## How is the CPH examination scored?

The CPH is a Pass/Fail examination that results in awarding or not awarding a Certified in Public Health status to each candidate taking the examination. The examination undergoes a rigorous process of validation in areas of test construction, item analysis, scoring, and equating.

### Item analysis and key validation

Preliminary results of each examination are scored and statistics for each question are reviewed by a committee of content experts. Based on this review, examination questions that have defects in content or structure are not counted towards the final score. The deletion of defective items enhances the validity of the test scores as measures of examinee proficiency. In addition, questions that are identified as having an incorrect answer key are re-keyed to the correct answer.

### Score reporting

After scoring decisions for each item are implemented, examinees' responses are rescored. The number of correct responses, percent correct scores, and standard scores are computed. The percent correct score represents the percentage of scored items on the test that were answered correctly. The standard score represents the equated score that is standardized based on the base reference group of examinees. The CPH score reports shows the total test standard score and the Certified/Not Certified decision based on the value of the total test standard score. Also shown on the score report are percent correct scores for the total test and major content areas covered by the examination, along with summary information on the performance of the current group of examinees.

### Scoring and Equating

Percent correct scores are influenced by both the difficulty of the items and the proficiency of the current group of candidates; therefore, they cannot be meaningfully compared across administrations. Equating is a statistical procedure that adjusts for differences in test form difficulty so that scores on different forms can be used interchangeably. CPH exams are equated every year and standard scores reported to examinees are comparable across administrations and examinee cohorts. Equating makes it possible to hold the passing standard at a constant proficiency level from administration to administration.

The CPH examination is equated based on Item Response Theory (e.g. see Lord, 1980; Hambleton et al, 1991). Application of this theory allows one to compute a measure of examinee proficiency in the area of knowledge tested by the CPH examination that takes into account the difficulty of the current examination and proficiency level of the current examinee group compared to the previous administrations. Based on Item Response Theory, the relationship between percent correct score and proficiency is not linear. The computation of examinee

proficiencies is complex and is performed by computer programs based on the score data from several administrations.

The standard score reported to CPH candidates is a linear transformation of examinee proficiencies. This score is standardized based on the base reference group whose scores are set to have a mean of 500 and standard deviation of 100.

The relationship between standard score and percent correct score is non-linear. One cannot replicate the computation of the standard score without the score data from the current and previous administrations. This advanced statistical modeling is done to produce equated scale scores that are comparable across administrations.

**Standard Setting**

The minimum passing score required for certification is decided upon by the members of the NBPHE standard setting committee. A content-based standard setting study is conducted about every 3 years using Angoff and Hofstee methods. After each exam administration, examination performance is reviewed and the standard is re-evaluated.

References:


1. Lord, F.M. (1980). *Application of item response theory to practical testing problems*. Hillside, NJ: Erlbaum.
2. Hambleton R.K, Swaminithan H., Rogers H.J. (1991). *Fundamentals of Item Response Theory*. SAGE Publications