

On-going Research and Development Activities

The following information is related to Part I and Part II of the National Board Dental Examinations (NBDE):

1. Part I and Part II are criterion-referenced examinations. That is to say, the minimum passing score and the remaining score scale are determined by the judgments of experts through standard-setting activities.
 - a. Using psychometrically sound and well established procedures, standards on Part I and Part II are routinely confirmed. The most recent Part I and Part II standard setting studies were conducted in October 2007 and October 2008, respectively.
 - b. The outcomes of the standard setting studies have been validated.
 - (1) Error of measurement is lowest at the pass/fail point on the measurement scale.
 - (2) The scale covers the entire score range and failure rates are within acceptable limits as defined by the Joint Commission on National Dental Examinations.
 - (3) Failure rates are consistent with the judgments of experts.
 - (4) Trends in failure rates are stable.

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2. Research findings from the Joint Commission's studies confirmed that Part I is a unidimensional measure of the basic biomedical and dental sciences, and therefore, candidate performance on Part I can be appropriately reported with a single standard score with the associated pass/fail status.
3. Research findings for Part II also confirmed that Part II is a unidimensional measure of the dental sciences. Therefore, performance can be appropriately reported with a single standard score with the associated pass/fail status.

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4. The content specifications are based on validity studies, including practice analyses.
 - a. Practice analysis activities involve a survey of recently licensed dentists who were required to rate the importance for patient care of each of the competencies. For the first study for Part II, the competencies were based upon the 63 *Competencies of the New Dentist* developed by the American Dental Education Association. For the most recent study for Part II, the competencies were based upon the 63 *Competencies of the New Dentist* developed by the American Dental Education Association, as well as two competencies drawn from the *Accreditation Standards for Dental Education Programs* published by the Commission on Dental Accreditation of the American Dental Association.
 - b. Importance ratings from survey participants were converted to the number of items for each competency.

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- c. A two-dimensional model was used to link the judgments from survey participants regarding the important competencies to the content specifications. In this model, one dimension consisted of competencies and the other dimension consisted of the content specifications.
- d. Given numbers of items devoted to each competency, the numbers of items devoted to individual content elements that involve the theoretical knowledge necessary to support the acquisition of each competency were determined.
- e. Finally, content specifications were revised so that the distribution of items across individual content elements within disciplines reflects the importance ratings for competencies assigned by practicing dentists.

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5. Since Part II is an examination of knowledge and problem-solving skills in the dental sciences, the underlying knowledge and skills support the competencies. Patient cases are included in Part II because they enhance the validity and fidelity of Part II of the National Board Dental Examinations.
 - a. Validity refers to the degree to which logic and evidence support the interpretation and use of scores achieved on the National Board Dental Examinations for making pass/fail licensing decisions by state boards.
 - b. Fidelity is the extent to which the content structure, and format of Part II conforms to the actual practice of general dentistry.
6. The more patient cases with fewer items nested within each case enhance the score reliability of Part II based upon the Joint Commission's reliability studies in 2008.

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7. Part I and Part II continually demonstrate high score reliability, which are above the excellent level, i.e., >0.90.
8. Further evidence of validity and reliability regarding Part I and Part II of the National Board Dental Examination programs can be found in the Technical Report, which can be accessed at

http://www.ada.org/prof/ed/testing/technical_report_complete.pdf.

9. Trends in candidate performance and failure rates on Part I and Part II of the National Board Dental Examinations are presented in Figures 1 to 6 below.

Figure 1. Trend in the Numbers of the Part I Examinations Administered to Candidates

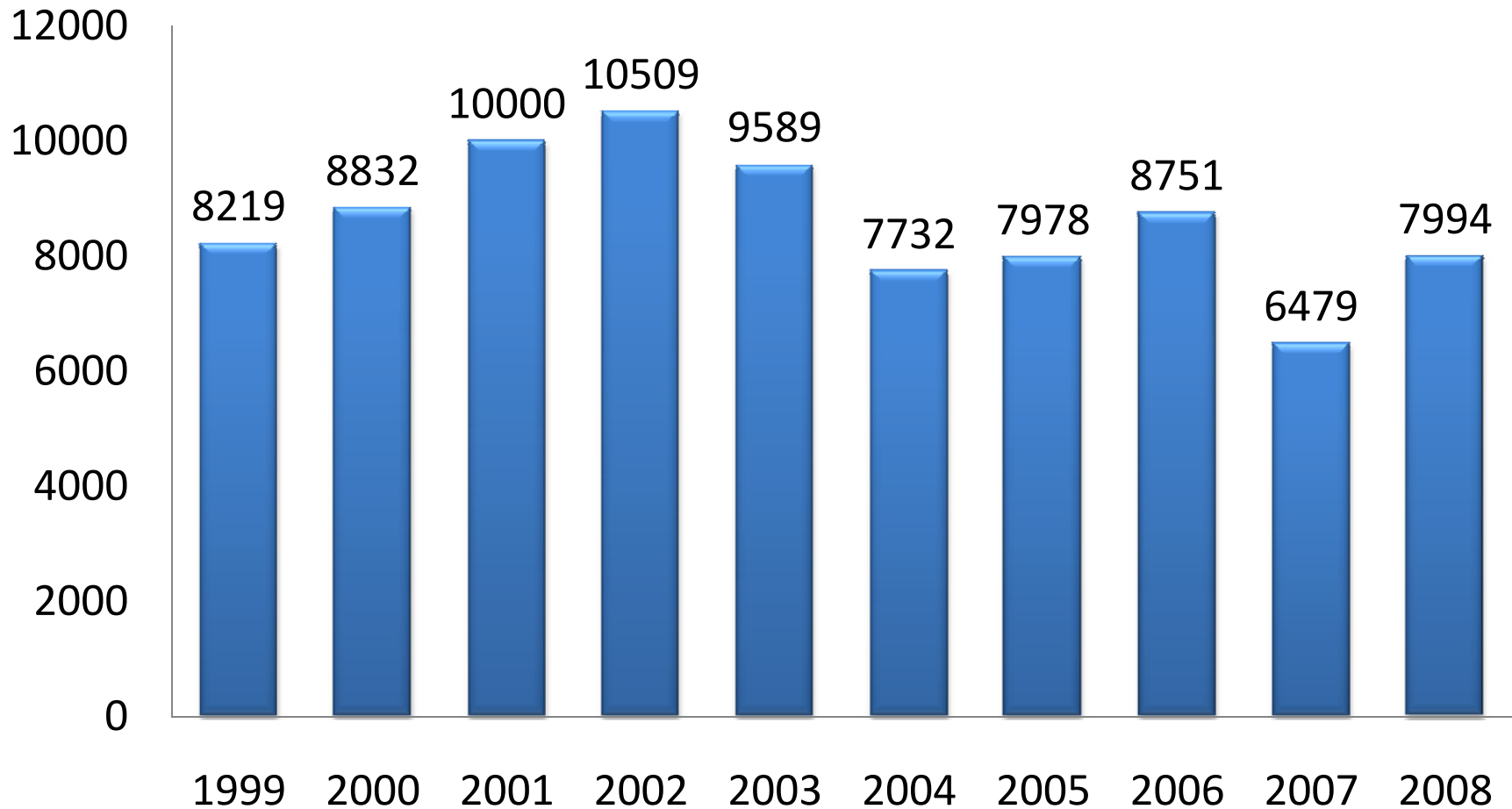


Figure 2. Trend in the Numbers of the Part II Examinations Administered to Candidates

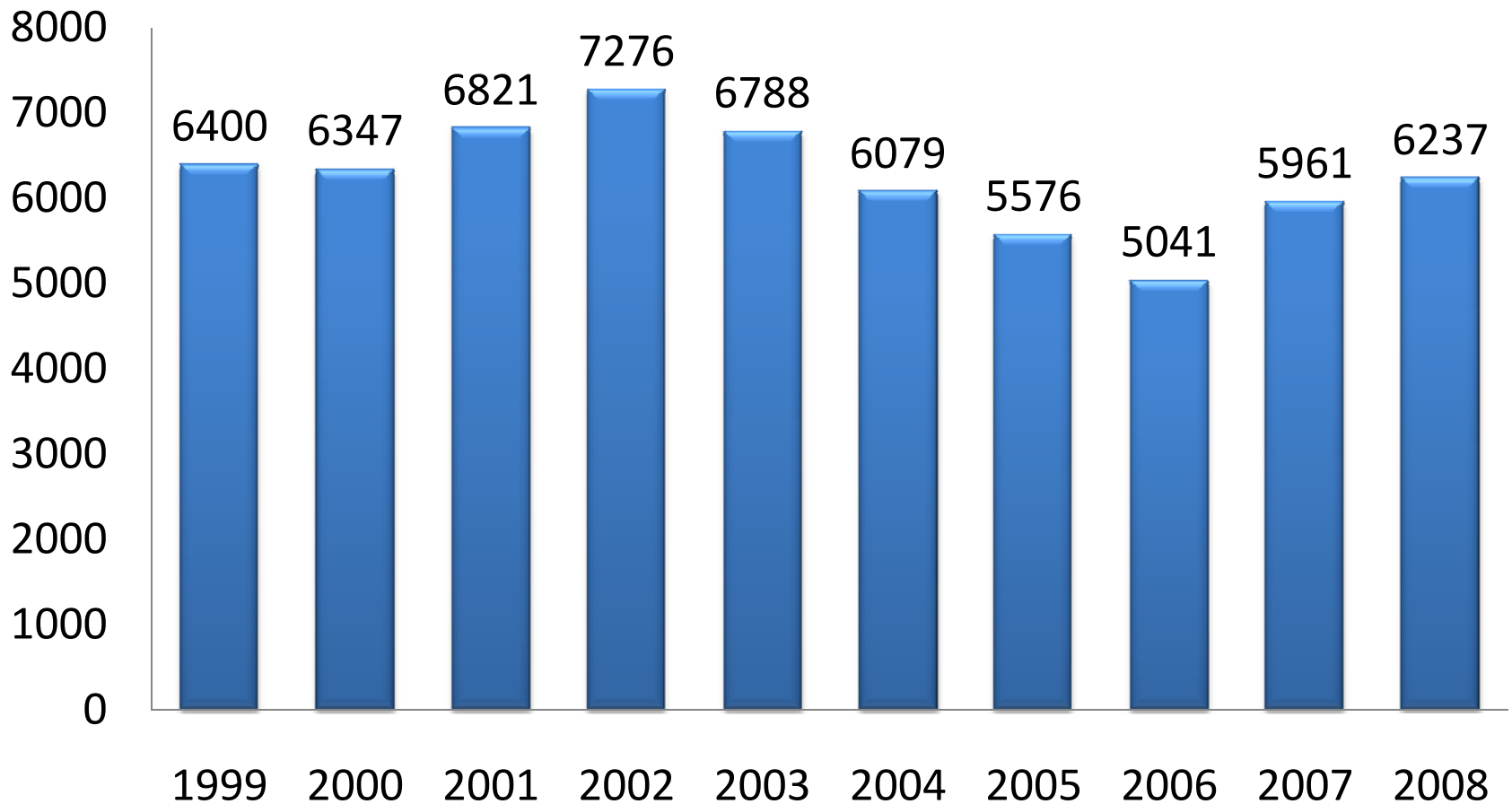


Figure 3. Trend in the Failure Rates for Part I

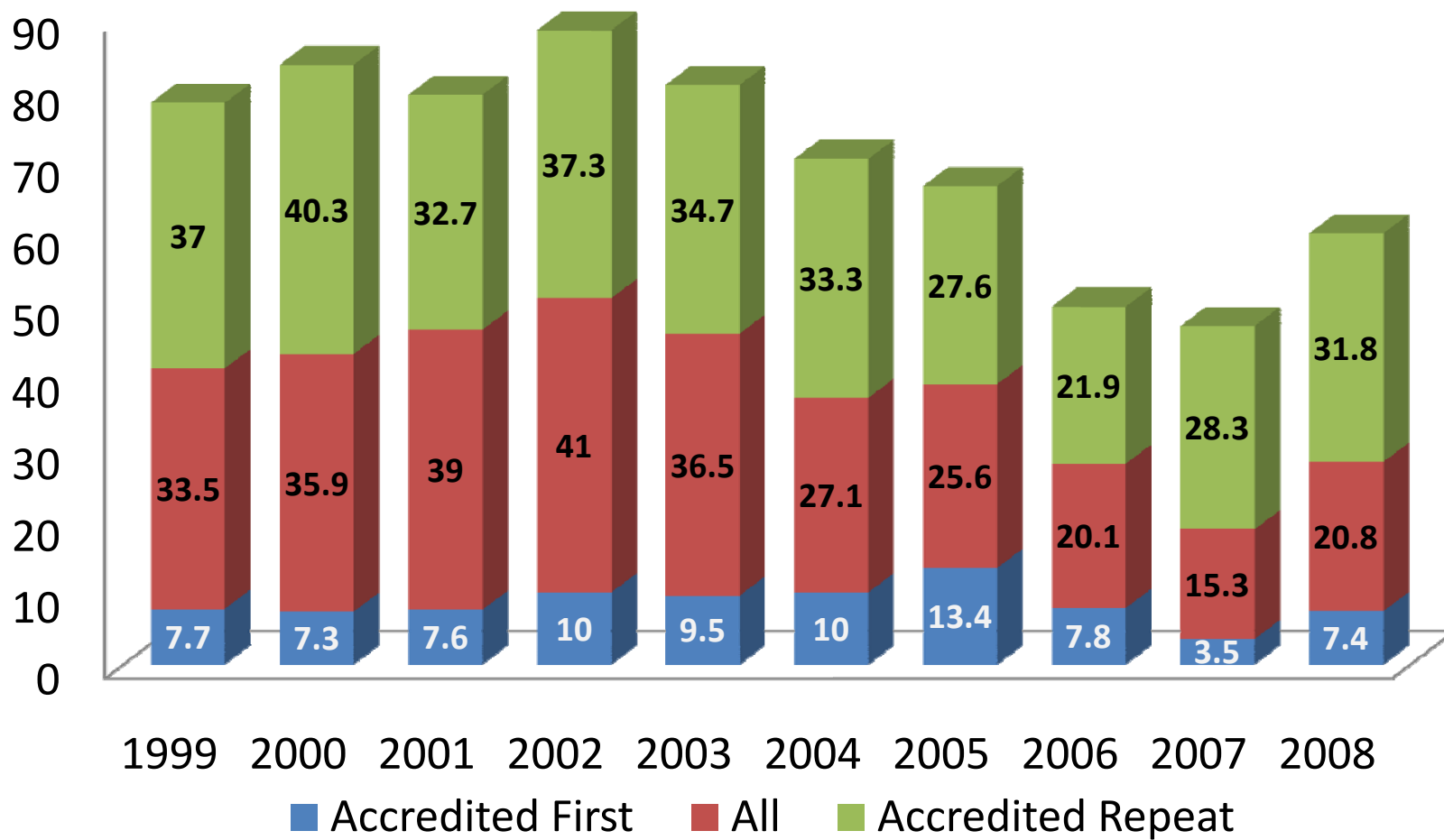


Figure 4. Failure Rates for Part I, January to December 2008

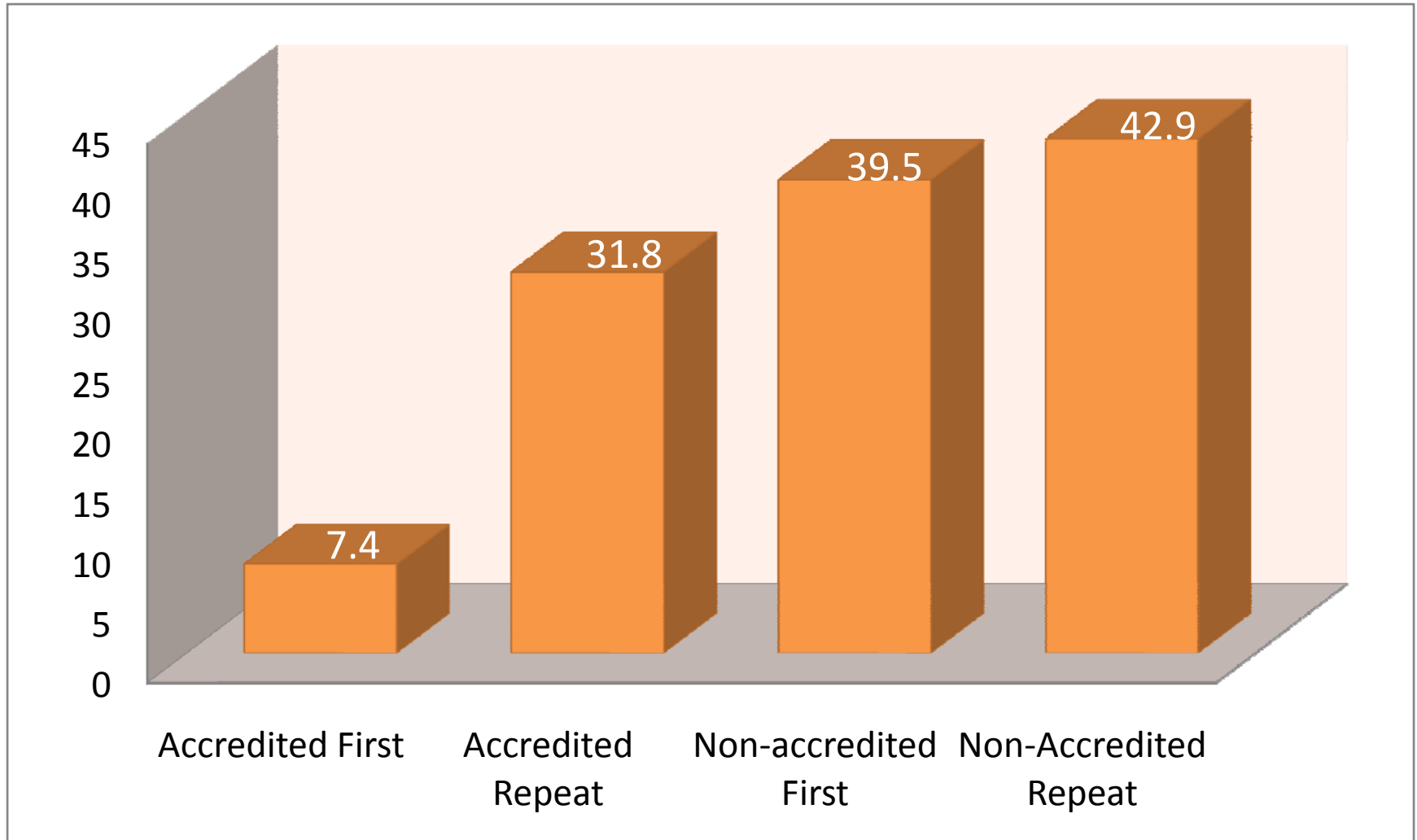


Figure 5. Trend in the Failure Rates for Part II

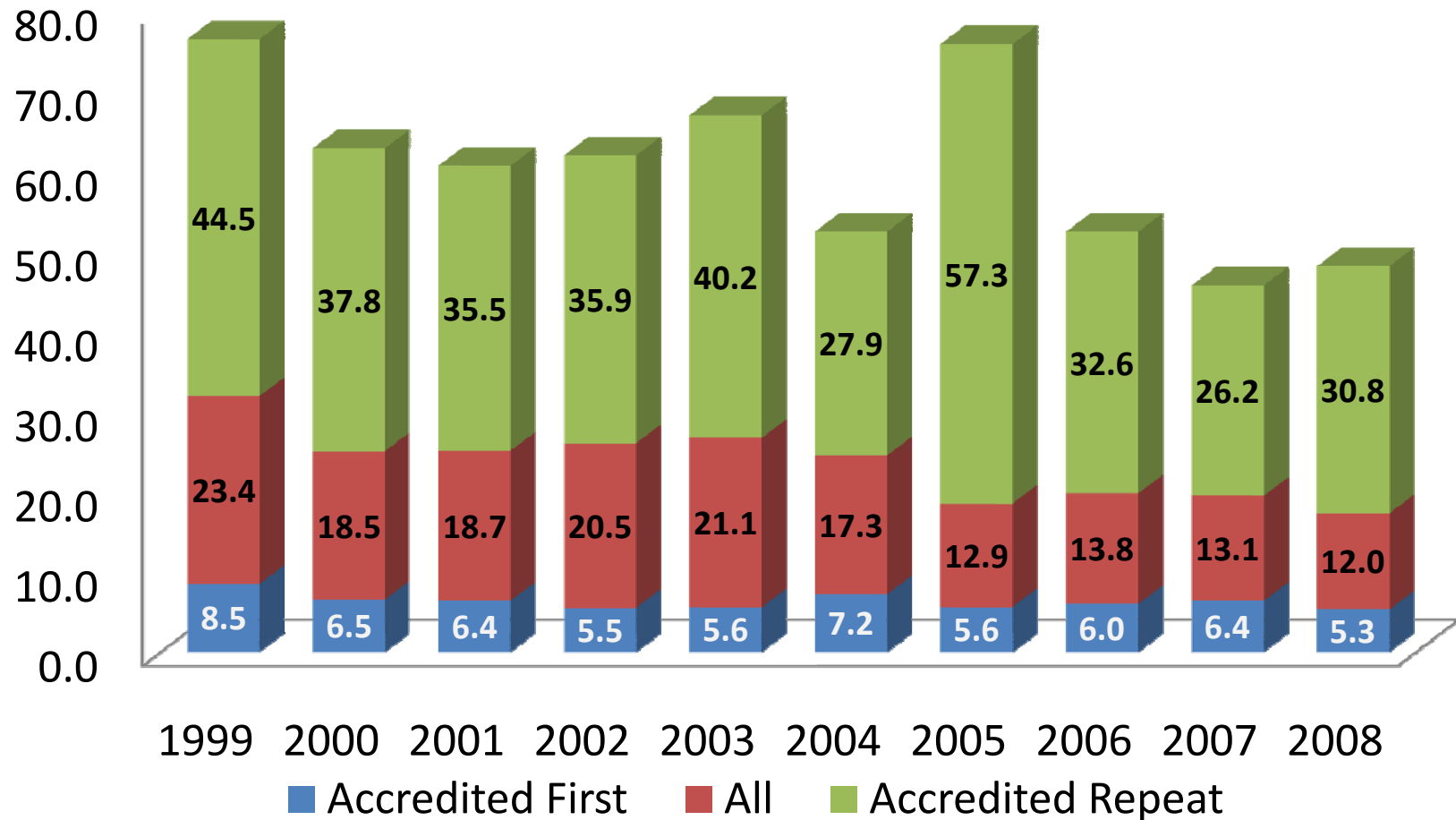
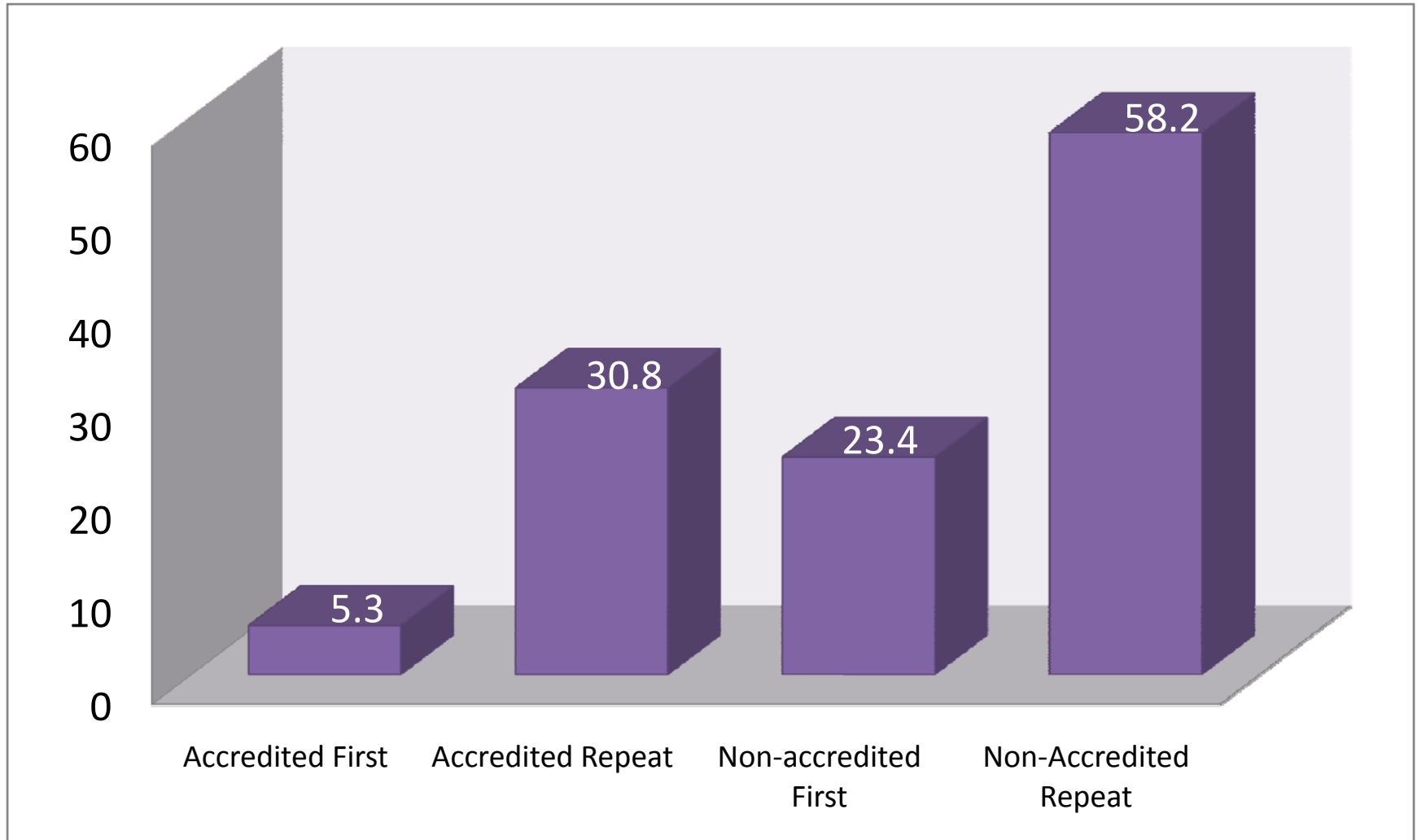


Figure 6. Failure Rates for Part II, January to December 2008



Questions

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