



Determining the Passing Score, Part 2

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Consistent with the standards for the certification industry, the Certification Board of Nuclear Cardiology (CBNC) Examination Committee uses a *criterion-referenced* method to determine the passing score for the examination. This approach establishes a standard for performance on the examination (i.e., a passing score) based on a detailed analysis of the content and difficulty of the examination and the level of knowledge and skill expected of nuclear cardiologists with basic competence.

The criterion-referenced approach differs greatly from the normative-referenced approach that is often used for scoring academic examinations. With the normative-referenced approach, an examinee's performance is measured against the performance of the entire group taking the examination, rather than against a specific standard.

Under the criterion-referenced approach which CBNC uses, once the passing standard is determined, it is maintained across each new examination form by means of a process called *equating*. Equating is a statistical procedure by which the difficulty of each new examination is made comparable to previous examinations so that whichever examination a candidate takes, he/she will have the same chance of passing or failing as any other candidate taking any other examination form. Equating is necessary because, despite the best efforts of test development and content experts to create examinations of equal difficulty from year to year, there is still the possibility that one examination will be easier or harder than another. It would not be fair to put candidates at an advantage or a disadvantage, depending on which examination they take. The equating process statistically "smoothes" these differences in level of difficulty.

Following each administration of the CBNC examination, the examination questions are analyzed to determine whether the performance qualities of the questions meet psychometric standards. This analysis takes place before the final scores are determined. Questions that appear to be problematic are reviewed by members of the Examination Committee, who determine whether there appear to be any flaws in the questions. The Examination Committee also reviews the post-examination comments provided by examinees to identify any additional questions that should be reviewed prior to scoring. If a flaw is found in a question, the scoring key is adjusted, as necessary (e.g., the question is deleted from scoring, credit is given for more than one answer, etc.). By conducting the question analysis before the examination is scored, CBNC minimizes the chances that an examinee will be placed at a disadvantage by a flawed question.

Following the resolution of the preliminary question analyses, the examination is scored and final question and test analyses are performed to evaluate the overall quality and performance of the examination.

See also **Determining the Passing Score, Part 1** for a general overview of the methodologies used in scoring examinations.