

# Chapter 3

## Standards for Occupational Performance

With over 800 occupations licensed in at least one state, and more than 1,100 occupations registered, certified or licensed by state or federal legislation, testing standards and procedures for registration, certification, and licensure are highly visible. This chapter briefly addresses regulatory and testing guidelines, standards, and testing definitions.

### Registration, Licensure, and Certification

Most occupations and professions are regulated by each state. State regulation of occupations generally occurs at one of two levels: registration or licensure. While these terms are sometimes used interchangeably, they will be differentiated below; additionally, certification will be discussed.

The least restrictive form of state regulation is registration. Registration generally requires no more than providing a name and address and paying a registration fee (Malonis & Cengage, 2000, “Encyclopedia of Business,” para. 7). “Registration is used for title protection...” (Fabrey & Hartigan, 2009, p. 94).

Traditionally, licensure has been required by state law in order for trained individuals to enter and practice professions. It is the most restrictive form of occupational regulation; activities covered by the occupational scope of practice may not be legally performed without prior authorization, which can only be granted by the appropriate state government agency. As part of the process, “licensure normally requires assessment, which usually requires an examination, sometimes in addition to successful completion of an educational program and/or relevant experience. Licensure implies both practice protection and title protection, in that only those individuals who hold a license are permitted to practice and to use a particular title” (Fabrey & Hartigan, 2009, p. 94).

In addition to state regulation, many professions engage in self-regulation through certification. Certification has typically been a voluntary program that recognizes individuals who have acquired skills beyond the basic level of competency necessary to practice in a profession. Lack of certification does not usually exclude a person from practice, as is the case with licensure (Schmitt, 1995); however, uncertified individuals should not present themselves as being certified. In addition, some states require a practitioner to become and remain certified to be

eligible for licensure. Furthermore, some states refer to their licensure process as “certification” and/or provide “title protection” to those who are certified (Malonis & Cengage, 2000, “Encyclopedia of Business,” para. 6; Fabrey & Hartigan, 2009, p. 94).

## Licensure Requirements

The power to license occupations is granted under the U. S. Constitution and the constitutions of various states. The purpose of licensure, according to the *Standards for Educational and Psychological Testing* (American Educational Research Association, 1999), is to protect the public. This text, comprised of testing guidelines prepared by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education states the following:

Licensing requirements are imposed by state and local governments to ensure that those licensed possess knowledge and skills in sufficient degree to perform important occupational activities safely and effectively (p. 156).

The legal requirements that an applicant must meet to be granted a license are usually established at the state level. Criteria set by state regulatory agencies may include training and experience, passing specific examinations, minimum age, years of formal education or academic degrees, and evidence of a satisfactory background.

In addition to requiring candidates to demonstrate that they have the requisite knowledge and skills to be safe and effective practitioners, state laws mandate that authorities discipline those who fail to meet or maintain the licensure standards.

## National Testing Organizations

To assist the states in meeting their responsibilities for licensure and discipline, private not-for-profit organizations such as the National Board of Chiropractic Examiners have been formed to develop and administer tests used in the licensure process. These organizations provide expertise in testing, and develop and administer valid and reliable examinations; the provision of these services allows the agencies that govern licensure to address other important issues. Within the United States, a state may use scores from examinations produced by such national organizations, but the state remains the final authority for granting a license.

## The Inspector General Report

A report on “State Licensure and Discipline of Chiropractors” prepared by the Office of the Inspector General, U.S. Department of Health and Human Services, recommended that state chiropractic licensing authorities be provided sufficient funds, a full range of disciplinary options, and enforcement authority to carry out their responsibilities (Kusserow, 1989). This report also endorsed the use of high-quality national licensure examinations.

## Standards of Testing

With the increased use of examinations in all aspects of society, the federal government and the private sector have prepared guidelines for examination construction. Standards set by the government's Equal Employment Opportunity Commission and the U.S. Departments of Labor and Justice are referred to as the *Uniform Guidelines on Employee Selection Procedures* (Adoption of Four Agencies of *Uniform Guidelines on Employee Selection Procedures*, 1978), although not directly applicable to licensure tests, provide authoritative guidelines for the development and use of tests. Standards prepared by the private sector are the *Standards for Educational and Psychological Testing* (American Educational Research Association, 1999), referred to previously in this chapter, provide professionally recognized minimum standards for licensure examinations.

Guidelines pertaining to all forms of testing address the importance of test reliability and test validity. Both elements are necessary to ensure that the results of a test are consistent and accurate measures of what is purportedly being assessed.

## Definition of Terms

### Validity

*Validity*, as it pertains to examinations, survey instruments, or other measurement tools, refers to the appropriateness, meaningfulness, and usefulness of inferences about results (American Educational Research Association, 1999). "As traditionally defined, validity indicates the extent to which an examination measures what it purports to measure." (Fabrey & Hartigan, 2009, p. 111).

Two separate and distinct validity issues are important in this practice analysis. The first issue pertains to the validity of the survey data; the second issue concerns the use of survey data to establish the **content validity** of national examinations.

Evidence that survey data are an accurate reflection of chiropractors, chiropractic patients, and the practice of chiropractic in the United States is based on the procedures followed in the development of the survey form detailed in Chapter 4. Additional evidence of the validity of survey data is the similarity between various survey findings and other published reports that address the same information.

Licensure and certification examinations rely on job or practice analyses to provide evidence that the examinations contain appropriate content. Content-related validity in a licensure examination is evidence that the tasks addressed in the examination appropriately reflect the tasks required for safe and effective job performance. The *Standards for Educational and Psychological Testing* and the *Uniform Guidelines on Employee Selection Procedures* are in agreement that, in order for licensure examinations to be valid, they must be based on a job or practice analysis.

The *Standards for Educational and Psychological Testing* (American Educational Research Association, 1999) state the following:

Some form of job or practice analysis provides the primary basis for defining the content domain. If the same examination is used in the licensure or certification of people employed in a variety of settings and specialties, a number of different job settings may need to be analyzed. Although the job analysis techniques may be similar to those used in employment testing, the emphasis for licensure and certification is limited appropriately to knowledge and skills necessary for effective practice (p. 161).

The *Uniform Guidelines on Employee Selection Procedures* (Adoption of Four Agencies of *Uniform Guidelines on Employee Selection Procedures*, 1978) state the following:

Any validity study should be based upon a review of information about the job for which the selection procedure is to be used... Any method of job analysis may be used if it provides the information required for the specific validation strategy used (pp. 38290-38315).

### Reliability

*Reliability* refers to the extent to which test scores, survey results, or the data obtained from various other measurements are consistent. Specifically, "...reliability provides an indication of the degree to which results will be consistent over different forms of the same test on different testing occasions." (Fabrey & Hartigan, 2009, p. 104).

The score a person attains on an examination or the response a person gives to survey questions may or may not be an accurate representation of that individual's knowledge or typical behavior. To determine the accuracy of the results, it is important to administer the test, survey, or other measurement device on more than one occasion. The more similar the outcomes obtained from repeated measurements, the higher the reliability of the measuring instrument or procedure. Any examination procedure whose results are consistent after repeated measurements is considered to have high reliability.

To assess the reliability of the National Board's job or practice analysis survey instruments, two different procedures were employed. For the 1991 survey, a select group of respondents completed a second survey that consisted of the same questions but in a different order. Compared to the responses in the initial surveys, the secondary surveys were virtually identical. In 1998, 2004, and 2010, a group of survey recipients who did not initially respond were contacted and were requested to complete and return the survey. This subgroup's demographic characteristics and responses were consistent with the overall population of survey respondents.

The detailed and elaborate procedures described in Chapter 4, and the major efforts expended to obtain survey results as detailed in Chapter 5, all contribute to the development of a valid survey instrument for the chiropractic profession. Additionally, the procedures used to determine passing scores are critical in establishing examination validity.

### Setting Cut Scores or Passing Scores

In all health professions, the fair and accurate assessment of a candidate seeking licensure holds significant importance for the public as well as for the candidate. Thus, providing exams that accurately identify those candidates who do or do not meet entry-level standards for safe and effective practice is an important responsibility of all testing organizations. The NBCE follows the testing standards that were previously acknowledged and prepared by non-government testing authorities.

The first step NBCE uses in determining the cut score for test passage is to gather a team of chiropractic experts. The experts then define what competent entry-level chiropractors should know and do in practice to effectively address patient health conditions and to protect the welfare of their patients. The cut score is based on these experts' judgments. In essence, the experts determine what minimum score is necessary to demonstrate adequate knowledge and skills required for safe and effective entry-level practice. In the experts' opinion, those who score below the cut score are not qualified for practice and are more likely to make serious errors due to insufficient knowledge or skills. This standard setting exercise requires a structured process with clear documentation; the NBCE uses a version of the most widely accepted process — the Angoff method.

#### Cut Scores Effect on State Boards

It has been the practice of the NBCE to set rigorous standards that meet or exceed state-legislated requirements for an acceptable level of achievement. The NBCE complies with Standard 14.17 of the *Standards for Educational and Psychological Testing* (American Educational Research Association, 1999) that states, "The level of performance required for passing a credentialing test should depend on the knowledge and skills necessary for acceptable performance in the occupation or profession and should not be adjusted to regulate the number or proportion of persons passing the test" (p. 162).

As a result, state boards and the public should feel confident that examinees whose performance falls below the recommended cut scores (NBCE has standardized the cut score for each of its examinations at 375) are at higher risk of making serious errors due to a lack of knowledge or skills and should therefore be denied practice privileges.

Although individual state boards have the right to specify their own minimum passing scores on a licensure test, departure from the psychometrically sound and legally defensible standards established by the NBCE may result in an increase of false positive errors or false

negative errors in identifying candidates who possess the knowledge, skills and ability for safe and effective practice. In other words, decreasing the standard below 375 may result in more incompetent candidates being declared eligible for licensure; conversely, increasing the standard above 375 may result in the denial of licensure to candidates who are capable of practicing safely and effectively.

In addition to setting an accurate cut score, the NBCE makes sure that its exams are based on documented evidence of validity and reliability.

### **Test Validity**

Test validity is critical for states to be able to base their licensure decisions on NBCE test results. The NBCE accumulates evidence of test validity in a variety of ways. First, college course content surveys are conducted to reach consensus and to validate the content of Parts I and II examinations. Instructors who teach the content of examinations are asked to specify the subjects they teach and the emphasis they give to those subjects. Second, content experts review and document all test questions before they appear on NBCE exams. Third, the NBCE Survey of Chiropractic Practice provides the foundation for test validity for Parts III & IV examinations. NBCE links the content of these examinations to the knowledge and skills required for safe entry-level practice as revealed through this national survey.

What evidence does the NBCE have that Parts I and II test scores are valid indications of a person's ability in the basic and clinical sciences? The evidence of test validity comes from several sources. First, the test outlines for Parts I and II are determined by the input of college faculty from each of the chiropractic colleges. Second, the questions that appear on the exams are written by instructors on the various campuses and are put in a standard format by the NBCE. Third, scores on Parts I and II exams have been found to be highly correlated with course grades.

The validity of Parts III and IV exams is directly related to how well scores on those exams measure a person's knowledge and skills required for safe and effective practice. Evidence of the validity of the Part III and IV exams stems from several sources. First, the content of these exams is based upon an extensive study of chiropractors in practice (the Survey of Chiropractic Practice). Several thousand chiropractors have completed an extensive survey indicating the conditions they see and the professional tasks they perform. Second, all of the test questions for Parts III and IV are selected by licensed chiropractors. Third, the assessment of examinees in the Part IV exam is conducted by licensed chiropractors. Fourth, Parts III and IV scores have been found to be highly correlated with clinical grades.

### **Test Reliability**

Credentialing examinations must also be reliable, meaning they must provide a consistent outcome on repeated administrations of the test. Many issues can influence reliability including too few questions to adequately address the knowledge and skills in the test domain; exams that are too difficult or too easy; inadequate overall exam length; and factors unique to perfor-

mance testing, e.g., rater inconsistency, etc. To ensure that NBCE exams fairly and accurately assess candidates' knowledge and skills, NBCE performs a statistical analysis of the difficulty and relevance of each question. The relevance of right versus wrong answers is estimated. The statistical performance of each question is determined and documented over time so that if an item shows a significant change in difficulty and/or relevance, the question is retired. Finally, NBCE calculates the overall reliability of each examination.

## **Summary**

Since the purpose of licensing is to protect the public, national testing organizations assist the states in meeting their licensure responsibilities. Organizations that develop examinations are guided by standards of testing in establishing test reliability, test validity, and appropriate passing scores. Consistent with what has been stated in this chapter, establishing appropriate and legally defensible cut scores, calculating reliability coefficients, and documenting evidence for the validity of examinations are complex and demanding procedures and processes. The NBCE is confident that its approaches and methods are thorough and appropriate to validly determine who has the knowledge and skills appropriate for practice.

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