

# PRINCETON RESCUE SQUAD EDUCATION DEPARTMENT



701 Stafford Drive Princeton, WV 24740

**POLICY:** Summative Examination Validity & Reliability

**Effective Date:** April 19, 2023 *[Signature]*

**TITLE:** Exam Item Validity & Reliability—Paramedic

**RATIONALE:** To ensure that cognitive examination items are analyzed at regular intervals for validity and reliability.

## POLICY:

The analysis of test items should be examined in four phases.

First, the Medical Director and Education Director will approve the exam based on medical content and accuracy. Signatures verifying analysis will be kept on file (this may be either in digital format or on paper). The approved exam will be valid for a period of two (2) cohorts.

Phase Two, the instructor is responsible for completing an item analysis after a cohort has completed a low stakes evaluation tool. The determination to remove items from the tool should be based on solid research from the textbook that indicates that the question is misleading or misrepresenting the information. It is important to provide a written justification on each excluded item. It is necessary to deliver feedback to the students in order to assist in test taking skills and the development of critical thinking skills. This can be accomplished in many fashions: including group reviews of the items within the tool or written feedback by physical or digital means. High stakes exams, such as summative course exams and final cumulative course exams should NOT be reviewed with the students directly to protect the test integrity; however, the students should receive a list of objectives that reflect the questions missed on the exam to improve future test taking opportunities.

Phase three will involve the evaluation of major examinations (e.g. summative and final cumulative exams), that have been completed during the 1st cohort, by the Examination Committee. The committee will consist of a committee chair, at least one member of the instructional faculty, and at least one field preceptor to review the items used within a given tool. Field preceptors should only be assigned to analyze evaluation tools at his/her current level of training. The item analysis of major high stakes examinations will include difficulty index and discrimination index.

- Item Difficulty Level: Between 0.3-0.7. Any item falling outside this range should be used sparingly
- Discrimination index: Items should exhibit a range of 0.1 to 1.0. Any item that exhibits a "-" (e.g: -0.50) should be carefully analyzed.

The Exam Committee should review items that fall outside of the levels identified above. A decision on the exam item must be rendered and documentation to justify this decision must be provided. The committee can choose any of the 3 following options:

1. The item is deemed "poor" and is stricken from the exam. In the event this is considered, the Director should attempt to identify a replacement item for future examinations.
2. The Item is an accurate representation of entry level competence, has been identified within the textbook, BUT displays a high number of students getting the question wrong. The Committee will request the instructor to review his/her lesson plans to verify that future classes will include the specified content in the curriculum. Current students should receive a review on the objectives that reflect the item. This review can be accomplished in any format, ie: question/answer, written, or in groups.
3. The team feels that the item is an accurate representation of entry level competence and should remain an active test item for the exam.

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Examinations completed by the second cohort of students will be analyzed by the Education Director and will include both the difficulty index and discrimination index and follow the same level of scrutiny as performed by the Examination Committee.

Phase four: All items utilized on an examination tool for major tests (e.g. summative and final cumulative exams) will undergo a complete revision by the Education Director and deployed with the third cohort. During this phase, all questions will be analyzed for cohort improvement or deterioration between the two cohorts to identify areas that require special attention during lesson planning and instruction. Items previously deemed “poor” will be permanently removed, and careful consideration will be given to those items that scored outside the acceptable range of “Item Difficulty” but were determined by the Exam Committee to be valid instruments.

The new examination tool will now be analyzed by the Medical Director for approval and the cycle for exam validity/reliability will begin again at phase one.

**RESPONSIBLE PERSONNEL:**

Instructional Faculty, Medical Director, Education Director, Exam Committee