Summary Report for the

2022 PANCE Practice Analysis

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INTRODUCTION AND BACKGROUND

The National Commission on Certification of Physician Assistants (NCCPA) provides a national board certification program for physician assistants (PAs) and is the only nationally accredited certifying organization for PAs in the United States. Individuals who graduate from a PA program accredited by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) are eligible to take the initial certification exam (PANCE). A practice analysis of the PA profession is conducted every 5-7 years as per NCCPA's governing policy to comply with industry best practices and accreditation requirements of the National Commission on Certifying Agencies (NCCA). The NCCPA PANCE is designed to test entry-level PA knowledge at an appropriate level of performance within the profession, regardless of practice area or clinical discipline.

In 2022, NCCPA contracted with a well-respected and qualified vendor in the assessment industry to conduct a practice analysis of entry-level PA practice to help define the content for their certification assessment. The purpose of this study was to define and organize the task statements and the diseases/disorders associated with the systems of the body to provide a foundation for the PA certification examination.

Test development follows a series of interrelated processes that revolve around the central concept of validity (AERA, APA, & NCME, 2014). In the initial stages of development, or in subsequent years for updating, practitioners engage in a practice analysis (e.g., job analysis, occupational analysis, role delineation) to determine the scope of an examination and expectations for certified practitioners. When reviewing the scope of an examination, two foundational elements of best practice include (1) sampling of the content domain and (2) definition of the content to include in test items (Downing, 2006). These elements are addressed by analyzing the content domain and then developing a content outline based on the results of this analysis. The tasks delineated through this process (categorized as task statements and as diseases and disorders within the systems of the body), along with the subsumed knowledge, skills, and abilities, indicate the expectations for someone who is preparing to obtain their initial certification. The collective results from this process provide evidence to support the valid interpretation of test scores that will result from this certification assessment.

The *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014) in Standard 11.3 suggest that:

> 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. (p. 178)

The purpose of this report is to describe and document the results of a national survey of Board Certified PAs and the blueprint development process as evidence directly addressing this standard and the claim that the content to be included in the NCCPA Physician Assistant National Certification Examination (PANCE) is indicative of credential-worthy performance. These results are intended to provide NCCPA evidence upon which to construct the certification examination based on the input from subject matter experts (SMEs).

A three-phase approach was used to conduct an analysis of the certification exam content for PAs: (1) a focus group meeting was held, in which a subject matter expert (SME) panel comprised of Board Certified PAs created draft lists of task statements (organized into knowledge and skill statements) and diseases and disorders (organized within body systems), (2) a survey inclusive of the task statements and diseases/disorders list was sent to an effective census of certified PAs to gather input on the content, and (3) a follow-up meeting with a separate SME panel of certified PAs (some overlap in participants) was held to review the results of the survey and recommend weightings for the blueprint. The collective results of these activities were then used to create the recommended specifications for the certification program and are presented in this report as documentation and validity evidence.

PHASE 1: FOCUS GROUP

In May 2022, NCCPA convened a panel of SMEs to review and revise draft lists of the task statements and diseases/disorders with which entry-level certified PAs should be familiar. This 16-member panel was representative of varying levels of experience, geographic regions, and practice areas. NCCPA's contracted consultant facilitated the meeting in collaboration with NCCPA's staff. An important task for this meeting was ensuring the panel had a common understanding of the individuals that would be earning certification and that the resulting specifications were inclusive of the tasks and diseases/disorders for entry-level certified PAs.

The meeting began with NCCPA's staff conducting an orientation on topics relevant to the practice analysis process, including the purpose of certification, test development process/cycle, purpose of the practice analysis, and the practice analysis process. The panelists engaged in discussion on the key aspects of the certification assessment, including the characteristics of the minimally qualified candidate for initial certification. Next, in small and large group discussions, the panelists reviewed and revised the existing list of diseases/disorders to include those that would be relevant for the certifying population. The same process was used to review and update the task statements.

Information from these discussions was compiled and presented to the panel on the second day of the meeting to provide an opportunity for a final review and approval. Using the updated list of task statements and diseases/disorders as a starting point, the SME panelists completed the activity of reviewing and revising the list as appropriate for the updated practice analysis survey. Additionally, the panel provided initial recommendations for the weighting of each content domain and body system.

PHASE 2: SURVEY OF PRACTITIONERS

Prior to distribution of the survey, the draft list of task statements and diseases/disorders resulting from the focus group meeting was reviewed by NCCPA staff. Some revisions were made to retain consistency with NCCPA's approved style and currency within the PA profession (i.e., terminology, inclusion of conditions, etc.).

The list of task statements was organized by domain category, and the list of diseases and disorders was organized by body system; these were formatted as a questionnaire with a rating scale comprised of the level of criticality for all entry-level certified PAs, regardless of practice area. Additionally, the questionnaire asked about the appropriate level of autonomy for the entry-level PAs to care for individuals with the diseases/disorders presented.

The questionnaire was disseminated as a survey using the Qualtrics® web-based platform to all certified PAs for whom NCCPA had an email address. The distribution of the survey used a matrix sampling approach to subdivide the questionnaire into more manageable sections to incentivize a higher response rate. Data collection occurred from June 16 through July 31, 2022.

Respondents were asked to provide input as to what level of criticality they believed would be most appropriate for a certification assessment, as well as an indication of whether the disease/disorder is something entry-level PAs are expected to address with supervision or autonomously. The rating scale values and associated definitions used are provided as follows:

Level of Criticality for Task Statements and Disease/Disorder List

- *Not Applicable* = Entry-level PAs do not use knowledge or skill related to this disease/diagnosis or task statement.
- *Low* = A patient will likely experience minimal to no consequences if the entry-level PA does not have knowledge or skill related to this disease/disorder or task statement.
- *Moderate* = A patient will likely experience short-term health consequences if the entry-level PA does not have knowledge or skill related to this disease/disorder or task statement.
- *High* = A patient will likely experience long-term health consequences if the entry-level PA does not have knowledge or skill related to this disease/disorder or task statement.
- *Critical* = A patient's mortality will likely be impacted if the entry-level PA does not have knowledge or skill related to this disease/disorder or task statement.

Level of Autonomy for Disease/Disorder List Only

- *Autonomously* = The entry-level PA would likely care for a patient who has this disease/disorder autonomously.

- *With supervision* = The entry-level PA would likely require support from an experienced health professional (e.g., physician, PA-C) to care for a patient who has this disease/disorder.

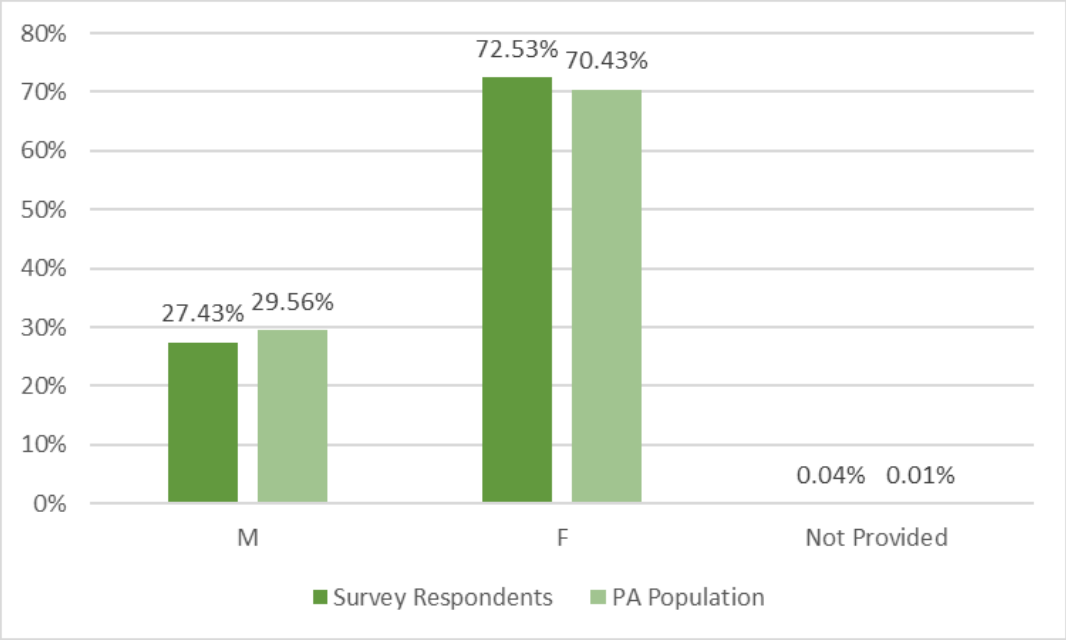
Results from the survey were analyzed with the purpose of informing the development of the certification examination content outline. Recommended weights by content domain for the task statements and by body system for diseases/disorders were computed from the survey results using the mean ratings.

Respondents

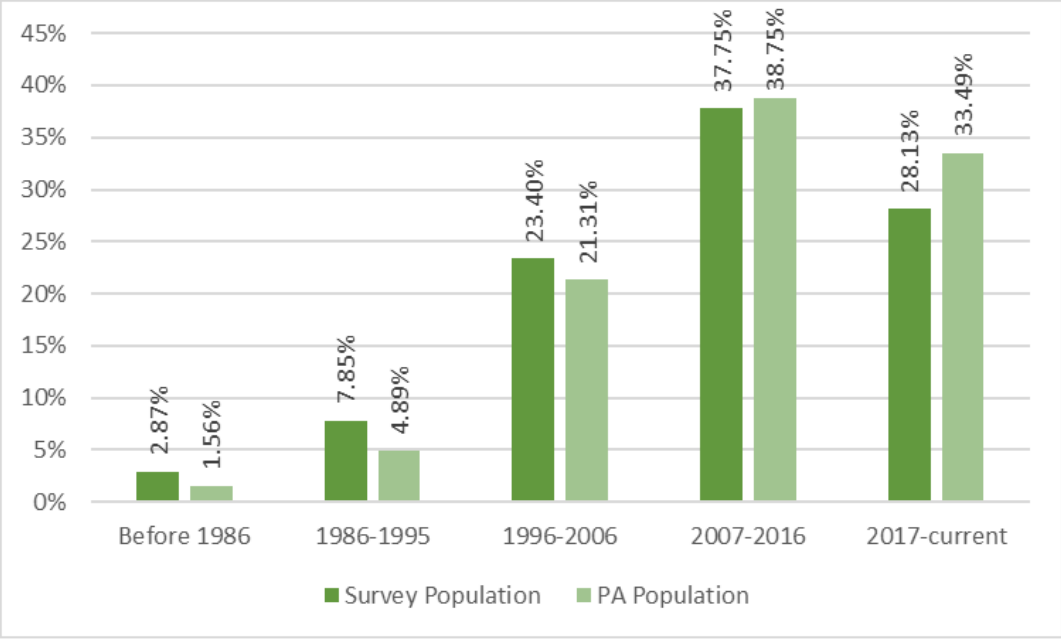
The survey invitation was sent to all currently certified PAs for whom NCCPA had an email address. The diseases/disorders list was divided into five representative subsamples due to the length of the survey. A total of 160,295 email invitations were sent to potential survey respondents. Of these, 5,657 emails were either returned as undeliverable or the individuals opted out of receiving survey emails. A total of 7,015 surveys were fully completed, and an additional 3,462 surveys were at least partially completed for a total of 10,477 returned surveys. This data equates to a fully completed response rate of 4.54%, and an overall response rate (including partial responses) of 6.78%. Although these values are lower than was anticipated, NCCPA staff and the SMEs involved in the process reviewed both the amount and the representativeness of the data and determined it was sufficient to conduct the analyses.

NCCPA had access to demographic data for the respondents prior to emailing the survey, and this information was used to ensure each of the five respondent groups was representative of the overall sample. This data included gender, initial year of certification, practice region, specialty, age, race, and ethnicity. For the total group of survey respondents, the highest percentage of respondents were female (72.53%), were certified between 2007-2022 (65.88%), practiced in the Southern region (33.92%), were between the ages of 30-39 (34.90%), and identified as White (80.27%) and not of Hispanic origin (87.87%). Below are several graphs to show the similarity between the survey respondent group and the full certified PA population to emphasize the representativeness of the respondent group.

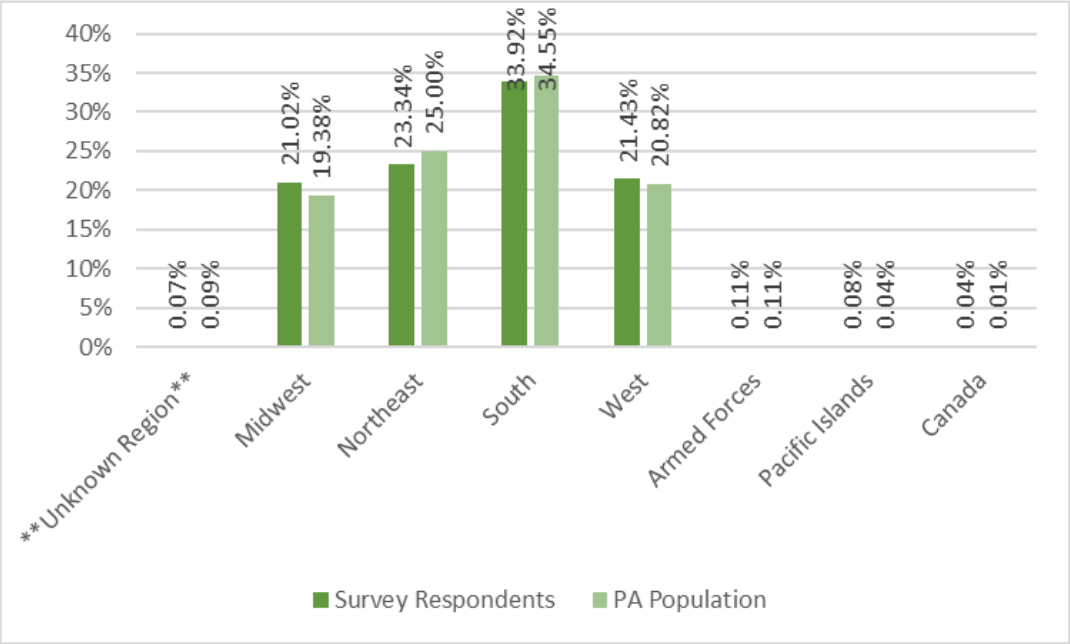
Graph 1. Gender Distribution



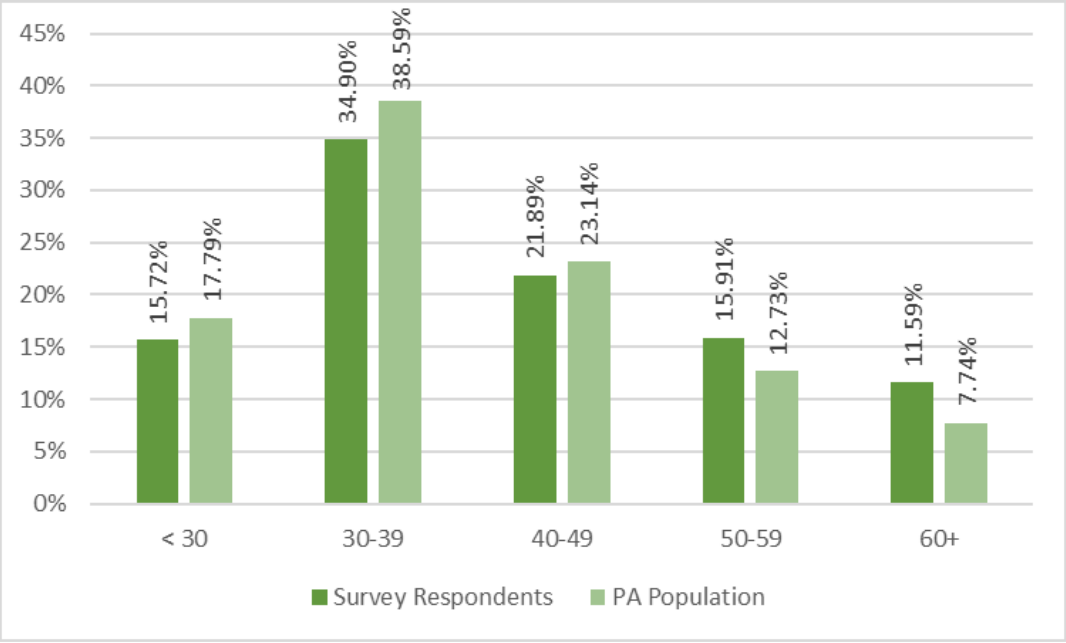
Graph 2. Year Certified Distribution



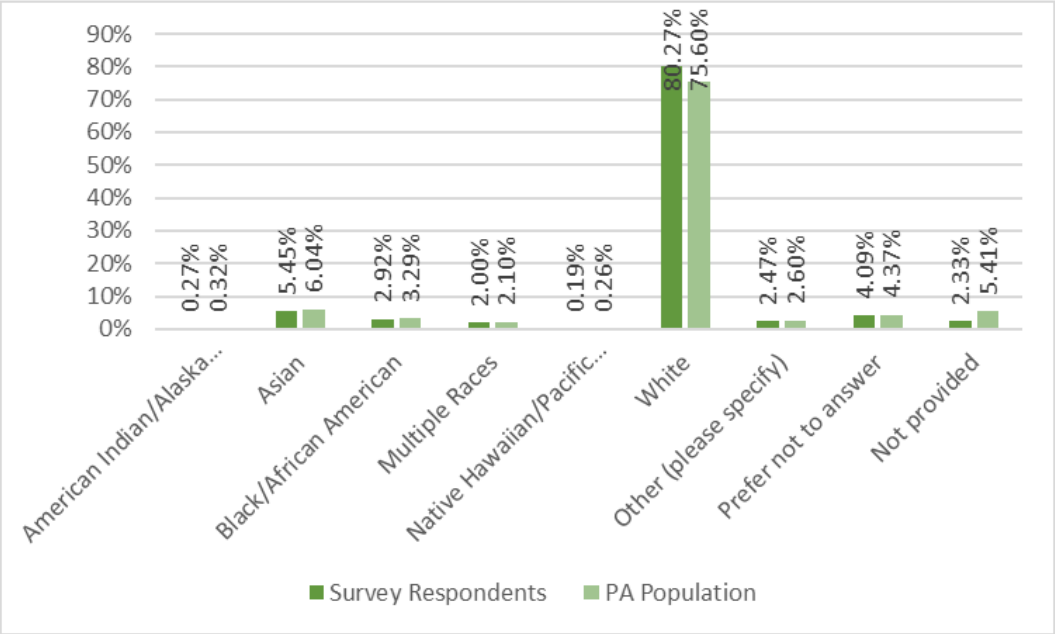
Graph 3. Practice Region Distribution



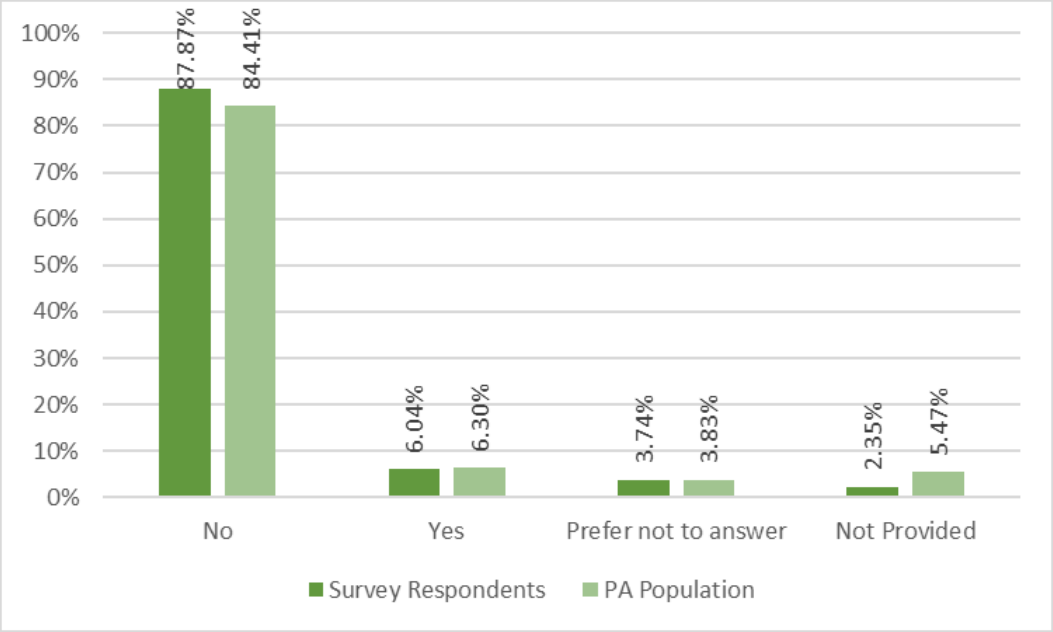
Graph 4. Age Distribution



Graph 5. Race Distribution

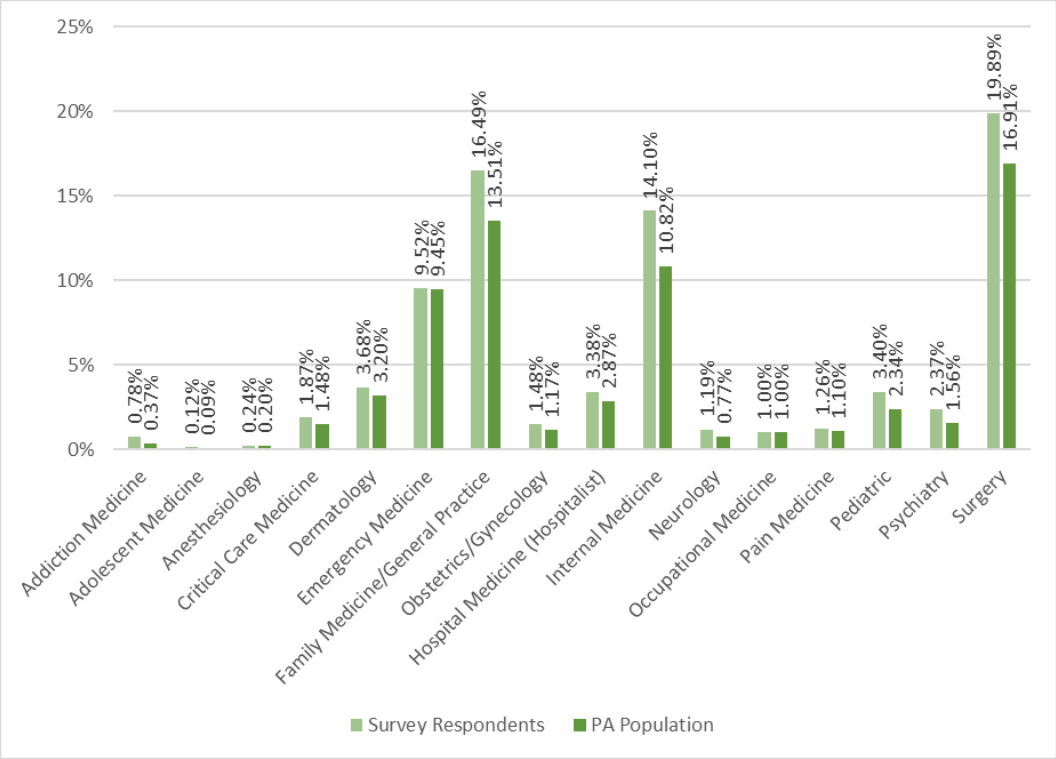


Graph 6. Ethnicity Distribution (Hispanic/Latinix origin)



Additional demographic questions were asked at the beginning of the survey. Respondents were asked to indicate their current level of clinical practice (80.8% indicated full-time, 12.8% indicated part-time, and 6.5% indicated that they do not work in a clinical position), and their current principal clinical practice discipline (if they currently worked in a clinical position). Using NCCPA's specialty categories defined in 2020, there were 82 clinical practice area groups for the respondents to select from, including an "Other" category. The highest percentages of respondents chose Family Medicine/General Practice (16.5%), Emergency Medicine (9.5%), or Surgery: Orthopedic (8.7%). Below is a graph showing a comparison of the ten most frequent survey respondents' clinical practice disciplines to population data collected by NCCPA.

Graph 7. Clinical Practice (Specialty) Distribution



The remaining demographic questions asked of the survey respondents represented information that was not previously captured in the NCCPA database. Respondents were asked about the practice setting of their current workplace (majority in hospital [36.1%] or office-based private practice [31.5%]), the area where they currently practice (majority in urban [40.2%] or suburban [43.5%] setting), their involvement in the training or hiring of new PAs (no – 46.4%, yes – 53.6%), and the approximate number of years they have been working as a PA (average value – 13.26 years).

Results

In the first stage of the analysis, the average criticality rating for each task statement and disease/disorder was calculated (0 – 4 range), as was the percentage of respondents at each level of criticality and the percentage who rated the disease/disorder to be performed either “Autonomously” or “With Supervision.” The highest endorsement of criticality was then used to ensure the content was adequately represented and understood by the respondent group. Task statements and diseases/disorders that received the highest endorsement in either the “Not Applicable” or “Low” criticality groups were highlighted for specific review and possible exclusion.

In addition to looking at the overall respondent group, NCCPA recommended a review of subgroup responses based on specific demographics and these recommendations were used to divide the data to observe any disparities among respondent subgroups. Compiled results that were presented to the second SME panel that was convened to review the survey results included: response rate, demographic data, criticality ranking data (average and % at each level of criticality), and subgroup data (average and % at each level of criticality by specified subgroup). All information was consolidated and used to help inform the SME panelist group decisions.

Developing a blueprint or content outline is a combination of empirical and judgmental evidence. This means that the data analyzed from the survey also needed to be reviewed by practitioners to help interpret the results and provide guidance regarding the translation of the results of the survey into a blueprint. The data derived from the analysis of the survey is important, but it should not be interpreted as final recommendations for the certification exam blueprint. These data were used to inform the discussions of an SME practice analysis review panel that provided input on the results of the survey and recommendations for the final weightings. This process is described in the next section.

PHASE 3: SME PANELIST REVIEW AND CONTENT OUTLINE DEVELOPMENT

NCCPA compiled an SME panel of 13 certified PAs for two days of in-person meetings that occurred on August 12-13, 2022, at NCCPA's offices in Johns Creek, GA to review the initial data from the survey and provide input regarding the content recommendations with guidance from NCCPA's consultants, who facilitated the workshop. By design, the PAs on the review panel were a combination of SMEs who participated in the focus group and individuals who were new to this study. This group was also created to provide a diverse sampling of certified PAs.

The panel worked as a full group to review the list of task statements and diseases/disorders based on multiple criteria (e.g., task statements or diseases/disorders with the highest proportion of respondents indicating that it was not applicable or had low criticality, meaningful differences between recently certified and more experienced PAs, meaningful differences between practice areas). The group first reviewed the collective data and made decisions on the level of criticality that was appropriate to be tested for each task statement and disease/disorder. The group then reviewed the lists to ensure all appropriate content was included and the terminology was correct and clearly stated. This activity was aided by a review of survey respondent comments.

After making the task statement and disease/disorder-level recommendations (additions, deletions, revisions), the SME review panelists discussed their recommended weightings for each domain and body system (the percent of items that should be represented on a certification examination). The panelists reviewed several proposals to inform their weighting decisions. First, they were given the weight used on the current PANCE content outline with the natural weight (based strictly on the number of task statements or diseases/disorders without factoring in the respondent criticality or autonomy ratings) from the survey.

Next, the facilitators calculated three proposals factoring in the criticality and autonomy ratings (autonomy only pertained to diseases/disorders). For the task statements, statements that had the highest proportion of criticality ratings in either the "Low" or "Moderate" group were given the lowest weight and statements that had the highest proportion in either the "High" or "Critical" group were weighted twice as heavily. For the diseases/disorders, one proposal was to use the same criticality weighting as was proposed with the task statements (not using autonomy scale ratings). Alternatively, the criticality and autonomy scales were combined such that the "base" weight was given to diseases/disorders where the highest proportion of respondents rated criticality as "Low" or "Moderate" and autonomy as "With Supervision". The next group (weighted 2x base) were those diseases/disorders where the highest proportion of respondents rated criticality as "Low" or "Moderate" and autonomy as "Autonomously" *or* criticality as "High" or "Critical" and autonomy as "With Supervision." The final group (weighted 3x base) were those diseases/disorders where the highest proportion of respondents rated criticality as "High" or "Critical" and autonomy as "Autonomously." Table 1 depicts these weighting categories.

Table 1. Weighting Categories

Weight	Criticality Level Rating	Autonomous Level Rating
Base Weight	Low or Moderate	With Supervision
2x Base Weight	Low or Moderate	Autonomously
	High or Critical	With Supervision
3x Base Weight	High or Critical	Autonomously

The consensus results of these discussions are shown in Tables 2 and 3. Based on these data, the SME panel, with assistance from the facilitators, recommended the percentages (weightings) for each domain and body system.

It is important to note that the calculated survey weightings were influenced by the number of rated statements under each task. For example, in the task areas, Diagnosis had the fewest distinct statements to rate, which lead to a lower weight. PAs on the panel recognized this and adjusted their recommendations appropriately to reflect the importance of the content areas despite their number of rated statements on the survey.

Table 2. SME Recommended Weightings – Task Statements

Domain	Weight on Current Blueprint	Proposed Weight Using Criticality Ratings (%)	Final SME Review Panel Recommended Weight (%)
I. History Taking and Performing Physical Examination	17%	11.51%	**16%**
II. Using Diagnostic and Laboratory Studies	12%	9.99%	**10%**
III. Formulating Most Likely Diagnosis	18%	5.81%	**18%**
IV. Applying Foundational Scientific Concepts	10%	7.15%	**8%**
V. Managing Patients	38%	46.40%	**42%**
A. Health Maintenance, Patient Education, and Preventive Measures	10%	11.03%	**11%**
B. Clinical Intervention	14%	16.94%	**16%**
C. Pharmaceutical Therapeutics	14%	18.42%	**15%**
VI. Entry-Level Professional Practice	5%	17.36%	**6%**
Totals	**100%**	**98.22%**	**100%**

Table 3. SME Recommended Weightings – Diseases/Disorders

Body System	Weight on Current Blueprint	Proposed Weight Using Criticality Ratings (%)	Proposed Weight Using Combined Criticality and Autonomy Ratings (%)	Final SME Review Panel Recommended Weight (%)
I. Cardiovascular System	13%	12.88%	11.24%	**11%**
II. Dermatologic System	5%	6.61%	8.87%	**4%**
III. Endocrine System	7%	4.43%	3.95%	**6%**
IV. Eyes, Ears, Nose, and Throat	7%	11.00%	11.88%	**6%**
V. Gastrointestinal System/Nutrition	9%	9.56%	9.79%	**8%**
VI. Genitourinary System	5%	3.56%	9.79%	**8%**
VII. Hematologic System	5%	4.30%	3.46%	**5%**
VIII. Infectious Diseases	6%	7.57%	8.21%	**7%**
IX. Musculoskeletal System	8%	6.14%	6.46%	**8%**
X. Neurologic System	7%	9.12%	8.15%	**7%**
XI. Psychiatry/Behavioral Science	6%	5.36%	5.67%	**7%**
XII. Pulmonary System	10%	6.57%	6.26%	**9%**
XIII. Renal System	5%	3.44%	2.91%	**5%**
XIV. Reproductive System	7%	9.45%	9.23%	**7%**
****Professional Practice****				**6%**
Totals	**100%**	**99.99%**	**105.87**	**100%**

**Professional Practice items are included in the disease/disorder weighting structure on the PANCE.

Table 4. SME Recommended Weightings – Surgical Content and Stage of Life Content

Content	Final SME Review Panel Recommended Weight (%)
Surgical Content	8-10%
Stage of Life Content	
Pediatric	12-15%
Adult	55-65%
Geriatric (65+)	25-30%

DISCUSSION AND RECOMMENDATIONS

The process of developing the content specifications for a certification examination is a critical step for ensuring the relevancy of the exam and has implications for the defensibility of the final test scores. Therefore, this study was conducted to describe and prioritize expectations for the professional practice of PAs as it relates to medical knowledge and skills content that is appropriate for all entry-level certifying PAs to know. The results of the study provide empirical evidence to inform the final blueprint design, including the weighting of content domains and body systems on the certification examination forms.

The study suggested that the final blueprint could be based on the content domains and body systems with integrated diseases/disorders developed and reviewed by PA focus groups. The results of the survey revealed the levels of criticality and autonomy at which PAs felt each disease/disorder was appropriate to test, as well as how much weight should be given to each body system and content domain. The study also informed the depth of knowledge expected for the respective system on the overall examination.

Based on the results of the survey and the professional experience of the diverse groups of SMEs (focus group and review group), each content domain and body system was assigned a weight based on its relative level of criticality for professionals certifying as PAs. The committee of SMEs reviewed the findings and recommended a final blueprint based on the evidence collected from the survey of practitioners and discussions during the in-person workshop. The final recommended blueprint allocations were approved by NCCPA and will be implemented for PANCE administrations effective January 1, 2025 and beyond. The next steps in the development process will be to begin review of the current certification examination content for alignment to the new specifications and disseminate the updated blueprint publicly.

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