can be applied to control such variance.

Manikin-Based Testing

In 1988, the Central Regional Dental Testing Service, Inc. (CRDTS) commissioned an independent psychometric review of all its examination, scoring, and analysis practices. The measurement specialists endorsed the use of manikins because of the potentially greater standardization. The suggestion was made to compare the standard deviation between patient-based procedures and manikin-based procedures, the hypothesis being that manikin procedures should have a lower standard deviation because all patient variables were eliminated. In both 1999 and 2000, CRDTS found that the four patient-based restorative procedures had a significantly lower standard deviation than the four manikin-based restorative procedures, actually suggesting less reliability with the manikin procedures.

All testing programs are evolutionary, and many exams today include non-patient-based components. Of more concern than standardization are validity and reliability. The heart of validity is fidelity. Does the test actually correlate to dental practice, and is it defining the information we need to know?

At their current state of development, manikins are useful for preclinical training, but are seriously inadequate for assessments of competence to treat patients. The evaluation of patient-based procedures incorporates those essential skills and competencies that are unique to patient treatment. This would include such treatment skills as pain control, moisture control, caries recognition and removal, soft-tissue management, patient health evaluation, protection of the pulp chamber, periodontal management, etc. How much would the academic curriculum and patient treatment time in the senior year of dental school suffer if students were required to prepare for a manikin-only examination to enter our profession?

Perceptions and Misconceptions

The politics of patient-based testing has vastly outpaced the technology of simulation. The arguments presented for simulation have been endorsed by those who speak to portability of the dental license, constitutional right to freedom of movement, and economic interests rather than concern with public protection and quality assurance. It is the duty and mandate of the licensure community to assure the public that dental care is at least minimally clinically competent.

It has been stated that to use a patient during the licensure process is “barbaric” and equates the candidate performance “to experiment on live human subjects.” Recent state legislation ventures further to state “the dental licensing examination still requires live human beings to be used as guinea pigs for the people taking the examination.” The use of the terms “abuse” and “experimenting on human beings” continues as a theme in these discussions.

It is irresponsible and inappropriate for these comments to be applied to the candidate sitting for clinical licensure examinations. These dental candidates have been certified by the dean of the dental school they attended as having successfully completed an accredited program of dental education and training. They have performed clinical procedures daily for two to three years as part of that educational process, are certified as ready for graduation,
and will receive their dental degree in a matter of days. The clinical licensure examination performed on patients by these individuals is neither experimental nor abusive. The young dentist/candidate has spent years of study preparing for entrance into his or her profession and has just completed a clinical course of instruction that will serve as the foundation to a lifelong learning experience. To classify these individuals as barbarians is unjust and does a tremendous disservice to the educational process.

Dental licensing examinations have evolved by diminishing the tasks required on patients. Tests utilize simulation wherever possible; presently some exams use simulation for over half of the examination content. Only those tasks that cannot be replicated by inanimate material are performed on patients. Failing efforts in periodontal exercises involve faulty diagnosis and the failure to remove calcareous tooth deposits, certainly not a damage to the patient during the test. Most restorative failures involve remediable cavity preparation errors, including the failure to recognize and remove caries, which is also remediable. The candidates perform under intense supervision and are stopped if their work or intent will endanger the patient.

Patients are well aware that the exercises being performed on them are not guaranteed to be complete treatment, nor are they assured that the care being rendered will not need to be augmented. Most testing agencies now routinely employ a “follow up” protocol to ensure that treatment sequellae are attended to after the examination. Attacks on the examination process leveling complaints of seriously inconveniencing patients are unfair since the patients are fully informed as to the process and potential expectations.

**Accreditation vs. Examination**

Many individuals who graduate from educational facilities fail to pass licensure examinations with even multiple attempts. The reality is that clinically unprepared individuals can find their way through the current dental educational system and graduate. The licensing boards and testing agencies through the clinical licensure process have served as the fail-safe mechanism to the educational process.

The rationale for elimination of the patient-based exam or for complete elimination of any type of clinical examination is that graduates of an ADA-accredited dental school are by virtue of their education competent, qualified, and capable dental practitioners. If so, why would the schools worry about the welfare of the patient during the examination? The point is that the accreditation system evaluates the process while the entry-level examinations evaluate the product of that process. Wouldn’t it be a novel idea if the schools actually had the fortitude to eliminate the truly incompetent student before graduation? Political pressures and our litigious society mitigate against our schools’ consistently eliminating the incompetent student. Those same forces also prevail against an accreditation system that might standardize our educational system and enforce standards of competence.

**Elimination of Entry-Level Examinations**

Several dental organizations, including the American Student Dental Association and the American Dental Education Association, advocate the elimination of clinical examinations for initial licensure in all jurisdictions within the United States. Licensure of dentists and dental hygienists is granted to qualified applicants by individual state and territorial licensing authorities. These authorities are charged in the interests of the public’s health, safety, and welfare to protect that public from the improper, unprofessional, incompetent, and unlawful practice of dentistry and dental hygiene. These agencies have no allegiance but to the public they are charged to protect.

The suggestion of these dental organizations that graduation from programs accredited by the Commission on Dental Accreditation (CODA), which operates under the auspices of the American Dental Association, ensures the individual competence of all applicants to practice in an unsupervised environment in the public sector is both naive and erroneous. Accreditation is a system used for recognizing educational and postgraduate professional programs’ adherence to a level of performance, integrity, and quality. It is a measure of the educational program as an instrument, not a determinant of its
product. The accreditation system as it exists today uses a process to determine the degree to which an educational program complies with the minimum accreditation standards. This process lacks any demands for independent assessment of the competency of the individual aspiring professional.

To grant automatic licensure by virtue of completion of an accredited program when the accreditation process is controlled and subsidized by the national organization anticipating its membership and economic sustainability from those graduates is a conflict of interest. Delegating licensure authority to educators eliminates an extremely important set of checks and balances and is a conflict of interest. State licensing authorities must provide the third important leg of a triad of education, accreditation, and independent licensure examinations. Without this tripartite process, neither the profession, the student, nor the public is well served.

The examining community believes that an unbiased, effective outcome assessment determination must be in place. That determination currently exists in this country with independent examinations that have repeatedly demonstrated psychometric validity and reliability to a much stronger degree than educational evaluation systems. The protection of the public is the preeminent concern, not political or economic expediency. Eliminating this model without any substantive replacement is impetuous and shortsighted.

Conclusion

Our system is flawed.

Our educational system is flawed from pre-collegiate and undergraduate grade inflation to advancement simply through momentum. It is flawed from our dental schools’ seeming inability to eliminate the truly incompetent student before graduation to the schools’ apparent indifference to the unsuccessful board examination candidate after graduation. Our political system is flawed from the overt self-interest of membership market share of the ADA to the House of Delegates’ demonstration of a complete lack of understanding as to the ramifications of Resolution 64H2000—and from the current ADA sycophancy toward ASDA to the in-vogue mindset of those in the House of Delegates of the ADA that whatever ASDA wants, ASDA gets. It is a difficult concept for some to grasp, but these people are not peers—they are students.

Our licensure system is flawed from the unfortunate recalcitrant pockets of resistance to acceptance of other testing agencies’ examination results to the illogical intransigence of many in positions of responsibility to accept the concept of credentialing and the occasional subliminal, petty, parochial protectionism that pathetically still exists.

Our board examination system is flawed from our inability to identify more quickly the small percent who are the actual target of the examinations and thus unfairly impact and profoundly inconvenience those who are ultimately deemed competent to the apparent inability of the testing and licensing community to agree on how to “fix” this system.

The hollow mandate of ADA Resolution 64H2000 does nothing to answer these questions and has simply forced us down a dead end of strident rhetoric, polarization of interest groups, and a deflection from real progress toward achievable goals. The answers to our problems will not be found under those self-serving street lamps. At times we must look in difficult places with help from our colleagues to find the solutions to our most difficult dilemmas.

The system may be flawed, but it is not hopeless. Progress, glacial at times, has been made. Working together, examiners and educators, all the aforementioned organizational acronyms, we can move forward and truly make a difference. If we continue to obsess over the issue of the use of patients on examinations, we will continue to look in the wrong place for answers and will never find that lost wristwatch.

SOURCES

The impact of the elimination of the use of human subjects in the clinical licensure examination process by 2005 from dental and dental hygiene licensure communities’ perspective. A Position Paper of the American Association of Dental Examiners in Response to ADA Resolution 64H.


