REVIEW OF THE AMERICAN ASSOCIATION OF CRITICAL-CARE NURSES (AACN) ADULT-GERONTOLOGY ACUTE CARE NURSE PRACTITIONER CERTIFICATION (ACNPC-AG) EXAMINATION

STATE OF CALIFORNIA

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DEPARTMENT OF CONSUMER AFFAIRS

CALIFORNIA BOARD OF REGISTERED NURSING

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July 2022

STATE OF CALIFORNIA

DEPARTMENT OF CONSUMER AFFAIRS
OFFICE OF PROFESSIONAL EXAMINATION SERVICES

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EXECUTIVE SUMMARY

Licensing boards and bureaus within the California Department of Consumer Affairs (DCA) must ensure that examination programs used in California licensure/credentialing comply with psychometric and legal standards. The public must be reasonably confident that an individual passing an examination has the requisite skills and knowledge to practice safely and competently in the profession.

The American Association of Critical-Care Nurses (AACN) Adult-Gerontology Acute Care Nurse Practitioner Certification (ACNPC-AG) examination is one of several national board certification examinations that are nationally recognized as evidence of specialization in the nurse practitioner (NP) profession. These examinations are used to qualify NPs to practice in California under Standardized Procedures. Standardized Procedures are policies and protocols developed and used by health facilities or health care systems; they specify the functions NPs may perform, the conditions under which they may perform them, and the requirements NPs must meet to perform them. The national board certification examinations are also used to qualify nurse practitioners in other states to practice independently. AB 890 (Wood, Chapter 265, Statutes of 2020), codified in Business and Professions (B&P) Code § 2837.103, specifies the requirements through which NPs in California may transition to practicing independently, defined as practicing without Standardized Procedures in specified settings and organizations. B&P Code § 2837.104 specifies additional requirements for independent NP practice outside of those settings or organizations.

B&P Code § 2837.105 requires the Board of Registered Nursing (Board) and the Office of Professional Examination Services (OPES) to review these national board certification examinations. Specifically, the Board and OPES must evaluate whether these examinations adequately assess the critical entry level competencies required to safely and effectively practice as an NP as specified in AB 890 and codified in B&P Code § 2837.103. The competencies required to perform these functions were specified in descriptions of practice in California resulting from an occupational analysis (OA) performed by the Board and OPES.

If the Board and OPES identify additional competencies necessary to perform the functions specified in B&P Code § 2837.103 that are not adequately assessed by the national board certification examinations, then the Board will be required to develop a supplemental California examination that assesses the identified competencies.

OPES has therefore performed a comprehensive review of the ACNPC-AG examination. The primary purpose of the review was to evaluate the suitability of using

the ACNPC-AG examination for the purpose of authorizing an adult gerontology NP in acute care who meets the requirements of B&P Code § 2837.103 to practice independently. OPES evaluated whether the ACNPC-AG examination meets professional guidelines and technical standards pursuant to B&P Code § 139, as required by B&P Code § 2837.105.

OPES reviewed documents provided by AACN to determine whether the following ACNPC-AG examination components meet professional guidelines and technical standards: (a) OA, (b) examination development and scoring, (c) passing scores and passing rates, (d) test administration and score reporting, and (e) test security procedures.

OPES found that the procedures used to establish and support the validity and defensibility of the components listed above meet professional guidelines and technical standards outlined in the *Standards for Educational and Psychological Testing* (*2014 Standards*) and in B&P Code § 139. However, to fully comply with B&P Code § 139 and related DCA *Policy OPES 20-01 Participation in Examination Development Workshops* (*OPES 20-01*), OPES recommends phasing out the participation of instructors and board members in examination development. In addition, as stated in DCA's Departmental Procedures Memorandum on Examination Security (DPM OPES 22-01), online or remote proctoring is not recommended for high-stakes examinations.

On January 19, 2022, OPES test specialists convened a teleconference workshop with subject matter experts (SMEs). The SMEs were NPs who held ACNPC-AG certification and were actively working in adult gerontology acute care settings in California. The SMEs were selected to represent the profession in both northern and southern California.

The workshop had two purposes: (1) to link the content of the ACNPC-AG examination, as defined in AACN's 2020 *Practice Analysis Report American Association of Critical-Care Nurses Adult-Gerontology Acute Care Nurse Practitioner* (*ACNPC-AG 2020 OA*), to adult gerontology NP in acute care practice in California, as defined in the 2021 California *Occupational Analysis of the Nurse Practitioner Practice and Practice Specialties* (*California 2021 NP OA*); and (2) to evaluate the extent to which the ACNPC-AG examination assesses the competencies required to practice safely and effectively as an adult gerontology NP in acute care in California.

The SMEs evaluated the tasks contained in the *ACNPC-AG 2020 OA* examination content outline against the California tasks and associated knowledge statements as outlined by the *California 2021 NP OA*. The associated knowledge was included to

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provide additional context for the tasks. The SMEs completed linkages for every California task and its associated knowledge statements with ACNPC-AG tasks. The results of the evaluation and linkage indicate that the ACNPC-AG examination adequately assesses critical, entry level clinical competencies required for safe and effective adult gerontology NP in acute care practice in California as defined by the *California 2021 NP OA* and B&P Code § 2837.103. The ACNPC-AG examination does not assess knowledge related to California-specific laws and regulations. OPES supports the Board's use of the ACNPC-AG examination as part of the licensure/credentialing process for NPs who meet the requirements of B&P Code § 2837.103 to practice independently as adult gerontology NPs in acute care in California.

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CHAPTER 1 | INTRODUCTION

CALIFORNIA LAW AND REGULATION OF NURSE PRACTITIONERS

Under section 1480 of title 16 of the California Code of Regulations (16 CCR § 1480), a nurse practitioner (NP) is "an advanced practice registered nurse [RN] who meets board education and certification requirements and possesses additional advanced practice educational preparation and skills in physical diagnosis, psycho-social assessment, and management of health-illness needs in primary care, and/or acute care."

When performing advanced functions outside of scope of RN practice, which are otherwise overlapping medical functions, NPs in California currently practice under the legal mechanism of Standardized Procedures. Standardized Procedures are policies and protocols developed and used by health facilities or health care systems; they specify the functions NPs may perform, the conditions under which they may perform them, and the requirements NPs must meet to perform them. NPs performing functions under Standardized Procedures may not practice independently (*General Information: Nurse Practitioner Practice,* Board of Registered Nursing, 2011).

AB 890 (Wood, Chapter 265, Statutes of 2020), codified in Business and Professions (B&P) Code § 2837.103, specifies the requirements through which NPs in California may transition to practicing independently, defined as practicing without Standardized Procedures in specified settings and organizations. B&P Code § 2837.104 specifies additional requirements for independent NP practice outside of those settings or organizations. B&P Code § 2837.103 specifies the functions that may be performed without Standardized Procedures in certain settings and under certain conditions by NPs who have completed 3 years of supervised clinical practice, known as a 3-year "transition to practice":

> (c) In addition to any other practices authorized by law, a nurse practitioner … may perform the following functions without standardized procedures in accordance with their education and training:
>
> (1) Conduct an advanced assessment.
>
> (2) (A) Order, perform, and interpret diagnostic procedures.
>
> (B) For radiologic procedures, a nurse practitioner can order diagnostic procedures and utilize the findings or results in treating the patient. A nurse practitioner may perform or interpret clinical laboratory procedures that they are permitted to perform

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under Section 1206 and under the federal Clinical Laboratory Improvement Act (CLIA).

(3) Establish primary and differential diagnoses.

(4) Prescribe, order, administer, dispense, procure, and furnish therapeutic measures, including, but not limited to, the following:

(A) Diagnose, prescribe, and institute therapy or referrals of patients to health care agencies, health care providers, and community resources.

(B) Prescribe, administer, dispense, and furnish pharmacological agents, including over-the-counter, legend, and controlled substances.

(C) Plan and initiate a therapeutic regimen that includes ordering and prescribing nonpharmacological interventions, including, but not limited to, durable medical equipment, medical devices, nutrition, blood and blood products, and diagnostic and supportive services, including, but not limited to, home health care, hospice, and physical and occupational therapy.

(5) After performing a physical examination, certify disability pursuant to Section 2708 of the Unemployment Insurance Code.

(6) Delegate tasks to a medical assistant pursuant to Sections 1206.5, 2069, 2070, and 2071, and Article 2 (commencing with Section 1366) of Chapter 3 of Division 13 of Title 16 of the California Code of Regulations.

B&P Code § 2837.104 specifies that these functions can be performed outside of those limited settings and conditions by an NP who meets the following requirements:

- Has met all the requirements specified in B&P Code § 2837.103(a)(1), including:
  - Passing a national NP board certification examination and, if applicable, a supplemental California examination.
  - Holding a certification as a nurse practitioner from a national certifying body recognized by the Board of Registered Nursing (Board).
  - Providing documentation that educational training was consistent with standards established by the Board.
  - Completing the 3-year "transition to practice."

- Holds a valid and active license as a registered nurse in California and a master's degree in nursing or in a clinical field related to nursing or a doctoral degree in nursing.

- Has practiced as an NP for an additional 3 years, not including the 3 years required for the "transition to practice."

NPs who practice pursuant to B&P Code §§ 2837.103 and 2837.104 are likely to practice in one of eight categories described in 16 CCR § 1481.

1. Family care
2. Adult-gerontology primary care
3. Adult-gerontology acute care
4. Neonatal care
5. Pediatric primary care
6. Pediatric acute care
7. Women's health care
8. Psychiatric mental health care

MANDATE OF THE COMPREHENSIVE REVIEW

B&P Code § 2837.105(a) requires the Board of Registered Nursing (Board) and the Office of Professional Examination Services (OPES) to perform an occupational analysis (OA) of NPs performing the eight functions described above. An OA may also be known as a job analysis, practice analysis, task analysis, or role delineation study. For purposes of consistency, this report uses the term OA. The OA resulted in eight California descriptions of practice for NPs transitioning to practice independently.

The descriptions of practice are included in the 2021 *California Occupational Analysis of the Nurse Practitioner Practice and Practice Specialties* (*California 2021 NP OA*).

B&P Code § 2837.105(b) authorizes OPES to review the Board's proposed NP "examination process," which includes national board certification examinations, "pursuant to Section 139 [of the B&P Code]." Section 139 states that "occupational analyses and examination validation studies are fundamental components of licensure programs," and it requires OPES to assess whether a national examination program has identified competencies by means of a valid OA, and whether it tests those competencies in accordance with technical standards.

B&P Code § 2837.105 requires the Board and OPES to evaluate whether national NP board certification examinations adequately assess the critical entry level competencies required to practice as an NP as specified in AB 890 and codified in B&P Code § 2837.103. The national board certification examinations selected for evaluation are

nationally recognized as evidence of specialization in the NP profession. These examinations are used to qualify NPs to practice in California under Standardized Procedures.

If the Board and OPES identify additional competencies necessary to perform the functions specified in B&P Code § 2837.103 that are not adequately assessed by the national board certification examinations, then the Board will be required to develop a supplemental California examination that assesses the identified competencies.

In conclusion, the Board is required by B&P Code § 2837.105 to perform an OA of NPs practicing as specified in B&P Code § 2837.103, and to review national NP board certification examinations pursuant to B&P Code § 139.

PURPOSE OF THE COMPREHENSIVE REVIEW

Licensing boards and bureaus within the California Department of Consumer Affairs (DCA) must ensure that examination programs used in California licensure/credentialing comply with psychometric and legal standards. The public must be reasonably confident that an individual passing an examination has the requisite skills and knowledge to practice safely and competently in the profession.

The American Association of Critical-Care Nurses (AACN) Adult-Gerontology Acute Care Nurse Practitioner Certification (ACNPC-AG) examination is a national board certification examination used to qualify NPs to practice as an adult gerontology NP in acute care in California under Standardized Procedures. AB 890 mandated that OPES review the ACNPC-AG examination for use in the Board's proposed NP examination process. The purpose of the review was to evaluate the suitability of using the ACNPC-AG examination in the Board's process for authorizing independent adult gerontology NP in acute care practice. OPES' review included the following:

1. Determining whether the ACNPC-AG examination meets the professional guidelines and technical standards outlined in the *Standards for Educational and Psychological Testing* (*2014 Standards*) and in B&P Code § 139. DCA *Policy OPES 18-02 Licensure Examination Validation* (*OPES 18-02*) specifies the *2014 Standards* as the most relevant technical and professional standards to be used to ensure that examinations used in licensure/credentialing programs in California are psychometrically sound, job-related, and legally defensible.

2. Identifying any critical entry level competencies required for safe and effective adult gerontology NP in acute care practice in California that the ACNPC-AG examination does not assess.

OPES recognizes that evaluating the suitability of the ACNPC-AG examination for use in making licensure/credentialing decisions in California involves complex analysis. As noted on page 7 of the *2014 Standards:*

> Evaluating the acceptability of a test does not rest on the literal satisfaction of every standard … and the acceptability of a test or test application cannot be determined by using a checklist. Specific circumstances affect the importance of individual standards, and individual standards should not be considered in isolation. Therefore, evaluating acceptability depends on (a) professional judgment that is based on a knowledge of behavioral science, psychometrics, and the relevant standards in the professional field to which the test applies; (b) the degree to which the intent of the standard has been satisfied by the test developer and user; (c) the alternative measurement devices that are readily available; (d) research and experiential evidence regarding the feasibility of meeting the standard; and (e) applicable laws and regulations.

OPES, in collaboration with the Board, requested documentation from AACN to determine whether the following ACNPC-AG examination components meet professional guidelines and technical standards outlined in the *2014 Standards* and in B&P Code § 139: (a) OA, (b) examination development and scoring, (c) passing scores and passing rates, (d) test administration and score reporting, and (e) test security procedures. OPES, with the assistance of the Board, also conducted a linkage study to evaluate the extent to which the ACNPC-AG examination assesses the competencies required to practice safely and effectively as an adult gerontology NP in acute care in California (as defined by the *California 2021 NP OA* and B&P Code § 2837.103).

OPES' evaluation of the ACNPC-AG examination is based solely on its review of the documentation provided by AACN. OPES did not seek to independently verify the claims and statements made by AACN.

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CHAPTER 2 | OCCUPATIONAL ANALYSIS

For ACNPC-AG candidate scores to be considered a valid basis for making NP licensure/credentialing decisions in California, the knowledge base tested on the examination must closely correspond to the knowledge required for safe and effective practice as an entry level adult gerontology NP in acute care in California.

As indicated by the *2014 Standards*, this knowledge base is typically identified by conducting an OA. The results of the OA directly inform the examination content outline (i.e., test blueprint) in terms of important tasks and the knowledge that should be assessed through a licensure/credentialing examination.

PSI Services, LLC (PSI), in collaboration with AACN, conducted the OA of the adult gerontology NP in acute care profession. The results of the study are documented in the *2020 Practice Analysis Report American Association of Critical-Care Nurses Adult-Gerontology Acute Care Nurse Practitioner* (*ACNPC-AG 2020 OA*). The information in this chapter was derived from the *ACNPC-AG 2020 OA.*

OCCUPATIONAL ANALYSIS STANDARDS

The following standards are most relevant to conducting OAs for licensure/credentialing examinations, as referenced in the *2014 Standards*:

Standard 11.2

Evidence of validity based on test content requires a thorough and explicit definition of the content domain of interest.

Comment on Standard 11.2: … For credentialing tests, the target content domain generally consists of the knowledge, skills, and judgment required for effective performance. The target content domain should be clearly defined so it can be linked to test content (p. 178).

Standard 11.3

When test content is a primary source of validity evidence in support of the interpretation for the use of a test for … credentialing, a close link between test content and the job or professional/occupational requirements should be demonstrated.

Comment on Standard 11.3: … For a credentialing examination, the evidence should include a description of the major responsibilities, tasks, and/or activities

performed by practitioners that the test is meant to sample, as well as the underlying knowledge and skills required to perform those responsibilities, tasks, and/or activities (pp. 178–179).

Standard 11.13

The content domain to be covered by a credentialing test should be defined clearly and justified in terms of the importance of the content for credential-worthy performance in an occupation or profession. A rationale and evidence should be provided to support the claim that the knowledge or skills being assessed are required for credential-worthy performance in that occupation and are consistent with the purpose for which the credentialing program was instituted (pp. 181–182).

Comment on Standard 11.13: Typically, some form of job or practice analysis provides the primary basis for defining the content domain. If the same examination is used in the credentialing of people employed in a variety of settings and specialties, a number of different job settings may need to be analyzed. Although the job analysis techniques may be similar to those used in employment testing, the emphasis for credentialing is limited appropriately to knowledge and skills necessary for effective practice (p. 182).

In tests used for licensure, knowledge and skills that may be important to success but are not directly related to the purpose of licensure (i.e., protecting the public) should not be included (p. 182).

OCCUPATIONAL ANALYSIS TIME FRAME

B&P Code § 139 requires that each California licensure board, bureau, commission, and program report annually on the frequency of its OAs and the validation and development of its examinations. *OPES 18-02* states:

Generally, an occupational analysis and examination outline should be updated every five years to be considered current; however, many factors are taken into consideration when determining the need for a different interval. For instance, an occupational analysis and examination outline must be updated whenever there are significant changes in a profession's job tasks and/or demands, scope of practice, equipment, technology, required knowledge, skills and abilities, or law and regulations governing the profession (p. 4).

The most recent AACN OA for adult gerontology NP in acute care practice was initiated in February 2020 and completed in September 2020. AACN undertakes OAs of the adult gerontology NP in acute care profession every 5–7 years.

> **Finding 1**: The OA was conducted within a time frame considered to be current and legally defensible.

OCCUPATIONAL ANALYSIS PURPOSE

The purpose of the OA was to develop an accurate scope of practice of adult gerontology NPs in acute care, thereby allowing for the development of fair, accurate, and realistic assessment of candidate readiness for certification.

PARTICIPATION OF SUBJECT MATTER EXPERTS

OA methodology relies on the experience and professional judgments of NPs serving as subject matter experts (SMEs). The SMEs develop a description of practice for adult gerontology NPs in acute care. Throughout the OA process, input from a diverse and representative group of SMEs is critical to obtain valid results. If an examination is to assess the competencies required to practice safely and competently in California, the OA process should involve large and representative groups of California NPs during each OA stage.

To conduct the *ACNPC-AG 2020 OA*, an online survey was developed with the participation of a Practice Analysis Task Force (PATF) consisting of nine SMEs, four of whom held ACNPC-AG certification. The remaining PATF participants were NPs in acute care selected to ensure representation of the profession in terms of characteristics such as years of experience, work setting, geographic location, and areas of specialty.

Under the psychometric guidance of PSI, the PATF met in February 2020 to discuss the scope of practice and develop a list of 83 tasks and 155 knowledge areas organized into content domains and subdomains. The PATF used the existing examination content outline as a resource when developing the tasks and knowledge areas. PSI used the results of the PATF meeting to develop a practice analysis survey to validate the tasks and knowledge areas and to help determine content domain weights.

After the main survey was administered and the data were gathered, the PATF met in August 2020 to finalize the tasks and knowledge areas and content area weights for the new examination content outline. The PATF reviewed the draft content weighting and discussed adjustments they believed necessary to align the content area weights to

adequately assess the content on the examination. The PATF participated in the development of a final detailed examination content outline.

NATIONAL OCCUPATIONAL ANALYSIS METHODOLOGY

According to the *2014 Standards*, an OA should clearly and explicitly define the target content domain of the test in terms of the knowledge and skills required for safe and competent practice in a wide variety of practice settings.

Survey Development

The methodology used to conduct the OA study was an online survey. The survey was developed by PSI with the assistance of four AACN staff and the PATF. PSI staff, including qualified psychometricians, prepared the draft practice analysis survey, which was based on the consensus of the PATF.

The final survey consisted of four sections: Demographics, Knowledge, Skills and Procedures, and Competencies. The Knowledge section was further broken down into 14 subsections, and the Skills and Procedures section was further broken down into 10 subsections. The Competencies were based on the National Organization of Nurse Practitioner Faculties (NONPF) 2016 Competencies for Acute and Primary Care Nurse Practitioners. Each of the 10 competency areas included a title and a list of tasks. The number of tasks ranged from 6 each for Scientific Foundations, Practice Inquiry, and Ethics, to 21 for Independent Practice.

For the Knowledge section and the Skills and Procedures section, respondents were asked to indicate how frequently they used the Knowledge (or Skill and Procedure) in their role as an adult gerontology NP in acute care. The rating scale ranged from 0 (not relevant) to 5 (very frequently). They were also asked to indicate how important the Knowledge (or Skill and Procedure) was to their role as an adult gerontology NP in acute care. The rating scale ranged from 0 (not relevant) to 5 (critically important).

For the Competencies section, respondents were asked to indicate an overall frequency and importance rating for each of the 10 competency areas. Finally, the respondents were also asked to indicate an overall frequency and importance rating for a summary statement of each competency area. The draft survey was pilot tested with the PATF and AACN staff members.

> **Finding 2**: The procedure used by PSI to develop the survey appears to meet professional guidelines and technical standards.

Survey Sample

The survey was administered online to a list of 8,622 individuals that was provided by AACN. A total of 151 sufficiently completed surveys (a response rate of 1.75%) were received. According to the demographic results, 100% of the respondents indicated that they worked as an adult gerontology NP in acute care in the past 6 months. Responses were received from NPs in all regions of the United States, with 13 (8.6%) from California. All clinical employment settings and specialty areas were represented, and 81% of the respondents reported working 31 or more hours per week.

> **Finding 3**: The intent of the sampling plan was reasonable and meets professional standards and technical guidelines. The final respondent sample appears to be representative of the target population. NPs in California were included in the final respondent sample.

Survey Results

PSI collected the survey data and analyzed the rating results. Task and knowledge area ratings obtained from the survey were analyzed and averaged. Each task and knowledge area received a mean frequency rating and a mean importance rating. The PATF met in August 2020 to review the results of the survey. The PATF reviewed the demographic results and confirmed that the results appeared to reflect the target population.

In addition, the PATF reviewed the task and knowledge ratings and discussed any tasks or knowledge areas that did not reach a threshold rating of 2.5. The PATF was asked to either keep the task / knowledge area or elect to remove it. Based on the discussion, the PATF elected to remove 26 of 59 tasks that did not meet the 2.5 threshold. The PATF elected to keep all 45 knowledge areas that met the 2.5 threshold.

Examination Content Outline Development

During the August 2020 meeting, the PATF reviewed the draft content weighting based on the criticality data. The criticality for each knowledge area was calculated by multiplying the mean importance rating by the mean frequency rating. The draft content area percentage weights were determined by the relative weight of the criticality value for each content area. The PATF reviewed a summary of the number of items selected for each content domain and subdomain based on the criticality data. The PATF discussed the data and determined the final number of items to be assessed in each area. The final examination content outline consists of 8 content domains and 12

subdomains, with the validated knowledge areas. The list of tasks (skills and procedures) was also provided to be incorporated within items.

A linkage analysis was performed by the PATF to establish evidence that the knowledge areas are applicable to the tasks and to determine any potential gaps in either the task or knowledge inventory. A linkage matrix was used to identify connections between the tasks and knowledge areas. Each linkage in the matrix represents that the knowledge is required in order to complete the task.

> **Finding 4**: The development of the examination content outline was based on the results of the OA and included the judgment of SMEs. The OA process demonstrates a sufficient level of validity, thereby meeting professional guidelines and technical standards.

CONCLUSIONS

The OA conducted by PSI is consistent with professional guidelines and technical standards. Additionally, the development of the specifications for the ACNPC-AG examination is based on the results of the *ACNPC-AG 2020 OA* and meets professional guidelines and technical standards.

CHAPTER 3 | EXAMINATION DEVELOPMENT AND SCORING

STANDARDS AND REGULATIONS

Examination development consists of many steps, including development of scoring criteria and procedures for test administration and scoring. Several specific activities involved in the examination development process are evaluated in this section. The activities include: item writing and review, item pilot testing, linking items to the examination content outline, and developing examination forms.

EXAMINATION DEVELOPMENT STANDARDS

The following standards are most relevant to examination development and scoring of certification examinations, as referenced in the *2014 Standards.*

Standard 1.11

When the rationale for test score interpretation for a given use rests in part on the appropriateness of test content, the procedures followed in specifying and generating test content should be described and justified with reference to the intended population to be tested … or the domain it is intended to represent (p. 26).

Standard 2.3

For each total score, subscore, or combination of scores that is to be interpreted, estimates of relevant indices of reliability/precision should be reported (p. 43).

Standard 4.7

The procedures used to develop, review, and try out items and to select items from the item pool should be documented (p. 87).

Comment on Standard 4.7: The qualifications of individuals developing and reviewing items and the process used to train and guide them in these activities are important aspects of test development documentation. Typically, several groups of individuals participate in the test development process, including item writers and individuals participating in reviews for item and test content, for sensitivity, or for other purposes (pp. 87–88).

Standard 4.8

The test review process should include empirical analyses and/or the use of expert judges to review items and scoring criteria. When expert judges are used, their qualifications, relevant experiences, and demographic characteristics should be documented, along with the instructions and training in the item review process that the judges receive (p. 88).

Standard 4.9

When item or test form tryouts are conducted, the procedures used to select the sample(s) of test takers as well as the resulting characteristics of the sample(s) should be documented. The sample(s) should be as representative as possible of the population(s) for which the test is intended (p. 88).

Standard 4.10

When a test developer evaluates the psychometric properties of items, the model used for that purpose (e.g., classical test theory, item response theory, or another model) should be documented. The sample used for estimating item properties should be described and should be of adequate size and diversity for the procedure. The process by which items are screened and the data used for screening, such as item difficulty, item discrimination, or differential item functioning (DIF) for major examinee groups, should also be documented. When model-based methods (e.g., IRT) are used to estimate item parameters in test development, the item response model, estimation procedures, and evidence of model fit should be documented (pp. 88–89).

Standard 4.12

Test developers should document the extent to which the content domain of a test represents the domain defined in the test specifications (p. 89).

The following regulations are relevant to the integrity of the examination development process:

B&P Code § 139 requires the Department of Consumer Affairs to develop a policy on examination validation which includes minimum requirements for psychometrically sound examination development.

DCA Policy OPES 20-01 Participation in Examination Development Workshops (OPES 20-01), as mandated by B&P Code § 139, specifies that board members,

committee members, and instructors should not serve as expert consultants in the licensure examination development process. This is due to potential conflict of interest, undue influence, and security considerations.

The information in this chapter was derived from AACN's 2022 *Exam Development Policy* (*2022 AACN Exam Development*); AACN's 2022 *Exam Confidentiality Policy* (*2022 Exam Confidentiality*); the 2020 *National Practice Analysis of Adult-Gerontology Acute Care Nurse Practitioners Executive Summary* (*2020 Practice Analysis Executive Summary)*; and AACN's April 2022 *Response to CA OPES's Request for Information* (*2022 AACN Response to OPES*)*.*

EXAMINATION DEVELOPMENT – ITEM DEVELOPMENT AND PARTICIPATION OF SUBJECT MATTER EXPERTS

Participation of representative and diverse groups of certified, practicing adult gerontology NPs in acute care at each stage of examination development is critical for ensuring that the content of the examination accurately reflects the examination specifications and current occupational requirements. The representativeness and diversity of SMEs engaged in examination development activities are critical for ensuring that examination items and forms are free of bias and potential barriers to valid measurement.

SMEs selected by AACN participate in the development of the ACNPC-AG examination by participating in the Item Writing Committee (IWC) or the Exam Development Committee (EDC). The IWC is responsible for developing items for inclusion in the item banks. The EDC is responsible for developing the certification item pool for Linear-on-the-Fly Testing (LOFT). The EDC comprises three subcommittees: the Item Review Committee (IRC), the Pool Review Committee (PRC), and the Score Evaluation Committee (SEC). The IRC is responsible for reviewing and approving newly written items for pretesting. The PRC is responsible for reviewing a pool of active and pretest items for relevance and to identify enemy items. The SEC is responsible for the standard setting study to establish the examination passing score.

AACN recruits SMEs through a volunteer database, an announcement in industry specific newsletters, and emails to specific groups or list servs. All SMEs must be representative of the candidate population; possess demonstrated expertise in an area of clinical practice that is related to at least one of the content areas of the examination; and possess demonstrated current knowledge of the populations and nursing practice being tested.

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Members of the AACN Board of Directors serve in an observational role only during examination development processes. Board members must sign confidentiality and conflict of interest forms. Instructors serve on examination development committees that do not see final examination forms. All SMEs are required to provide confidentiality and conflict of interest documentation before participating in examination development work.

> **Finding 5**: The criteria used to select representative SMEs for item and examination development are consistent with professional guidelines and technical standards.

> **Finding 6**: AACN does not exclude instructors from participating in the examination development process. In addition, Board members and AACN staff may participate in certain examination development activities. The use of instructors and board members conflicts with *OPES 20-01*, which states that instructors and board members should not serve as SMEs due to potential conflict of interest, undue influence, and security considerations.

> **Finding 7**: SMEs participating in item and examination development are required to sign confidentiality agreements and are instructed about test security, which is consistent with professional guidelines and technical standards. AACN has procedures in place to prevent examination development SMEs from leading examination preparation courses and from taking the certification examination.

SMEs receive extensive online item writing training developed by PSI and AACN staff. All SMEs receive training on the purpose of the examination, the role of the committees, participation rules, and a general description of committee activities.

SMEs in the IWC participate in workshops provided by PSI psychometricians and AACN staff. The training includes writing techniques, cognitive levels, common item flaws, and bias and sensitivity.

Items are written at the application and analysis cognitive levels in order to provide a better indication of the candidate's critical thinking abilities when caring for acutely and critically ill patients and their families. Item writing work is completed and submitted to AACN remotely through an online portal requiring a unique, individual login and password.

> **Finding 8**: Item development guidelines used by AACN to train SMEs and develop items are consistent with technical standards and professional guidelines.

EXAMINATION DEVELOPMENT – ITEM PILOT TESTING

Each ACNPC-AG examination form consists of 175 multiple choice items, with 150 scored and 25 pretest (unscored) items. The 25 pretest items are administered to obtain performance statistics.

The IRC reviews all newly written items for clinical relevance, accuracy, test wiseness, key agreement, and alignment with the current test plan. The approved items are then pretested with at least 100 candidate responses to yield reliable item statistics. Items that meet predetermined difficulty criteria are eligible for use as scored items on a future test form. Items that do not meet these criteria are reviewed by SMEs and are revised or discarded. Item banks are maintained at 2–3 times the number of items required for the ACNPC-AG examination. Item review SMEs are recruited from the same pool as item writing SMEs and must meet the same requirements.

> **Finding 9**: The procedures used to develop, review, and pilot test items, as well as to select and retire items from the item bank, are consistent with professional guidelines and technical standards.

EXAMINATION CONSTRUCTION AND SCORING

The ACNPC-AG examination is constructed according to the examination content outline, which was derived from the *ACNPC-AG 2020 OA*. The eight domains of the ACNPC-AG examination content outline are: Clinical Judgment, Advocacy/Moral Agency, Caring Practices, Response to Diversity, Facilitation of Learning, Collaboration, Systems Thinking, and Clinical Inquiry.

Linkage of items to the examination content outline is performed through a reclassifying process by the EDC. The examination items are reviewed, validated, and linked to the new test plan according to the specified patient care problems. The EDC unanimously agree on each item's classification before developing the new examination forms.

> **Finding 10**: Items are assigned to content domains by SMEs participating in the EDC, PSI examination development staff, and AACN staff. The steps taken to link the examination items to the content domains are consistent with professional guidelines and technical standards.

Examination forms are assembled and reviewed by the EDC. Items are selected for the base examination form to represent the examination content outline specified by the *ACNPC-AG 2020 OA*. The examination matrix approved by AACN defines the specific item distribution on the form based on item content and type. Subsequent forms of the

examination are constructed using the same criteria to ensure that the forms are parallel to the base test form. Forms are constructed to have comparable content, equivalence of difficulty, and similar score reliability. Items in the certification item pool are reviewed by the EDC for clinical relevance, statistical performance, and to identify enemy items. Reviewed and approved items used on examination forms are either scored or pretest items.

> **Finding 11**: The criteria applied to create new examination forms appear to meet professional guidelines and technical standards.

> **Finding 12**: The procedure by which parallel examination forms are constructed appears to meet professional guidelines and technical standards.

AACN and PSI continually monitor examination statistics including mean scores, standard deviations, Kuder-Richardson and Spearman-Brown reliability estimates, Subkoviak Decision Consistency estimates, standard error of measurement, p values, rpb values, and passing rates. Item level statistics are monitored as well, including p values and rpb values for each item and for each answer option. Any changes in item statistical performance are reviewed for deletion, revision, or continued monitoring of performance. Item performance review occurs at least every 3 months, and it includes review of item references. In addition, PSI provides regular reports for each modality of administration to monitor for any anomalies.

> **Finding 13**: The scoring criteria is applied equitably to ensure the validity and reliability of the examination results. The examination scoring process meets professional guidelines and technical standards.

> **Finding 14**: The steps taken by PSI to score the ACNPC-AG examination appear to provide a fair and objective evaluation of candidate performance. The steps taken by PSI to evaluate examination performance are valid and legally defensible and meet professional guidelines and technical standards.

CONCLUSIONS AND RECOMMENDATIONS

Overall, ACNPC-AG item development, examination construction, and scoring procedures appear consistent with professional guidelines and technical standards related to examination development. To reduce the potential for conflict of interest, OPES recommends phasing out the participation of instructors and board members in examination development.

CHAPTER 4 | PASSING SCORES AND PASSING RATES

The passing score of an examination is the score that represents the level of performance that divides those candidates for certification who are minimally competent from those who are not competent. Passing scores are also known as cut scores or cut points.

PASSING SCORE STANDARDS

The following standards are most relevant to passing scores for licensure/credentialing examinations, as referenced in the *2014 Standards.*

Standard 5.21

When proposed score interpretations involve one or more cut scores, the rationale and procedures used for establishing cut scores should be documented clearly (p. 107).

Comment on Standard 5.21: … cut scores may be used to classify examinees into distinct categories (e.g., … passing versus failing) for which there are no pre-established quotas. In these cases, the standard-setting method must be documented in more detail. Ideally, the role of cut scores in test use and interpretation is taken into account during test design. Adequate precision in regions of score scales where cut scores are established is prerequisite to reliable classification of examinees into categories. … If a judgmental standard-setting process is followed, the method employed should be described clearly, and the precise nature and reliability of the judgments called for should be presented, whether those are judgments of persons, of item or test performances, or of other criterion performances predicted by test scores. Documentation should also include the selection and qualifications of standard-setting panel participants, training provided, any feedback to participants concerning the implications of their provisional judgments, and any opportunities for participants to confer with one another. Where applicable, variability over participants should be reported. Whenever feasible, an estimate should be provided of the amount of variation in cut scores that might be expected if the standard-setting procedure were replicated with a comparable standard-setting panel (pp. 107–108).

Standard 5.22

When cut scores defining pass-fail or proficiency levels are based on direct judgments about the adequacy of item or test performances, the judgmental process should be designed so that the participants providing the judgments can bring their knowledge and experience to bear in a reasonable way (p. 108).

Comment on Standard 5.22: Cut scores are sometimes based on judgments about the adequacy of item or test performances … or proficiency expectations (e.g., the scale score that would characterize a borderline examinee). The procedures used to elicit such judgments should result in reasonable, defensible proficiency standards that accurately reflect the standard-setting participants' values and intentions. Reaching such judgments may be more straightforward when participants are asked to consider kinds of performances with which they are familiar and for which they have formed clear conceptions of adequacy or quality. When the responses elicited by a test neither sample nor closely simulate the use of tested knowledge or skills in the actual criterion domain, participants are not likely to approach the task with such clear understanding of adequacy or quality. Special care must then be taken to ensure that participants have a sound basis for making the judgments requested. Thorough familiarity with descriptions of different proficiency levels, practice in judging task difficulty with feedback on accuracy, the experience of actually taking a form of the test, feedback on the pass rates entailed by provisional proficiency standards, and other forms of information may be beneficial in helping participants to reach sound and principled decisions (p. 108).

Standard 11.16

The level of performance required for passing a credentialing test should depend on the knowledge and skills necessary for credential-worthy performance in the occupation or profession and should not be adjusted to control the number or proportion of persons passing the test (p. 182).

The *2014 Standards* specify that any standard setting process used should be clearly documented and defensible (pp. 101, 108). The qualifications of the judges involved and the process of selecting them should be part of the documentation. A sufficiently large and representative group of judges should be involved, and care must be taken to

ensure that judges understand the process and procedures they are to follow (pp. 101, 108).

In addition, the *2014 Standards* specify that for tests used in licensure/credentialing, the focus is on "the standards of competence needed for effective performance (e.g., in licensure this refers to safe and effective performance in practice)" (p. 175). Additionally, "standards must be high enough to ensure that the public, employers, and government agencies are well served, but not so high as to be unreasonably limiting" (p. 176).

The information in this chapter was obtained from the PSI's 2021 *Standard Setting Report: American Association of Critical-Care Nurses (AACN) Adult-Gerontology Acute Care Nurse Practitioner (ACNPC-AG)* (*2021 ACNPN-AG Standard Setting Report*).

PARTICIPATION OF SUBJECT MATTER EXPERTS

According to the *2021 ACNPC-AG Standard Setting Report,* nine SMEs were selected by AACN to participate in the most recent standard setting process. The SMEs were selected to represent relevant characteristics of the profession including area of special expertise, practice setting, and geographical distribution.

> **Finding 15**: The number of SMEs serving in the setting of the passing score meets professional guidelines and technical standards. Instructors do not serve on committees that see final examination items.

STANDARD SETTING METHODOLOGY

Standard setting is the process by which qualified experts (SMEs) who are well informed regarding the intended use of the examination determine the passing score that defines minimum competence. A panel of SMEs develops and recommends the passing point for the AACN ACNPC-AG examination. Each candidate's performance on the examination is measured against the predetermined passing point, and all individuals who pass, regardless of their score, are considered to have demonstrated an acceptable level of knowledge.

Standard setting is facilitated by PSI staff, including qualified psychometricians, and employs SMEs to set the passing score. To describe how much content mastery is required for candidates to pass the ACNPC-AG examination, a modified Angoff standard setting process is used.

The SMEs were first instructed and trained on all aspects of the standard setting procedure. The standard setting process consisted of the following three steps: (1) definition of minimum competence, (2) rating of examination items, and (3)

consideration of empirical data. The SMEs worked collectively during a single meeting to complete all three steps and recommended the minimum score that a candidate had to achieve to be judged minimally competent to obtain the certification.

During step 1, PSI psychometricians facilitated a discussion regarding the definition of a minimally competent practitioner (MCP). The SMEs discussed specific behaviors in each of the examination content domains to develop a definition of an MCP.

During step 2, the SMEs were trained on the rating process. Specifically, the SMEs were asked what percentage of MCPs they expected would answer each item correctly. The SMEs were presented with each test item and its response options, one at a time, and instructed to record their ratings in a spreadsheet.

During step 3, the facilitator provided the SMEs with the correct answer and examinee performance data for that item (i.e., the percentage of a sample of examinees who represent all levels of competency and performance who answered the item correctly). The SMEs were asked to reevaluate their thought process and revise their rating if they chose.

After all of the items were rated, the facilitator evaluated the ratings and determined items with discrepancies (either from the performance data or between the raters) that needed discussion. The SMEs discussed the discrepant items and called out their ratings for this subset of items, and the facilitator recorded those ratings.

PSI psychometricians presented the results of the standard setting procedure to AACN staff in December 2021. PSI psychometricians advised the committee to establish a cut score within the range of 3 standard errors below or above the estimated cut score recommended by the SMEs, which was 113. The standard error represents the expected amount of variability in ratings if the SMEs were to repeat the process, and it can be interpreted as a confidence interval around the SMEs' final estimate. The committee discussed the cut score and established 111 out of 150 as the raw passing score point for the ACNPC-AG examination.

The parameters used for creating the representative examination used in the standard setting process are used to create Linear-on-the-Fly (LOFT) ACNPC-AG examinations. This ensures that all forms generated are parallel and equivalent, and that they adhere to the content allocation requirements of the examination content outline.

> **Finding 16**: The ACNPC-AG examination incorporates minimum competency standards by which candidate performance can be evaluated. This practice meets professional guidelines and technical standards.

Finding 17: The training of the SMEs and the modified Angoff passing score setting method are consistent with professional guidelines and technical standards.

PASSING RATES

The passing rates for the ACNPC-AG examination for 2019–2021 are displayed below.

YEAR	FIRST TIME TEST TAKER PASSING RATE
2019	81.4%
2020	86.0%
2021	83.1%

CONCLUSIONS

The passing score determination process conducted by PSI and AACN demonstrates a sufficient degree of validity, thereby meeting professional guidelines and technical standards.

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CHAPTER 5 | TEST ADMINISTRATION AND SCORE REPORTING

The central goal driving test administration design and procedures is the need "to provide accurate, fair, and comparable measurement for everyone" (*2014 Standards*, p. 111). Test administration procedures should be standardized to ensure the "usefulness and interpretability of test scores" (*2014 Standards*, p. 111). Interpretation of ACNPC-AG test scores as valid measures of candidate knowledge of adult gerontology NP in acute care practice can only be made if the test scores are not "unduly influenced by idiosyncrasies in the testing process" (*2014 Standards*, p. 65).

However, standardization is only desirable to the extent that it provides candidates with equal opportunity to demonstrate their knowledge. Accessibility, reasonable test accommodations, and candidates' rights to information about test content and purposes before testing are important considerations when meeting the goal of accurate, fair, and comparable measurement for everyone.

TEST ADMINISTRATION AND SCORE REPORTING STANDARDS

Standard 4.16 specifies that "the instructions presented to test takers should contain sufficient detail so that test takers can respond to a task in the manner that the test developer intended. When appropriate, sample materials, practice or sample questions, criteria for scoring, and a representative item identified with each item format or major area in the test's classification or domain should be provided to the test takers prior to the administration of the test, or should be included in the testing material as part of the standard administration instructions" (*2014 Standards*, p. 90). A *Comment on Standard 4.16* states that "any practice materials should be available in formats that can be accessed by all test takers" (*2014 Standards*, p. 91).

Standard 6.1 specifies that "test administrators should follow carefully the standardized procedures for administration and scoring specified by the test developer and any instructions from the test user" (*2014 Standards*, p. 114).

Standard 6.2 pertains to test accommodations. It requires that, if "formal procedures have been established for requesting and receiving accommodations, test takers should be informed of these procedures in advance of testing" (*2014 Standards*, p. 115).

Standard 6.3 specifies that "changes or disruptions to standardized test administration procedures or scoring should be documented and reported to the

test user" (*2014 Standards*, p. 115). Additionally, test sites are required to be free of distractions or environmental conditions that may unduly influence test scores.

Standard 6.4 specifies that the environment at a test site "should furnish reasonable comfort with minimal distractions to avoid construct-irrelevant variance" (*2014 Standards*, p. 116).

Standard 6.5 specifies that candidates "should be provided appropriate instructions, practice, and other support necessary to reduce construct-irrelevant variance" (*2014 Standards*, p. 116).

Standard 8.1 states: "Information about test content and purposes that is available to any test taker prior to testing should be available to all test takers. Shared information should be available free of charge and in accessible formats" (*2014 Standards*, p. 133).

The *Comment on Standard 8.1* clarifies the intent of the standard. Basic, general information about the test should be accessible to all test takers. This is to ensure "equitable treatment for all test takers with respect to access to basic information about a testing event" (p. 133).

Standard 8.2 states: "Test takers should be provided in advance with as much information about the test, the testing process, the intended test use, test scoring criteria, testing policy, availability of accommodations, and confidentiality protection as is consistent with obtaining valid responses and making appropriate interpretations of test scores" (*2014 Standards*, p. 134).

The information in this chapter was obtained from the *2022 ACNPC-AG Adult-Gerontology Acute Care Nurse Practitioner Certification Exam Handbook* (*2022 ACNPC-AG Exam Handbook)*; the *2022 AACN Certification Exam Policy Handbook* (*2022 AACN Policy Handbook*); the AACN website (www.aacn.org); and the PSI website (www.psionline.com).

ACCESS TO TEST CENTERS

The ACNPC-AG examination is administered throughout the year by computer at over 300 PSI testing centers throughout the U.S. and by live secure remote proctoring with a personal computer in a quiet, private location. PSI test center administrators and examination proctors receive training about how to administer and proctor secure examinations.

Finding 18: PSI provides candidates access to test centers across the U.S. as well as the option of live remote proctoring.

INSTRUCTIONS

Proctors receive standardized instructions based on policies and procedures specific to the ACNPC-AG examination. Test takers are given the option to take a practice examination before the timed examination begins. The time used for the practice examination is not counted as part of the timed examination. Instructions for taking the examination are available on-screen once the timed examination begins. This ensures standardized administration of the test.

TEST ACCOMMODATIONS

AACN and PSI comply with the Americans with Disabilities Act and provide reasonable accommodations to candidates with documented disabilities or medical conditions. In addition to an application to test, candidates who require testing accommodations must submit a Request for Exam Accommodations form that indicates the accommodation requested to address functional limitations. In addition, candidates are required to submit documentation and verification of the disability or impairment completed by a licensed professional. A link to the form can be found in the *2022 AACN Policy Handbook*, along with requirements for testing accommodations. Certain testing accommodations are not available for test takers testing with live remote proctoring. Accommodation requests must be approved by AACN in advance.

Finding 19: The examination accommodations procedure meets professional guidelines and technical standards.

CANDIDATE REGISTRATION

AACN has a detailed examination application process that candidates can easily navigate on the AACN website. Candidates can verify their eligibility to take the examination, apply online or through certified mail, and check the status of their application. Once approved by AACN, candidates will receive an email from AACN with instructions on how to schedule the examination appointment. The email also includes the eligibility period during which the applicant can schedule and take the examination.

Candidates who plan to take the examination by live remote proctoring are provided the location and technology requirements as well as PSI's Online Proctoring Experience video. Both in-person and live remote proctored examinations are scheduled through AACN's website. The examination registration process on AACN's website is simple to

understand and straightforward. The AACN website provides information about the policies and procedures of the ACNPC-AG examination (both at the testing center and live remote proctored). The PSI website provides detailed information regarding testing regulations, including information regarding the live remote proctored examination process and regulations. Between both websites, candidates can find material on all necessary steps related to the in-person and live remote examination processes.

The *2022 AACN Policy Handbook*, which can be found on the AACN website, provides detailed information about examination application, registration, and test administration.

> **Finding 20**: The AACN ACNPC-AG examination application process and the PSI registration process are straightforward. These processes meet professional guidelines and technical standards.

INFORMATION AND INSTRUCTIONS AVAILABLE TO CANDIDATES PRIOR TO TESTING

AACN provides current and prospective candidates with a wide variety of information concerning the ACNPC-AG examination through its website. In addition, the *2022 AACN Policy Handbook* and the *2022 ACNPC-AG Exam Handbook* provide detailed information to candidates regarding:

- Examination information
- Examination eligibility, fees, application, and scheduling procedures
- Examination preparation and resources
- The ACNPC-AG Test Plan
- Examination reference lists
- Sample examination practice questions
- Examination scoring and results
- Testing center procedures and administration
- Live Remote Proctoring information, requirements, and procedures
- Testing accommodations
- Examination regulations and testing center rules of conduct
- Examination privacy and security
- Examination violations, canceled scores, retests, and appeals

In addition, the AACN website offers candidates additional ACNPC-AG examination practice questions, practice examinations, and other examination resources such as bookstore resources. Three practice examinations are offered: a 30-item free trial practice examination, a 150-item practice examination for purchase, and a several-

hundred-item practice examination for purchase. All three examinations provide the examination scores upon completion and rationales for the correct answers.

The *2022 ACNPC-AG Exam Handbook* provides information about the number of items on the examination (175 items, of which 150 are scored and 25 are pretest); the amount of time available to take the examination (3.5 hours); the percentage of items that test Clinical Judgment knowledge (80%) and non-Clinical Judgment knowledge (20%) and are focused across the life span; and information regarding how the passing point of the examination is established.

The *2022 AACN Policy Handbook* provides information regarding the type of examination (computer-based); ability to skip questions and to later return to a skipped question; and additional testing information such as breaks (candidates are allowed to break, but the time is counted against them).

> **Finding 21**: The AACN website provides extensive information to candidates regarding all aspects of examination processes, for both in-person and live remote testing.

> **Finding 22**: AACN charges candidates for some practice tests. This does not fully comply with Standard 8.1, which states that all candidates should be provided with the same access to examination information, free of charge.

SCORE REPORTING AND RETEST POLICY

After a candidate finishes the examination, the candidate immediately receives their results on-screen, and a detailed score report is emailed within 24 hours. Candidates who fail are emailed a score report within 10 days of taking the examination.

The *2022 AACN Policy Handbook* provides information about retest policies. Candidates can take the ACNPC-AG examination no more than four times in a 12-month period.

CONCLUSIONS AND RECOMMENDATIONS

The test administration procedures put in place by AACN and PSI sufficiently meet professional guidelines and technical standards.

As stated in DCA's Departmental Procedures Memorandum on Examination Security (DPM OPES 22-01), online or remote proctoring is not recommended for high-stakes examinations. Remote proctoring presents an increased risk of item harvesting and examination subversion.

To fully comply with Standard 8.1 and to increase transparency and fairness, OPES further recommends that AACN offer their practice tests to all registered candidates at no cost.

CHAPTER 6 | TEST SECURITY

Test security is a critical component of test development and administration. It directly affects the integrity and validity of test score interpretations and the costs associated with examination development (*2014 Standards*).

The *2014 Standards* specify that organizations and individuals who are in possession of or have control of test materials are responsible for taking necessary measures to ensure test security. These measures should include ways to ensure that access to test materials is restricted to only those individuals who have legitimate needs and qualifications to access the materials.

TEST SECURITY STANDARDS

The following standards are most relevant to test security for licensure/credentialing examinations, as referenced in the *2014 Standards*.

Standard 6.6

Reasonable efforts should be made to ensure the integrity of test scores by eliminating opportunities for test takers to attain scores by fraudulent or deceptive means (p. 116).

Standard 6.7

Test users have the responsibility of protecting the security of test materials at all times (p. 117).

Standard 7.9

If test security is critical to the interpretation of test scores, the documentation should explain the steps necessary to protect test materials and to prevent inappropriate exchange of information during the test administration session (p. 128).

Standard 8.9

Test takers should be made aware that having someone else take the test for them, disclosing confidential test material, or engaging in any other form of cheating is unacceptable and that such behavior may result in sanctions (p. 136).

Standard 9.21

Test users have the responsibility to protect the security of tests, including that of previous editions (p. 147).

Unless otherwise specified, the information in this chapter was obtained from *2022 Exam Confidentiality*; *2022 AACN Policy Handbook*; and PSI's website (www.psionline.com).

With regard to examination development, AACN's and PSI's policies and procedures appear to adequately protect test security as described in DPM OPES 22-01. For example, SMEs are required to sign confidentiality agreements and are instructed about test security. In addition, item writing work is completed and submitted through an online portal requiring a unique, individual login and password.

AACN offers the ACNPC-AG examination both in person and by remote proctoring. PSI, through both its test site and live remote proctored test administration, provides a robust framework of test security policies and procedures. Proctors at PSI testing centers and live remote proctors are trained to recognize potential test security breaches, and they may provide warnings or terminate examinations if security violations occur. Access to confidential examination or candidate information is limited to AACN national office staff and PSI test administration staff through security measures such as password protected files and secure transfer of information. In addition, the *2022 AACN Policy Handbook* and PSI's website describe in detail what constitutes violations on the part of candidates.

For in-person examination, PSI uses security measures to protect all examination material and candidate information. Observation of the testing sessions at PSI is aided by use of audio and video monitors and recording and other equipment available at the test centers. All testing sessions for the ACNPC-AG examination are monitored by staff at the test center. The *2022 AACN Policy Handbook* and PSI's website address the following areas regarding security:

- Candidates must provide a government-issued ID that includes a photograph and signature. The name on the ID must match the name on the AACN record.
- Candidates are prohibited from requesting information from proctors and examiners about the examination.
- Candidates are prohibited from bringing any personal belongings such as electronics or reference materials into the examination rooms.
- For live remote proctored examinations, candidates are prohibited from talking,

whispering, or mouthing, and their hands must remain on or above the workspace area.

- For live remote proctored examinations, candidates' entire faces must be visible to the camera, and looking off the screen is prohibited.

The consequences of violations for both in-person and live proctored examination are detailed in the *2022 AACN Policy Handbook* and on PSI's website. In addition, candidates are not permitted to review their examinations after completion and submission of the examination.

For live remote proctored examinations, the examination is released to the candidate in a secure lock-down browser. The browser's security features block access to other browsers, screen sharing/recording, copying/pasting, use of dual/extended monitors, etc. AACN performs environmental scanning to look for possible cheating attempts. AACN monitors pass rates and closely monitors item performance using data forensics to monitor test result abnormalities and detect potentially compromised examination items. However, all remote security systems are susceptible to subversion, and items may be relatively easily harvested by technically competent candidates. Consequently, remote proctoring increases the likelihood that examination questions could be compromised. PSI's website states that the candidates' personally identifiable information is always protected, and that PSI only has access to the webcam and audio on the candidate's computer until the online proctoring software application is closed by the candidate.

> **Finding 23**: PSI's in-person test administration is consistent with professional guidelines and technical standards.

> **Finding 24**: PSI's remote proctoring is consistent with current best practices but presents an increased risk of item harvesting and examination subversion.

CONCLUSIONS AND RECOMMENDATIONS

Overall, AACN and PSI test security policies and procedures appear consistent with best industry practices and meet technical standards. However, as stated in DPM OPES 22-01, online or remote proctoring is not recommended for high-stakes examinations.

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CHAPTER 7 | COMPARISON OF THE ACNPC-AG EXAMINATION CONTENT OUTLINE TO THE CALIFORNIA DESCRIPTION OF PRACTICE OF ADULT GERONTOLOGY NPs IN ACUTE CARE

For the ACNPC-AG examination to be used as one of the requirements for independent NP practice in California as defined by B&P Code § 2837.103, the competencies assessed by the ACNPC-AG examination must closely correspond to the competencies required to practice safely and effectively within the scope defined by the above statute (*2014 Standards*). For this reason, it was important to evaluate whether the ACNPC-AG examination content outline adequately assesses the critical entry level competencies required for safe and effective independent performance of the practice of adult gerontology NPs in acute care in California.

As required by B&P Code § 2837.105, the Board and OPES performed an OA of the practice of adult gerontology NPs in acute care in California, as part of the *California 2021 NP OA*. The *California 2021 NP OA* resulted in a description of California adult gerontology NP in acute care independent practice. This description of California practice captures the critical entry level adult gerontology NP in acute care tasks in California within the scope defined by the statute for practice without Standardized Procedures and in specified settings and organizations, and the knowledge required to perform those tasks safely and effectively.

LINKAGE STUDY WORKSHOP PURPOSE AND GOALS

OPES test specialists convened a teleconference workshop on January 19, 2022. The workshop had two purposes: (1) to link the content of the ACNPC-AG examination to adult gerontology NP in acute care practice in California as defined by the *California 2021 NP OA*; and (2) to evaluate the extent to which the ACNPC-AG examination assesses the competencies required to practice safely and effectively as an adult gerontology NP in acute care in California as defined by the *California 2021 NP OA* and B&P Code § 2837.103.

The goal of the workshop was to compare the ACNPC-AG examination content to California adult gerontology NP in acute care practice and answer the following questions:

1. Do all ACNPC-AG tasks link to the California description of adult gerontology NP in acute care practice?

2. Do the ACNPC-AG tasks assess all critical competencies required to practice safely and effectively in California?
3. What critical competencies are not assessed by the ACNPC-AG examination, if any?

PARTICIPATION OF SUBJECT MATTER EXPERTS

With guidance from OPES, the Board recruited five SMEs to participate in the workshop. The SMEs were NPs who held the ACNPC-AG certification and were actively working in adult gerontology acute care settings in California. The SMEs were selected to represent the profession in both northern and southern California. All of the SMEs reported being certified for over 4 years.

Before the workshop, the SMEs completed security agreements and personal data forms documenting demographic information.

TRAINING OF SUBJECT MATTER EXPERTS

On January 7, 2022, OPES test specialists sent an email to SMEs describing the background of the project, the purpose and goals of the workshop, and their role in the project. The email included the following documents:

- AB 890 detailed overview publication by the California Association for Nurse Practitioners and HealthImpact: *AB 890* An Overview* (October 23, 2020).
- California description of practice of adult gerontology NPs in acute care, containing tasks and knowledge statements organized by content area.
- *ACNPC-AG 2020 OA* examination content outline containing the ACNPC-AG tasks.
- Excel spreadsheet showing the preliminary linkage of the ACNPC-AG tasks to each of the California adult gerontology NP in acute care tasks and associated knowledge statements.

The SMEs were instructed to review all materials before the start of the workshop, in the order in which they are presented above. First, the SMEs were instructed to review the AB 890 background materials to understand the purpose and scope of the project. Next, they were instructed to review the California description of practice of adult gerontology NPs in acute care (California tasks and knowledge statements) and the ACNPC-AG examination content outline (ACNPC-AG tasks). Then, the SMEs were instructed to conduct an initial, individual review of the preliminary linkage document in preparation for the workshop. For each California task and its associated knowledge statements, the document identified ACNPC-AG tasks that corresponded to or assessed the same competencies.

On January 19, 2022, at the beginning of the workshop, OPES test specialists provided training to SMEs. This included reviewing and discussing the information that was emailed to SMEs before the workshop: project background, confidentiality and security requirements, purpose and goals of the workshop, California description of practice, ACNPC-AG content outline, and the workshop linkage process.

LINKAGE PROCESS

For the preliminary review before the workshop, the SMEs were provided with an Excel spreadsheet that contained a matrix of California tasks and knowledge statements linked with the ACNPC-AG tasks. The associated knowledge was included to provide additional context for the tasks. OPES test specialists prepared the preliminary matrix document. The SMEs were asked to critically evaluate the matrix to identify whether any items were incorrectly linked. The SMEs were asked to write comments beside any items they wanted to discuss or change during the workshop process.

During the workshop, the SMEs worked as a group to identify ACNPC-AG tasks that assess the content described by each of the 62 California tasks and 170 associated knowledge statements. For each California task, the SMEs reviewed the preliminary linkage for accuracy, adding new ACNPC-AG tasks or removing linked ACNPC-AG tasks as necessary. OPES test specialists recorded the updates to linkages provided by SMEs next to each California task and displayed them on the screen. The group fully reviewed and discussed each of the linkages to ensure group agreement.

Once the SMEs completed the linkages for all tasks, the group discussed the potential implications of the linkage results.

LINKAGE RESULTS

The linkage performed by SMEs for each California task resulted in the following:

1. All ACNPC-AG tasks were linked to California practice, indicating that all content of the ACNPC-AG examination is relevant and applicable to California.
2. The ACNPC-AG tasks adequately assess the same content as the California tasks and associated knowledge statements.

   Finding 25: The SMEs evaluated the *ACNPC-AG 2020 OA* examination content outline tasks against the *California 2021 NP OA* tasks and associated knowledge statements. The SMEs concluded that the ACNPC-AG examination adequately assesses critical, entry level clinical competencies required for safe and effective adult gerontology NP in acute care practice in California as defined by the *California*

2021 NP OA and B&P Code § 2837.103. However, the ACNPC-AG examination does not assess knowledge related to California-specific laws and regulations applicable to adult gerontology NP in acute care practice in California.

CONCLUSIONS

The content of the ACNPC-AG examination, which is based on the *ACNPC-AG 2020 OA*, is consistent with the tasks and associated knowledge statements in the description of adult gerontology NP in acute care practice included in the *California 2021 NP OA* for determining competence for entry level California independent practice. The ACNPC-AG examination does not assess knowledge related to California-specific nurse practitioner laws and regulations applicable to adult gerontology NP in acute care practice.

The examination content outline from the *ACNPC-AG 2020 OA* and the adult gerontology in acute care NP description of practice from the *California 2021 NP OA* are provided in Tables 1 and 2.

TABLE 1 – ACNPC-AG EXAMINATION CONTENT OUTLINE

Content Domains	Percent Weight
1. Clinical Judgment	**80**
a) Cardiovascular	15
b) Respiratory	11
c) Endocrine	5
d) Hematology/Immunology/Oncology	6
e) Gastrointestinal	3
f) Renal/Genitourinary	5
g) Integumentary	1
h) Musculoskeletal	3
i) Neurology	8
j) Psychosocial/Behavioral/Cognitive Health	3
k) Factors Influencing Health Status	5
l) Multisystem	14
2. Professional Caring & Ethical Practice	**20**
a) Advocacy/Moral Agency	3
b) Caring Practices	3
c) Response to Diversity	3
d) Facilitation of Learning	1
e) Collaboration	3
f) Systems Thinking	3
g) Clinical Inquiry	3
Total	**100**

NOTE: Content subdomain weights do not add to total content domain weights due to rounding.

TABLE 2 – CONTENT AREAS OF THE CALIFORNIA 2021 DESCRIPTION OF
PRACTICE OF ADULT GERONTOLOGY NPs IN ACUTE CARE

CONTENT AREA 1. ASSESSING ADULT GERONTOLOGY ACUTE CARE NEEDS

Section 1A. Patient Health History

Section 1B. Status Assessments

Section 1C. Psychosocial Functioning and Social Determinants of Health

Section 1D. System Review and Physical Examination

CONTENT AREA 2. DIAGNOSIS OF ADULT GERONTOLOGY ACUTE OR COMPLEX
CONDITIONS

CONTENT AREA 3. ADULT GERONTOLOGY ACUTE CARE AND MANAGEMENT

Section 3A. Managing Acute Care and Emergent Situations

Section 3B. Referrals and Collaborations

CONTENT AREA 4. PROFESSIONAL ETHICS AND RESPONSIBILITY

CONTENT AREA 5. LEGAL REQUIREMENTS FOR PRACTICE

Section 5A. Regulations Related to Patient Disclosures and Patient Rights

Section 5B. Regulations Related to Nurse Practitioner Requirements

Section 5C. Laws Regarding Independent Practice or Corporation

CHAPTER 8 | CONCLUSIONS AND RECOMMENDATIONS

OPES completed a comprehensive analysis and evaluation of the documents provided by AACN. The procedures used to establish and support the validity and defensibility of the ACNPC-AG examination (i.e., OA, examination development and scoring, passing scores and passing rates, test administration and score reporting, and test security procedures) were found to meet professional guidelines and technical standards as outlined in the *2014 Standards* and in B&P Code § 139.

Given the findings regarding the ACNPC-AG examination, OPES supports the Board of Registered Nursing's use of the ACNPC-AG examination as part of the licensure/credentialing process for an NP who meets the requirements of B&P Code § 2837.103 to practice independently as an adult gerontology NP in acute care in California. The ACNPC-AG examination does not assess knowledge related to California-specific laws and regulations applicable to adult gerontology NP in acute care practice in California.

OPES finds that the participation of instructors and board members in examination development is not fully compliant with *OPES 20-01*, as mandated by B&P Code § 139. OPES recommends phasing out the participation of instructors and board members as SMEs. Further, as stated in DPM OPES 22-01, online or remote proctoring is not recommended for high-stakes examinations.

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CHAPTER 9 | REFERENCES

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