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White Paper

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# HESI<sup>®</sup> RN Integrated Exams Score-Setting Study 2023



# HESI® RN INTEGRATED EXAMS SCORE-SETTING STUDY 2023

Finding the score formula that yields the best combination of validity  
and usability for HESI integrated exams

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For more than two decades, HESI has provided reliable exam scores that predict first-time success on the NCLEX-RN®, as well as reports that support learning and remediation. This scoring study was conducted to ensure that HESI scores continue to support these uses even after they include NGN items and partial-credit scoring.

The Next Generation NCLEX® (NGN; NCSBN, 2021a) launched on April 1, 2023. The NGN remains a computerized adaptive test with previous and new item types, presentation types (standalone or unfolding case study), and partial-credit scoring. The exam test plan aligns with Client Needs categories and includes measurement of clinical judgment using the NCSBN's Clinical Judgment Measurement Model (CJMM). The HESI RN exit exams have always offered learning and remediation feedback about test-taker strengths, as well as feedback about possible performance on the NCLEX-RN. The HESI exit exams will continue to mimic the NCLEX blueprint, offering new item types and including partial-credit scoring where applicable, to offer predictions of success for first-time NCLEX test-takers. The HESI exit exams will continue to be computerized, fixed-form exams to offer extensive information about test-taker performance.

To confirm the current scoring algorithm works with the new blueprint, we looked at the current HESI score, with over 20 years of validity evidence, and the manually calculated partial-credit score for the same test-takers. We also collected outcome data on the NGN for students who had taken the HESI integrated exit exam since spring 2023. The integrated blueprint was fulfilled during the scoring study with both 20 non-NGN and 20 NGN items that matched the content blueprint in similar ways. We were then able to provide a valid HESI score on non-NGN items and then manually score these same exams using the NGN content matches (moving the original non-NGN 20 to pilot for this exercise).

Before analyzing the data from the scored and pilot sections of the integrated exams, we first identified cases that could reliably be used in the analysis. There were many factors that could have influenced student performance on each of the scored and pilot sections of these integrated exams. We identified four factors that worked together to give us our final usable data. Each test-taker included in the study met all criteria: (a) have taken all 100 non-NGN and NGN scored items (manually-scored partial-credit item set); (b) have score differences between the non-NGN and NGN item z-score performance within two standard deviations; (c) not have any items where the test-taker spent more than twenty minutes; and (d) not have any items where the test-taker spent less than five seconds. Following this rubric led to 85% of all HESI integrated test-takers having usable data.

HESI RN exit exam scores are calculated based on each test-taker's performance and the difficulty of the items on each exam. The HESI scores range from 0 to 1,500. Although the exact score a person receives will depend on the difficulty of the items included in the test, all items are designed to be answered correctly by 39% to 99% of test-takers. Since this

is the same for the integrated exams with NGN items in pilot and the new exams with NGN items also included in the HESI score, we first looked at the relationship between the HESI scores from the non-NGN items and the HESI scores with the non-NGN and NGN items. Using the 100 scored items with the standard RN exit exam blueprint, we found a correlation of .84 looking at a random sample of 24,109 test-takers who took the RN exit exam V1-V4 between February and August 2023. The HESI score formula continues to yield stable and predictable results with partial-credit and NGN items included.

Historically, research has shown that  $\geq 92\%$  of test-takers who score at 850 or above on the HESI RN exit exam will go on to pass the NCLEX on their first attempt, and this is still true today. We collected NCLEX outcomes from 708 students at 20 programs. This data helped us identify that 96% of students who scored  $\geq 850$  passed the NCLEX on their first attempt.

Given that instructors often want a score to use in their gradebooks, HESI additionally provides a conversion score. Historically, the conversion score has also been based on the difficulty of the items and the test-taker's performance but used a different type of formula than the HESI score. Having two formulas for similar measures (HESI score and conversion score) was confusing. To simplify this, the conversion scores for RN exams administered after February 15, 2024, will have a direct relationship to the HESI score (i.e.,  $\text{HESI} * .09$ ).

Great care, planning, and attention-to-detail went into incorporating NGN item types and the Clinical Judgment Measurement Model (CJMM) in the HESI blueprints, ensuring that HESI assessments remain reliable and valid for learning, remediation, and predicting first-time NCLEX success.