



SPRING 2013

Understanding the NCLEX[®] Examination Through the Core Values of NCSBN

This is the first of a four-part series. Subsequent parts of this article will appear in future issues of the NCLEX[®] Communiqué.

To assist regulatory bodies in making licensure/registration decisions and as a critical element in ensuring protection of the public, the National Council of State Boards of Nursing (NCSBN) creates and administers a minimal competency examination called the National Council Licensure Examination for Registered Nurses (NCLEX-RN[®]). The development, administration and future direction of this examination is guided by the core values of NCSBN: collaboration, excellence, innovation, integrity and transparency in advancing regulatory excellence worldwide¹. This article is intended to provide information about the development of the NCLEX[®] examination as it relates to the core values of NCSBN.

The NCLEX examination development process is an exemplar of these core values. The process includes several rigorous steps requiring the participation of thousands of individuals, including nurses, nurse regulators, examination development experts and psychometricians.

¹ **Collaboration:** Forging solutions through respect, diversity and the collective strength of all stakeholders.

Excellence: Striving to be and do the best.

Innovation: Embracing change as an opportunity to better all organizational endeavors and turning new ideas into action.

Integrity: Doing the right thing for the right reason through honest, informed, open and ethical dialogue.

Transparency: Demonstrating and expecting openness, clear communication, and accountability of processes and outcomes.



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Adhering to the quality guidelines published in the Standards for Educational and Psychological Testing (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 1999), the first step in every NCLEX examination development cycle begins with an analysis of the current scope of practice.

Ensuring representation from the NCLEX test-user areas, 10 to 12 subject matter experts (SMEs) representing a variety of nursing practice settings and geographic diversity are chosen to provide input as members of the practice analysis panel². These SMEs, using professional experience, observation of entry-level nurses in various practice settings, knowledge of nursing practice acts and entry-level nurse orientation manuals, develop survey instruments designed to determine how frequently entry-level nurses (defined as six months or less post-licensure/registration) perform essential nursing activities, and how important those activities are to safe and effective entry-level practice. Although not required in the Standards for Educational and Psychological Testing (1999), NCSBN also conducts a knowledge, skills and abilities (KSA) analysis prior to developing each examination. The KSA panel³ is selected using the same procedures for the practice analysis panel

selection. The KSA panel is charged with developing a survey instrument designed to identify the necessary KSAs needed by entry-level nurses to safely and effectively perform the activities identified in the practice analysis survey instrument.

The separate survey instruments developed by the practice analysis and KSA panels are then sent to a random selection of more than 12,000 entry-level nurses⁴. This entire process involves the collaboration of survey design experts, psychometricians, nurse supervisors, nurse clinicians and several thousand entry-level nurses across the U.S and Canada.

The next phase of the examination development process begins with item (examination question) construction. NCSBN maintains a large database of volunteer nurse item writers, who are approved by their regulatory bodies and represent a variety of practice and educational settings⁵. After completing an item needs analysis, six to eight nurses are selected from the database and invited to attend a four-day item writing panel. In order to help ensure the quality and excellence of the items constructed, panel members are provided with extensive training in high stakes item writing principles and the NCLEX item writing style guide. Each panelist

2 Canadian representation on the practice analysis panel will begin in fall 2013.

3 Canadian representation on the KSA panel will begin in fall 2013.

4 Entry-level Canadian nurses will be included in the 2014 RN Practice Analysis survey.

5 The NCLEX Item Development program was opened to Canadian item writing volunteers in November 2012.

is required to provide evidentiary validation of item content and the correct answer using commonly available nursing textbooks, journals and practice guidelines. Every item developed by the panel is subsequently forwarded to the nursing content and professional editorial staff of the NCSBN test services provider for review. These individuals evaluate and edit each item to ensure the content addresses the activities identified in the NCLEX test plan, adheres to the NCLEX style guide, and that the validations of content and correct answer are accurate.

While this process meets the minimum standards for quality item construction, in keeping with the core value of excellence, the items are then reviewed by an additional independent group of expert nurses selected from the NCSBN database of nurse volunteers⁶. These volunteers are item reviewers; nurses who work with entry-level nurses as supervisors, mentors and preceptors. Like the nurse item writers, these nurses are approved by their regulatory bodies and attend a four-day meeting as item review panelists. They are charged with reviewing items to ensure that they reflect current practice and that items with regional variations/biases are corrected or removed from use in potential NCLEX examinations. All items surviving the item review process are returned to the NCSBN test services provider for a second editorial review.

Finally, prior to the pretesting phase of item construction, all items surviving the second editorial review are presented to a sensitivity panel⁷. The sensitivity panel is composed of individuals from various ethnic backgrounds, including at least one nurse and one linguist. The sensitivity panel is responsible for reviewing all items to identify words and phrases that might be viewed as insensitive, stereotypical, or inflammatory to a specific group of people or population.

6 The NCLEX Item Development program was opened to Canadian item review volunteers in November 2012.

7 Canadian participation on the sensitivity panels will begin in 2014.

The pretesting phase of the examination development process is designed to gather statistical information on item performance after the item writing phase is complete. The items prepared for pretesting are included with the operational NCLEX items and administered to nursing candidates to help ensure statistical information gathered on the items are a true representation of responses provided by the population of entry-level nurses.

Pretest items meeting NCSBN's stringent statistical criteria related to difficulty, discrimination and distractor response patterns are once again subjected to an independent review process. The NCLEX® Item Review Subcommittee (NIRSC) is charged with reviewing the items for construction flaws, correct reference citations, compliance with entry-level practice and violations of nurse practice acts. The NIRSC may return flawed items to the beginning of the item writing process for rework, forward items in which the committee could not reach consensus to the NCLEX® Examination Committee (NEC) for further review or approve items for use in future NCLEX operational item pools.

As demonstrated by this article, the elements of NCLEX examination development are exemplars of the core values of NCSBN in action. The fundamental validity arguments related to the NCLEX examinations are directly supported by the transparency and innovation of the item development process, the collaboration required in the development of activity statements through the practice analysis process, and the integrity and excellence principles adhered to during the item writing and review process.

Reference

American Educational Research Association (AERA), American Psychological Association (APA), & National Council on Measurement in Education (NCME). (1999). *Standards for educational and psychological testing*. Washington, DC: American Psychological Association.

Spotlight on NCLEX® Examination Terminology: Computerized Adaptive Testing (CAT)

Candidate ability

The level of entry-level nursing knowledge, skills and abilities that the candidate has.

Passing standard

A cut point along an ability range that marks the minimum ability level requirement. For the NCLEX, it is the minimum ability required to safely and effectively practice entry-level nursing.

Logit

A unit of measurement to report relative differences between candidate ability estimates and item difficulties.

Item selection

Every time the candidate answers an item, the computer re-estimates the candidate's ability based on all previous answers and the difficulty of those items.

The computer then selects the next item that the candidate should have a 50 percent chance of answering correctly. The computer's goal is to get as much information as possible about the candidate's true ability level, so the next item should not be too easy or too hard. The candidate should find each item challenging as each item is targeted to his or her ability.

With each item answered, the computer's estimate of the candidate's ability becomes more precise.

Pass/Fail Rules

95% Confidence Interval Rule

This rule is the most common for NCLEX candidates. The computer will stop giving items when it is 95% certain that the candidate's ability is clearly **above** or clearly **below** the passing standard.

Maximum-Length Exam Rule

When the candidate's ability is very close to the passing standard, the computer continues



to give items until the maximum number of items is reached. At this point, the computer disregards the 95% confidence rule and decides whether the candidate passes or fails by their final ability estimate.

- If the candidate's final ability estimate is **above** the passing standard, they pass.
- If the candidate's final ability is **at** or **below** the passing standard, they fail.

Run-out-of-time (R.O.O.T.) Rule

When the candidate runs out of time before reaching the maximum amount of items, the computer has not been able to decide whether the candidate passed or failed with 95% certainty and has to use an alternate rule:

- If the candidate has **not** answered the minimum amount of items, they fail.
- If the candidate has at least answered the minimum amount of items, the computer reviews the candidate's last 60 ability estimates:
 - If the candidate's last 60 ability estimates were **above** the passing standard, they pass.
 - If the candidate's ability **dropped below** the passing standard, **even once**, during the candidate's last 60 items, they fail.

This does not mean the candidate must answer the last 60 items correctly. Each ability estimate is based on all previous items that the candidate has answered.

Frequently Asked Questions

How do you determine that the practice assessment of entry-level nurses coincides with standards of practice and expert opinion of the expected practice? How do you determine what questions are on the practice analysis surveys?

NCSBN conducts practice analyses to determine the level of competency that entry-level nurses must possess in order to provide safe and effective care. Results obtained from the practice analysis studies are used to construct the [NCLEX-RN Test Plan](#) (which can be downloaded free of charge). The test plan guides subject matter experts (SMEs) serving as item writers and reviewers in the development and review of NCLEX items. All NCLEX items undergo rigorous reviews prior to use in actual examinations. Item content is scrutinized for currency, accuracy and adherence to entry-level nursing scope of practice.

Scope of entry-level nursing practice provides the foundation for the NCLEX item development process. The practice analysis process starts with a comprehensive literature review of those resources that students preparing for a career in nursing are expected to study and understand. A SME panel is then convened to discuss activities that entry-level nurses perform on the job. This expert panel is made up of representatives from various NCLEX test-user areas, major nursing specialties and nursing practice settings. In addition to 10-12 experienced nurses, the expert panel also includes two entry-level nurses who provide the incumbent perspective. After extensive discussion and review of related documents, the expert panel constructs a comprehensive list of job activity statements that are relevant to entry-level nursing practice. This list of entry-level activities will be used in the subsequent [practice analysis surveys](#) (which can be downloaded free of charge).



The selection and input of SMEs provides assurance that the practice analysis assesses the current expected practices of entry-level nursing.

Will practice analysis be done with Canadian nurses?

Canadian nurse representatives will be involved in the SME panel for RN practice analyses, along with nurses from other NCLEX-RN test-user areas. NCSBN conducts practice analysis studies every three years to survey the nursing profession regarding entry-level practice. Results of these practice analyses will form the basis of the NCLEX-RN Test Plan. The next RN practice analysis cycle, which will include Canadian representatives on the SME panel and Canadian nurses in the practice analysis survey, is scheduled to begin in November 2013.

Can you explain the research conducted prior to using the NCLEX-RN in Canada?

In 2009, NCSBN sent surveys to 2,396 first-time, Canadian-educated nursing candidates (699 in British Columbia and 1,697 in Ontario) who successfully passed the Canadian Registered

Nurse Examination (CRNE) in 2009. The survey required the candidates to rate 142 nursing activity statements on how important and how frequently they are performed considering client safety and/or the threat of complications or distress. The 142 nursing activity statements were identical to the list of activity statements placed on the [2008 RN Practice Analysis survey](#) sent to U.S.-educated candidates, the results of which informed the *2010 NCLEX-RN® Test Plan*.

The results of the surveys, identified in the [Comparison of Entry-level Registered Nurses in the U.S. and British Columbia, Canada](#) and [Comparison of Entry-level Registered Nurses in the U.S. and Ontario, Canada](#), indicated that respondents considered the activity statements listed in the survey as representative of the work they performed in their practice settings. Additionally, the importance and frequency ratings of the 142 activity statements were comparable to the U.S. respondents with respect to client safety and/or the threat of complications or distress. Given the strong correlation between the importance and frequency ratings, the results of the two studies firmly suggest that the entry-level RNs in British Columbia, Ontario and the U.S. view entry-level nursing practice similarly.

Based on this information, NCSBN continued to explore comparisons in nursing practice in the U.S. and Canada. In 2011, NCSBN performed a review that consisted of comparing the entry-level nursing competencies expected of an RN in Ontario to the relevant competencies expected of a RN in the U.S. The 145 RN competencies identified in the College of Nurses of Ontario (CNO) National Competencies in the Context of Entry-Level Registered Nurse Practice were compared in the

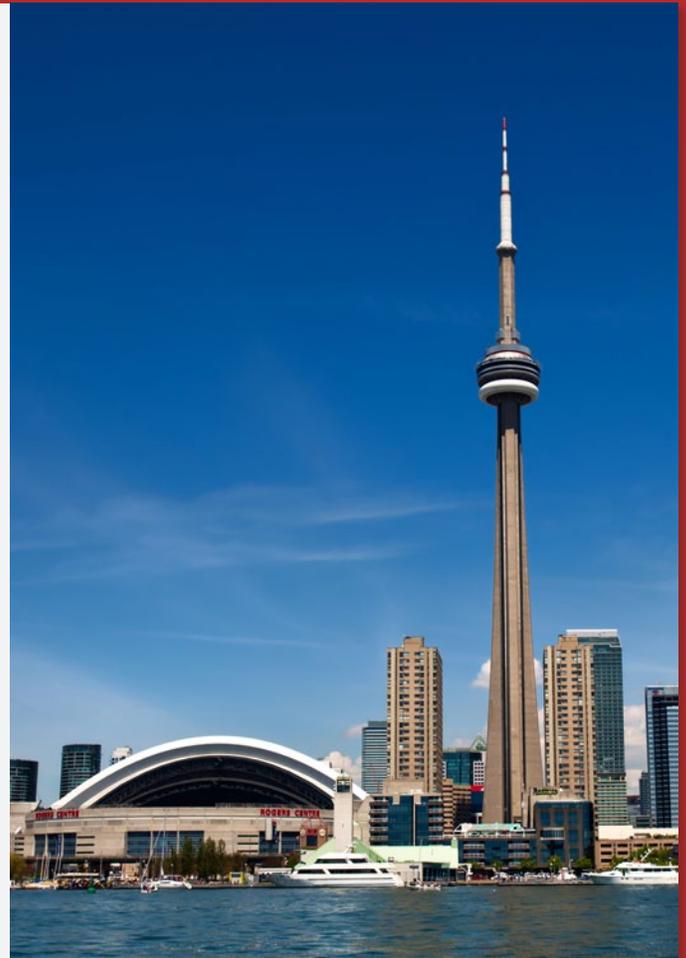
following three areas: 142 activity statements identified in NCSBN's 2008 RN Practice Analysis; the knowledge, skills and abilities (KSAs) needed by newly licensed RNs to practice safely identified in the [2008 Knowledge of Newly Licensed Registered Nurses Survey](#); and the NCLEX Integrated Processes described in the *2010 NCLEX-RN® Test Plan* (NCLEX Integrated Processes are defined as processes fundamental to the practice of nursing and therefore are integrated throughout the NCLEX-RN Test Plan. They include the Nursing Process, Caring, Communication/Collaboration and Teaching/Learning).

Using the existing entry-level competency category structures, the study sought to identify analogous areas in the competency-based statements that are used as a foundation to assess the ability of the entry-level nurse to deliver safe and competent care in the respective locations. The study revealed a well-defined pattern of similarity in the entry-level nursing competencies between Ontario and the U.S. While there are a few health care system nuances in both the U.S. and Canada, one of the most important findings is that the competency categories, which reflect direct client care by entry-level RNs, represented a 98.54 percent correlation; the largest overall percentage of direct one-to-one competency agreement between Ontario and the U.S.

Considering the results of the research studies conducted, it is fair to conclude that there is an established relationship of similarity in the entry-level nursing practices between Canada and the U.S. This relationship strongly suggests that the NCLEX-RN Examination would provide a fair, valid, and psychometrically sound measurement of minimal nursing competencies required for safe and effective practice of RNs within Canada.

NCLEX® Conference Held in Toronto

On April 22, 2013, NCSBN held the NCLEX® Conference for Canadian Educators in Toronto in conjunction with the Canadian Council of Registered Nurse Regulators (CCRN) and NCSBN's testing partner, Pearson VUE. The conference attracted 267 attendees from across the 10 Canadian provinces/territories that will begin using the NCLEX-RN for entry to practice in 2015. Attendees received an overview of the NCLEX program, including information about test development, psychometrics and administration, as well as learned about NCLEX resources, program reports, setting the passing standard and examinations research. Additionally, NCSBN, Pearson VUE and CCRNR provided answers to many questions submitted by attendees during the Panel of Experts Q&A session. Responses to these and other questions will be incorporated into the [NCLEX-RN Frequently Asked Questions for Canadian Educators & Students](#) over the coming weeks.



NCLEX® Workshops – Fall 2013

The NCSBN Examinations department will be offering one-day, regulatory body-sponsored NCLEX workshops for the purpose of providing information to educators who are preparing their students to take the NCLEX. Workshops will be conducted across Canada Oct. 21 – Nov. 1, 2013. Contact your regulatory body for details about the workshop in your area.

Timeline

2012

Summer

Contracts signed
Transition team established

Fall

NCLEX Item Development Volunteer Application made available to Canadian nurses
Began dialogue with educators and other stakeholders to produce materials to assist in using the test plan to aid in curriculum review
Transition plan established

2013

Winter (January – March)

Began quarterly communication on the status of the transition processes
Scheduled future meetings/trainings with Canadian nurse educators and nurse regulation staff
Canadian item writers included in item writing workshops
Canadian item reviewers included in item review workshops

Fall (October – December)

Canadian RN experts added to the NCLEX-RN subject matter experts (SMEs)
NCLEX workshops

2014

Spring (April – June)

NCLEX Administration Website activated for Canadian nurse regulators
Canadian nurse regulators join item review process
French translation of the NCLEX® Candidate Bulletin available
French translation of the NCLEX® Computerized Adaptive Testing Tutorial available

Fall (October – December)

Canadian representative sample added to the continuous RN practice analysis methodology
Initial translation of NCLEX-RN item pool into French
Perform alpha test and privacy impact analysis of delivery of NCLEX-RN in Canadian test centers
NCLEX Candidate Website activated for Canadian candidate registrations
NCLEX Candidate Call Center activated for Canadian candidates
SMEs review operational NCLEX-RN pool

2015

Winter (January – March)

Canadian test centers activated

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