

This article presents a discussion of validity concerns that supports the WREB position on the use of patients for clinical examinations. It was prepared by Del Hammond who is employed by the Western Regional Examining Board as a testing and research specialist.

### WHY NOT TEST ON MANIKINS ?

Dental testing agencies should strive to provide cost effective, accurate, state of the art testing that results in valid licensing decisions. Agencies have discussed the use of manikins as a potential way to improve upon the reliability of the tests by augmenting the present procedures tested, giving more measures of performance for each candidate. It appears that technology may eventually produce simulations or manikins that will meet this need. Thus far, no substitute for the human oral anatomy has been universally accepted by dental testing agencies as a cost effective alternate that is adequate to provide an equivalent evaluation of candidates' competencies. This article discusses responsibilities of testing agencies followed by a discussion of validity and reliability with respect to the use of simulations or manikins to replace the use of patients in licensing tests.

Dental testing agencies serve several entities. The testing agencies are generally composed of dentists and dental hygienists who are accountable to organizations that license dentists and dental hygienists. The licensing organizations are responsible for the safety and protection of the public consumer of dental services. Testing agencies also are responsible to the dental and dental hygiene candidates, to the schools that educate the candidates, and to dental health care professionals in general. Decisions made by testing agencies relative to test content and methodology can have long-lasting impacts upon the various stakeholders. Often decisions involve issues that may not be apparent to those who are not test developers. One of those decisions relates to the use of manikins to replace patients in dental and dental hygiene licensing examinations.

In the dental testing community, improving validity is a continuing priority. In testing, validity has been defined as a broad concept that relates to the appropriateness of the decisions that are made as a result of the test scores. Validity can even relate to the consequences of the decisions made as a result of the scores.

Reliability values are estimates of the freedom from error in test scores and of how similar the scores for individuals would be on repeated administrations of a test if scores were not influenced by previous administrations of the test. Good reliability contributes to validity as does appropriate content of the test. Future improvements in simulations and manikins could promote their increased use in clinical testing. If better test standardization and more observations of each candidate's performance were results of such testing changes, reliability might improve.

A validity concern that is important when considering the use of only manikins or simulations for clinical dental tests is that the skills and abilities required to provide dental treatment for patients may not be adequately evaluated. When proposing to test with tasks that substitute for the actual tasks performed on patients in dental or dental hygiene practice, fidelity is a validity concern. Fidelity relates to how well a tested task represents the actual task performed in practice and how well the skills and abilities required to complete the tested tasks represent the skills and abilities required in the practice. In addition to the differences in physical characteristics between dental patients and simulations or manikins, other more subtle differences create validity challenges. For example, when comparing tests using patients and tests using substitutes, differences in the importance of decisions and treatment, and the resulting differences in stress levels, may have differential affects on the performance of different candidates.

A consequential validity concern is the credibility of the licensing decision among the stakeholders. If licensing agencies use tests with questionable fidelity, there could be legitimate concerns. A candidate who fails a test (and the dental school that the candidate attended) can assert that she or he has the ability to do dental work on patients, which was not tested. Patients with complaints of poor service can claim that licensure testing did not verify that their dentist was able to perform work on patients.

These concerns make it imperative for test developers to verify the fidelity of a test that does not test the actual tasks that are required in practice. This verification (when not testing the performance of the actual practice tasks) requires extensive research even when the test tasks are expected to have good fidelity. The research is both expensive and somewhat difficult to accomplish. Since the expense of research by the testing agencies is often paid with income from candidate fees, research required for major changes is normally conducted only when there is a reasonable expectation that the results will be favorable.

Another consequential validity concern is related to the impact of completely replacing human patients with manikin testing. Schools are sometimes encouraged to respond to changes in licensing testing by aligning the educational process with testing requirements. The absence of patient testing could consequently encourage increased training on manikins at the expense of clinical experience on patients. This might have a negative effect on licensees' ability to provide care for patients. A related concern is that experienced practitioners, who need to pass a licensing examination, may need to obtain additional training in working on manikins, since they may not have manikin experience.

In an effort to expand the number of testing method options, we have joined with other dental testing agencies in a project to explore testing possibilities in areas that are currently difficult to assess, such as dental diagnosis and various process/treatment decisions. We continually review our tests with dedication to the goal of providing the best testing within the constraints imposed by technology and cost.