



How Does ABGC Score Certification Examinations?

By the ABGC Board of Directors

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ABGC has made some changes in the examination development and administration process, so it is natural that there are questions concerning how the examination is scored. We would like to take this opportunity to let you know how we develop and score every examination.

Examination Development

Examination development is a multistep process that includes the identification of current genetic counseling practice, training and mentoring of certified genetic counselors who write items that reflect this practice and then ongoing item review and editing by a committee of certified genetic counselors. This process ensures that all aspects of the examination's quality are considered before it is administered. The utmost care is taken to verify that examination items (i.e. questions) are clear, correct, and assess the proper content as dictated from the detailed content outline (DCO); [here](#) on the website. The entire examination development, administration, and scoring process is overseen by a measurement professional known as a psychometrician.

The examination development process begins many years before an individual sits for the exam. In accordance with certification industry standards, ABGC conducts a practice analysis approximately every five years. The goal of the practice analysis is to identify the current skills used by certified genetic counselors in their professional practice. This phase is critical to the examination development, because the ABGC certification examination is practice-based. This means that while content knowledge is necessary to establish one's competence, it is not sufficient because examinees need to apply their knowledge to answer questions that reflect the current practice of certified genetic counselors. The results of the practice analysis were published in the *Journal of Genetic Counseling* and formed the foundation for the DCO.

The DCO serves as the basis of the items written for the exam. Every year, a group of 20 - 25 certified genetic counselors with diverse specialty and practice setting backgrounds, as well as a minimum of three years professional experience, volunteer to write items for the exam. Each volunteer receives training in item writing and is assigned to write several questions that address specific areas of the DCO at specific levels of complexity (i.e. recall, application, analysis). Members of the Certification Examination Committee (CEC) mentor item writers to help them develop clear questions that follow established guidelines. The CEC is comprised of 10 members (most of whom have been past item writers) with diverse clinical backgrounds. Individuals with expertise in each of the specialties required by the Log Book are represented. The questions drafted by the item writers and edited by a CEC mentor are entered into an "item bank", for use by the CEC and expert psychometricians to craft the examination.

The CEC meets as a group to further review and edit items with the assistance of a psychometrician and test development specialist. As part of this process, the group verifies that each item is properly mapped to the DCO, is accurate and current, and the key (i.e. the best/correct answer) is truly the best answer with sufficient evidence to support that assessment. In addition, they check the distractors (i.e. wrong/less appropriate answer) to make sure they are not as valid as the key.

New items are validated by administering them as pre-test items in conjunction with the scored items on the examination. Candidates' responses to pre-test items are tracked, but these items do not contribute in any way to candidates' final scores. Thirty (30) out of the two hundred (200) administered questions are pre-test items. At the conclusion of each examination administration window, the psychometrician conducts a statistical analysis on the examinees' responses to the pre-test items. Based on this analysis, items that did not perform

well (i.e. generated statistical red flags that indicate a possible flaw in quality) are removed, and items that performed well are retained for further validation or use on future examinations. Once an item is fully validated, it may be used as one of the scored items on an examination.

Using this bank of items that have undergone extensive review by multiple certified genetic counselors and have been validated using established psychometric principles, the psychometrician constructs an exam form (version of the exam). This form is tested again by each CEC member independently. Each member evaluates every question and reports concerns with any aspect they identify. Additionally, the exam is considered as a whole to confirm that there is appropriate representation of each specialty area and that an item does not cue an examinee to the correct responses for an other item. This process occurs twice. Only after these processes are complete and issues are addressed to the satisfaction of senior CEC members and the psychometrician is the examination considered ready to be administered.

Scoring the Examination

ABGC uses a criterion-referenced methodology to score examinations, which is a certification examination industry standard. With this type of scoring methodology, there is no “curve”. Candidates do not compete against one another. The “bar” for performance level is the same for each candidate—minimally competent practice. In this method of scoring, it is theoretically possible for all examinees to pass the examination or for all examinees to fail the examination. Since candidates are compared to the criterion of competent practice, there is no minimum percentage of examinees that must fail the exam.

Prior to the institution of instant scoring with the August 2013 examination administration, the Angoff scoring method was used to set the **performance level** required to pass the examination. This is the most common methodology for establishing passing scores for credentialing exams. This process was overseen by a psychometrician and was based on a combination of statistical analysis and the expert judgment of the CEC to determine what constituted the minimum qualification to pass the exam. This performance level established using the Angoff method is retained with instant scoring through a statistical process known as equating.

As mentioned above, all items used to calculate a person’s score on the examination have been previously used and, therefore, have known statistical performance characteristics. This information allows the CEC to develop new forms that are parallel to previous forms, with consistent levels of difficulty and score reliability. A psychometrician uses each item’s statistical performance characteristics to project results on the new form, and an equitable **passing score** is determined. Because score equating occurs before the examination is administered, this procedure is characterized as pre-equating.

Equating controls for slight variations in difficulty can occur among multiple test forms and thus helps ensure that all candidates are held to the same standard (aka performance level). A great deal of time and effort is spent ensuring an exam’s passing score is derived fairly for each examinee. Careful adherence to this process yields a rationally determined score that can be used with confidence to make pass/fail decisions.

In closing, we would like to reiterate that the ABGC certification examination development process follows established psychometric principles and industry standards. The examination is constructed from items that are based on the actual practice of certified genetic counselors. Each item undergoes multiple reviews by certified genetic counselors and undergoes rigorous statistical analyses before it is used to determine a candidate’s score. This elaborate process is designed to ensure that *all* candidates are treated fairly and that all pass/fail decisions are valid. In addition, the examination development process provides distinction and value to genetic counselors in the field and ensures that passing candidates have the knowledge, skills, and abilities necessary for competent practice.