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NATIONAL OPTICIAN'S PRACTICAL EXAMINATION CANDIDATE HANDBOOK

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CANDIDATE HANDBOOK

NATIONAL OPTICIAN'S PRACTICAL EXAMINATION CANDIDATE HANDBOOK

The National Optician's Practical Examination Candidate Handbook covers both the Spectacles and Contact Lens National Optician's Practical Examinations. The purpose of this handbook is to provide the candidate with the procedural information that will assist in taking the Spectacles, or the Spectacles and Contact Lens Examination(s). The examination has two distinct sections Part 1 the multiple-choice and Part 2 the computer based practical skill examination for both Spectacles and Contact Lenses. All National Optician's Practical Examination candidates are required to read this handbook.

ABOUT THE NATIONAL OPTICIAN'S PRACTICAL EXAMINATION

The National Commission of State Opticianry Regulatory Boards (NCSORB®) which is a non-profit organization representing State Licensing Boards worked collaboratively to develop the computer-based **National Optician's Practical Examination**. The examination is a significant change in examination modalities previously used and replaces the current state practical hands-on examinations. The members of NCSORB have one important goal for this examination: to protect the public by assessing the knowledge and skills of opticians in accurately performing the tasks required in a professional, standardized, simulated environment.

NCSORB follows strict educational and psychological testing principles as defined by the Standards for Educational and Psychological Testing of the American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. The licensing examination tests the minimum knowledge and skills of opticians for qualification of licensure. The exam content is based on common industry practices and tasks performed by licensed opticians as research data showed in a national job analysis.

CONTACT INFORMATION

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REGISTRATION & PAYMENT

EXAMINATION ELIGIBILITY

Candidates who are sitting for the National Optician's Practical Examination must meet the State eligibility requirements for the State where they are seeking opticianry employment. If a candidate is seeking employment in a State that does not require opticianry licensure, please contact NCSORB for further information.

Once the State board (if applicable) or the candidate has sent the appropriate documentation to the test administrator, the candidate is deemed eligible to take the National Optician's Practical Examination. The test administrator will send the candidate an email authorization letter confirming acceptance to take the examination. The authorization letter will provide information on how to register for the examination with the testing facility, access to the candidate tutorial, handbook and checklist, as well as the start and end dates for the examination eligibility period (the period of time that candidates are able to view the tutorial and schedule the examination) which is 90-days.

Educators of any opticianry, optometric or ophthalmology program who are not specifically sitting for the examination to obtain licensure or a credential will not be approved to take the National Optician's Practical Examination by NCSORB. *(November/2014)*

REGISTRATION PROCESSING

Candidates must complete the National Optician's Practical Examination registration form and include all of the following information: First and Last Name, Address, City, State, Zip, Phone, E-Mail and Social Security Number.

Registration forms will not be processed without a valid e-mail address.

REGISTRATION FEES

Examination fees can be obtained from the State or will be included on the registration form.

PAYMENT PROCESSING

Candidates who are submitting registration forms from States that require licensure:

Unless otherwise directed by the State board, completed registration forms and payment are to be submitted directly to the State or NCSORB for processing.

Candidates who are submitting registration forms from States that do NOT require licensure:

Candidates who are employed in a State that does not require opticianry licensure are to submit completed registration forms and payment to the address indicated on the registration form.

EXAMINATION POLICIES & PROCEDURES

EXAMINATION CHECKLIST

Candidates will be provided a checklist that outlines the expectations of each task within the Spectacles and Contact Lens Practical Skill Examinations. It is highly recommended that candidates read, understand and commit to memory the information provided in the candidate checklist.

EXAMINATION TUTORIAL

The tutorial demonstrates how to navigate within tasks; open and close task windows; use the required instruments to perform each opticianry task, record and submit responses; restart and exit a task.

EXAMINATION BLUEPRINT

The examination was developed based on the examination blueprint content and task areas. The examination blueprint details the percentage of questions contained in each content and task area.

NATIONAL OPTICIAN'S PRACTICAL EXAMINATION CONTENT AREAS

Part 1 - Spectacles: Multiple-Choice Examination

Domain	Percentage of Questions
Analyze and Interpret	46%
Fit and Dispense	38 %
Produce Eyewear	11%
General Knowledge	5%
Total	100%

NATIONAL OPTICIAN'S PRACTICAL EXAMINATION CONTENT AREAS

Part 1 - Contact Lens: Multiple-Choice Examination

Domain	Percentage of Questions
Fit and Dispense Contact Lenses	100%
Total	100%

Pretest questions do not affect the candidate's score and are used in examinations as an effective and legitimate way to test the validity of future examination questions. All pretest questions are randomly placed throughout the examination.

	NUMBER OF SCORED QUESTIONS	NUMBER OF PRETEST (UNSCORED) QUESTIONS	TOTAL EXAMINATION QUESTIONS
Spectacles	65	10	75
Contact Lens	65	5	70

EXAMINATION POLICIES & PROCEDURES

Part 2 - Simulated Practical Examination

The practical skill examination sections are comprised of the following task areas:

Initial Spectacles Practical Skill Examination Timing – 60 Minutes

- ***Measurement of Pupillary Distance and Segment Height***
Task: Measure pupillary distance and segment height and record the results
- ***Neutralization of Spectacles***
Task: Neutralize lenses on two sets of spectacles; identify prism in each lens (if present), record results in minus cylinder form.

Spectacles Practical Skill Examination Retest Timing

- ***Measurement of Pupillary Distance and Segment Height – 15 Minutes***
Task: Measure pupillary distance and segment height and record the results
- ***Neutralization of Spectacles – 45 Minutes***
Task: Neutralize lenses on two sets of spectacles; identify prism in each lens (if present), record results in minus cylinder form.

Initial Contact Lens Practical Skill Examination Timing – 60 Minutes

- ***Contact Lens Images & Conditions of the Eye***
Task: Identify images common to opticianry
- ***Corneal Curvature Measurement***
Task: Measure corneal curvature on a manual keratometer and record the results.
- ***Slit Lamp Operation***
Task: Adjust slit lamp to display various pathologies and illuminations using a slit lamp
- ***Evaluation of a Contact Lens Using a Slit Lamp***
Task: Identify the fit of different contact lenses viewed through a slit lamp.

Contact Lens Practical Skill Examination Retest Timing

- ***Contact Lens Images & Conditions of the Eye – 20 Minutes***
Task: Identify images common to opticianry
 - ***Corneal Curvature Measurement – 10 Minutes***
Task: Measure corneal curvature on a manual keratometer and record the results.
 - ***Slit Lamp Operation – 20 Minutes***
Task: Adjust slit lamp to display various pathologies and illuminations using a slit lamp
 - ***Evaluation of a Contact Lens Using a Slit Lamp – 10 Minutes***
Task: Identify the fit of different contact lenses viewed through a slit lamp.
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The total allotted time to complete the initial multiple-choice and practical skill examinations is as follows:

EXAMINATION	ALLOTTED EXAMINATION TIME
Spectacles & Contact Lenses	240 Minutes – 4 Hours
Spectacles Only	120 Minutes – 2 Hours
Contact Lenses Only	120 Minutes – 2 Hours

Examination time includes candidate instructions, review and acceptance of the examination disclaimer, as well as the review and acceptance of the disclaimer outlining the candidate tutorial, handbook and checklist review. There is a timer in the upper right hand corner of the computer monitor for candidates to check their time, allowing candidates to plan accordingly when taking the examination. It may take some candidates less than the allotted time provided to complete the examination(s).

There are no scheduled breaks during the examination. If a break is needed during the examination, the examination clock will continue to count down.

EXAMINATION REFERENCE MATERIALS

NCSORB understands there are many publications that outline specific procedures and practices regarding the neutralization of spectacles lenses and the fitting of contact lenses. The National Optician's Practical Examination items and tasks are referenced based on the following standards and publications:

ANSI Z80.1 – 2010, Ophthalmics – Prescription Spectacle Lenses

***System for Ophthalmic Dispensing*, 3rd Ed. Brooks & Borish**

Contact Lens Manual: A Comprehensive Study and Reference Guide, Vol. I

EXAMINATION AREAS OF STUDY

The following materials will assist you with studying for the National Optician's Practical Examination.

SPECTACLES

1. Measure Pupillary Distance and Segment Height
 - a. Chapter 3 – *System for Ophthalmic Dispensing*, 3rd Ed. Brooks & Borish
2. Neutralization of Spectacles
 - a. Chapter 15, Pg. 349 – *System for Ophthalmic Dispensing*, 3rd Ed. Brooks & Borish
 - b. Chapter 19, Pg. 435 – *System for Ophthalmic Dispensing*, 3rd Ed. Brooks & Borish
 - c. Chapter 20, Pg. 455 – *System for Ophthalmic Dispensing*, 3rd Ed. Brooks & Borish

CONTACT LENSES

1. Contact Lens Images and Conditions of the Eye
2. Measurement of Corneal Curvature
3. Slit Lamp Operation
4. Contact Lens Fitting – (Evaluation of a Contact Lens Using a Slit Lamp)

Chapters: 2, 4, 5, & 6 – Contact Lens Manual: A Comprehensive Study and Reference Guide, Vol. 1

EXAMINATION POLICIES & PROCEDURES

SPECIAL ACCOMMODATIONS

In compliance with the Americans with Disabilities Act (ADA) the test administrator will provide reasonable accommodations for person with disabilities. If you believe that you require such accommodation, please contact the test administrator to receive a special accommodations questionnaire. Return the completed questionnaire with your application and include documentation of your disability from a qualified health care provider.

STATEMENT OF NON-DISCRIMINATION

The test administrator shall admit candidates without regard to age, sex, color, national origin, disability, religion, sexual orientation, or marital status to all rights, privileges, programs and examinations. It shall not discriminate on the basis of age, sex, color, national origin, disability, religion, sexual orientation, or marital status in the administration of licensure.

HOW TO SCHEDULE AN EXAMINATION APPOINTMENT

Examinations are given through Pearson VUE test centers. Pearson VUE delivers millions of high-stakes tests annually worldwide for clients in the licensure, certification, academic admissions, regulatory, and government testing service markets. It has one of the world's largest test center networks, with over 5,000 test centers in 165 countries, 230 of which are fully-owned and-operated Pearson Professional Centers. Pearson Professional Centers utilize a patent-winning design, which was created specifically for high-stakes testing and offers a carefully controlled, secured testing environment.

The test administrator will provide the candidate with an authorization number that must be presented when the candidate arrives at the test center the day of the examination. Candidates cannot schedule an examination appointment with Pearson VUE until the test administrator has received the appropriate documentation and fees.

To avoid scheduling complications, scheduling of examinations should be done shortly after the candidate has received their authorization letter.

ELIGIBILITY EXTENSIONS, APPOINTMENT CHANGES AND FEE REFUNDS

The policies regarding scheduling, canceling, and changing appointments are:

1. If the candidate fails to schedule an appointment within the 90-day eligibility period indicated in the confirmation letter, the candidate will forfeit their examination registration fee. A new application and examination fee is required to reapply for the examination.
 2. Requests to cancel a registration form, before the candidate has scheduled an appointment with the testing service, must be received in writing before the end of the 90-day eligibility period. A processing fee of \$95.00 is retained.
 3. To cancel a scheduled examination appointment without a fee, the candidate must call Pearson VUE at the toll-free telephone number that was included in the candidate's acceptance letter at least 30 days prior to their scheduled appointment date. If the appointment is cancelled 5-29 days before the scheduled date, Pearson VUE will collect a \$25.00 processing fee. Cancellation less than five days
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before the test date will result in a \$95.00 cancellation fee which must be paid prior to rescheduling the candidate's examination.

4. If cancellation occurs within the allowed time period, candidates may either reschedule with Pearson VUE or request a refund in writing from the test administrator. All requests for refunds must be received before the end of the 90 day eligibility period and a processing fee of \$95.00 is retained. No refunds will be issued for cancellations that do not conform to the above policy.
5. If the candidate fails to appear for the examination or arrives at the test center more than 15 minutes late for the appointment, the absence is considered a "no-show" and the candidate will not be tested. The candidate will be required to pay a "no-show" fee of \$95.00 to the test administrator prior to rescheduling the examination.
6. If the candidate is not admitted to the test center for failure to provide proper identification, the candidate will be charged a \$95.00 "no-show" fee that must be paid prior to rescheduling their examination.
7. If the candidate is unable to take the examination within the eligibility period indicated in the acceptance letter, the candidate may apply for a one-time, 30-day eligibility extension by submitting a written request and paying the extension fee of \$50.00. The written request must be received by the end of the 90-day eligibility period.

EXAMINATION CONFIDENTIALITY

The National Optician's Practical Examination is proprietary and confidential. The examination is available to the candidate solely for the purpose of assessing the candidate's proficiency level in the content areas referenced in the examination for which the candidate is eligible. The candidate is expressly prohibited from disclosing, publishing, reproducing, or transmitting the examination(s) in whole or in part, in any form or by any means verbal or written, electronic or mechanical, for any purpose. Candidates will be asked to accept this disclosure statement prior to beginning the examination(s) at the test center. If the candidate does not agree to the disclosure statement, the candidate will not be able to take the National Optician's Practical Examination. All examination content and materials are strictly confidential and will not be released to anyone except those involved in the development and administration of the examination.

Official examination results are sent via secured server or registered mail to the candidate (non-licensed State) or the candidate's respective State licensing board. (No exceptions).

COMPUTER – BASED PRACTICAL SKILL EXAMINATION DISCLAIMER AND WAIVER

National Optician's Practical Examination candidates are provided with a tutorial, checklist and handbook to assist with their understanding regarding the use of the controls and navigation within the computer-based examination. Also included is an outline of the content areas on the multiple-choice examination(s), an outline of the specific tasks within the practical skill examination(s), the percentage pass rates for the multiple-choice and practical skill examination(s), and the tolerance ranges as required for the specific practical skill examination tasks.

Candidates will be required to acknowledge that they were provided with timely and sufficient advance notice by the test administrator that the examination they will be taking for licensure was administered by computer simulation, received adequate notice prior to taking the examination of a tutorial that provides an overview of the computer simulation, and allowed the candidate to practice the computer simulation techniques necessary for the examination.

Candidates will be required to acknowledge receiving notice prior to taking the examination that they had access to a checklist outlining the standardized methods and skill task order to be tested by the computer simulation examination.

Candidates will be required to acknowledge that they had an adequate opportunity to advise the test administrator of any medical, physical or mental condition that might prevent or inhibit the candidate from completing the computer-based simulated examination properly. The candidate will acknowledge that any such medical, physical or mental condition has been identified to the test administrator and that the test administrator has provided adequate and reasonable accommodation to permit the candidate to take the examination without influence or hindrance from the medical, physical or mental condition identified.

The candidate releases the test administrator and will hold harmless from injury or harm of any type, be it physical, mental, personal or economic, as a result of taking this examination and/or not receiving a passing score.

Candidates will be asked to accept this computer-based skill examination disclaimer and waiver prior to beginning their examination(s) at the test center. If the candidate does not agree to the computer-based skill examination disclaimer and waiver the candidate will not be able to take the National Optician's Practical Examination.

EXAMINATION SITE REQUIREMENTS AND INSTRUCTIONS

Admittance to the test center requires a candidate authorization letter and two forms of identification. One form must be a valid government issued ID containing both the candidate's picture and signature (driver's license, passport, government identification card, etc.). The second form of ID must contain at least the candidate's signature and be in a non-paper format (credit-card, ATM card, etc.). The name on the two forms of ID must match the name on the candidate's authorization letter and appointment registration exactly. The following are NOT acceptable forms of identification: social security cards and library cards.

1. After identification has been confirmed, the candidate will be escorted into the testing room and assigned a testing station. Candidates may not bring any personal items with them into the testing room. A virtual tour showing candidates what to expect upon arrival at the Pearson VUE test center can be viewed at <http://www.pearsonvue.com/ppc/>
 2. The test center proctor will provide candidates with a white board for use during testing. The white board must be returned to the test proctor upon completion of the examination.
 3. If the candidate has any computer-related questions or concerns during the examination, test center proctors are available for assistance.
 4. Test center proctors will not answer questions related to the examination content areas, specific items, or tasks within the skill examinations.
 5. One question at a time will appear on the computer screen during the multiple-choice examination. Candidates will have the option to answer the question or mark the question for review.
 6. At the end of the multiple-choice examination, candidates may return to the examination items that were marked for review provided there is time remaining.
 7. Candidates must finish the examination within the time allowed. An onscreen timer will display in the upper right corner of the examination and an on-screen warning will appear when there is five minutes remaining for each task of the skill examination.
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8. After completing the examination, candidates will be asked to complete a short online survey about their testing experience. Comments are routinely reviewed in an effort to continuously improve the examination process.
9. The test administrator will not answer specific questions regarding examination content.
10. Results will be provided to the candidate 2 – 4 weeks after the completion of the examination.

PROHIBITED FROM THE TESTING CENTER

Candidates may NOT bring anything or anyone into the testing area or to the desk where the candidate is taking the examination. This includes:

- | | | |
|-------------------|-------------------|------------------|
| ▪ Food | ▪ Beverages | ▪ Book Bags |
| ▪ Coats | ▪ Hooded Clothing | ▪ Luggage |
| ▪ Calculators | ▪ Eyeglass Cases | ▪ Pagers |
| ▪ Cellular Phones | ▪ Tape Recorders | ▪ Dictionaries |
| ▪ Watches | ▪ Wallets | ▪ Personal Items |

TERMINATION OF EXAMINATION ADMINISTRATION/GROUNDS FOR DISMISSAL

Candidates are expected to conduct themselves in a professional manner at all times at the testing center. Any person who violates the Examination Confidentiality Policy will be subject to review and possible disciplinary action(s).

The test center proctor is authorized to dismiss candidates from an examination administration and the candidate's results may be canceled, or other appropriate action will be taken, when there is a reasonable basis for concluding that the candidate has engaged in any of the following conduct:

1. Using or attempting to use someone else to take the examination
 2. Failing to provide acceptable personal identification
 3. Having access to or using notes or any prohibited aid related to the examination
 4. Creating a disturbance (disruptive behavior in any form will not be tolerated; the test center proctor has sole discretion in determining whether specific conduct constitutes disruptive behavior)
 5. Communicating, in any manner, with another person other than the test center proctor about the examination during the administration, including attempting to give or receive assistance
 6. Attempting to remove any items from the testing room
 7. Eating or drinking in the testing room
 8. Leaving the testing room or test center vicinity without permission
 9. Removing or attempting to remove, examination-related material, or portions of a test in any format from the testing room
 10. Attempting to tamper with a computer
 11. Engaging in or any dishonest or unethical conduct
 12. Failing to follow any examination administration regulations set forth in this National Optician's Practical Examination Candidate Handbook, instructions given by the test center proctor, or specified in any examination materials.
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EXAMINATION POLICIES & PROCEDURES

EXAMINATION SCORING

The passing score for each multiple-choice examination, as well as all the tasks within the practical skill examination is 70%.

Tolerance ranges have been established for the specific tasks within the skill examinations:

Spectacle Simulated Practical Examination Measure Pupillary Distance and Segment Height

Pupillary Distance: +/- 0.50 mm

Segment Height:

Progressive +/- 1.0 mm

Bifocal +/-1.5 mm

Trifocal +/- 1.5 mm

Neutralize Spectacles:

Sphere +/- 0.25 D

Cylinder +/- 0.25 D

Bifocal Add +/- 0.25 D

Prism +/- 0.25 D

Axis +/- 3 degrees

Contact Lens Simulated Practical Examination

Corneal Curvature Measurement:

Horizontal Power +/- 0.25 D

Vertical Power +/- 0.25 D

Horizontal Axis +/- 5 degrees

Vertical Axis +/- 5 degrees

EXAMINATION RESULTS

The examination results will include pass/fail for the multiple-choice examination as well as pass/fail for each task within the skill examination and are distributed from the State which the candidate applied for licensure. Examination results for licensure candidates are not distributed by NCSORB.

RETAKING THE EXAMINATION

The number of times candidates testing for licensure are eligible to retake the National Optician's Practical Examination is contingent on specific State requirements. If the candidate is not testing for licensure, candidates may retake the examination 2 times within a one-year period.

State of Florida candidates must wait 30 days between the initial examination and any retakes of the National Optician's Practical Examination.

Once the retest registration form is processed, candidates have 90 days to schedule and complete the examination. If the candidate decides not to apply to retest within the 12 months of the initial examination or fails to complete the examination within the 90-day eligibility period, the initial application process begins again.

APPEALS

Any candidate may appeal determinations related to examination results. **The appeal must be in writing and received within 30-days of being notified of examination results.** The appeal must be addressed to the test administrator and include: a detailed written explanation of the grounds for the appeal, any evidence or documentation to support the reason a decision should be overturned, and the appeal fee of \$50.00. The burden of proof is the responsibility of the applicant. Written notification of the decision regarding the appeal will be mailed within four to six weeks after receiving the appeal. Decisions regarding appeals will be final and binding.

This appeals process is the only method to review all decisions made by the National Commission of State Opticianry Regulatory Boards regarding applications, examinations, test administration, results and/or challenges or complaints.

No candidate appeal details will be discussed by telephone.

Test Administrator

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OVERVIEW OF EXAMINATION DEVELOPMENT

NATIONAL OPTICIAN'S PRACTICAL EXAMINATION ROLE DELINEATION (JOB ANALYSIS)

National Job Task Analysis and Test Development

NCSORB follows strict educational and psychological testing principles as defined by the Standards for Educational and Psychological Testing of the American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. The licensing examination tests the minimum knowledge and skills of opticians for qualification of licensure.

The development of the *National Optician's Practical Examination* is based on the results of a national "Job Task Analysis" online survey which was distributed to licensed dispensing opticians through state licensing boards and non-licensed opticians in non-licensing states. The examination was designed by NCSORB with the psychometric consulting services of Professional Credentialing Services, Inc. The survey was conducted consistent with generally accepted psychometric principles. The data was analyzed to determine the assessment instruments to be used and that the most common knowledge and skills associated with the performance domains and tasks were valid, reliable and specifically measured actual optician job performance.

The job task analysis data determined the five core content domains and six tasks most commonly performed by opticians for the spectacle and contact lens examinations. Subject matter experts identified performance standards and developed test items and the skill simulation examination using generally accepted written exam development processes as identified in the Standards for Educational and Psychological Testing. The relative weight assigned to each major content domain was assigned by the NCSORB Examination Development Committee based upon the importance rankings of the essential tasks within the domains.

NCSORB has a wide constituency of subject matter experts within its membership of state licensing boards. Licensed opticians and subject matter experts developed and established the examinations and scoring protocols with the guidance of a psychometric consultant. All examination development, administration, policies, and scoring procedures support the purpose of state licensing of opticians. Subject matter experts involved in the development and feedback process represented licensing boards and licensed opticians from Arkansas, Connecticut, Florida, Kentucky, Massachusetts, Tennessee, Virginia, among others.

NCSORB uses criterion-referenced test development, such as outlined by Shrock & Coscarelli (1996) as well as Educational & Psychological Standards by the American Educational Research Association, American Psychological Association, and the National Council on Measurement in Education (1999). The test development process included, but was not limited to, the following;

- Job Task Analysis
 - Minimal competency of opticians identified through consensus
 - Research on testing modalities
 - Test item development
 - Standard setting and cut score setting
 - Skill Simulation examination development
 - Established scoring protocols
 - Test statistics review and evaluation
-

- Research on computer test center and vendor delivery

A modified Angoff method was used to establish each test question (item) passing score and the examination cut score. In this commonly accepted psychometric procedure, content experts estimate the probability of each question being answered correctly by a person who meets the minimum eligibility requirements. For the skill simulation examination, the reliability of each of the separate skill tests was determined through an inter-rater reliability procedure. The examination was piloted with licensed opticians across the country. The research showed that the skill simulation examination is valid and reliable.

Results Reporting and Data Analysis

Candidates are sent feedback reports after the completion of their examination. These feedback reports provide information on the content domain areas missed for future study and future exam preparation (if necessary) by the candidate. A technical report of the examination statistics is provided annually to NCSORB's Board of Directors with such data as the number of items in each test, the number who took the test, the number that passed, the percentage that passed, the mean passing score with standard deviation, the test reliability, and the standard error of measurement.

Use of Computers for Certification and Licensing Examinations and by Opticians

Performance testing is an accepted method of measuring the knowledge and skills of candidates for certification and/or licensure. "Licensure programs have used performance-type assessments in their licensure tests for decades" (Impara, 1993, p. 215; Yang, Buckendahl, Juszkievica, & Bhola, 2002; Williamson, Bejar, & Mislevy, 2006; Knapp, Anderson, & Wild, 2009) and the use of technology in performance testing is a growing delivery method and instrument tool.

There are and always have been various forms of "simulated" skill examinations (e.g. clinical hands-on, practical or observed techniques). Method of delivery and format using technology is changing for performance-based examinations. Many medical fields use performance-based testing to measure the knowledge and skills of candidates. For example, the Medical Board of Examiners uses a comprehensive performance-based simulation to measure the knowledge and skills of internal medicine physicians for Board examination, which may be accepted for physician licensure at the prerogative of the state Licensing Board. Examples of other organizations using performance-based simulations include the national CPA examination, athletic trainers, massage therapy and crane operators.

NCSORB conducted a comprehensive study on the usability of a computer and simulated equipment during the development process. All of this is done for the purpose of reducing the use of a computer as a variable affecting the results of the simulation test.

Comparison of Hands-on Practical Examinations with Simulations

Research and literature shows that delivery of examinations by computer are valid and reliable methods of testing the knowledge and skills of candidates in the healthcare professions. Additionally, there is a high level of correspondence between human scoring and computer-automated scoring (Yang, et al, 2002). NCSORB conducted a comprehensive computer usability study with licensed opticians. Additional research by NCSORB and other organizations that have performance-based examinations using computer-based testing have shown that the examinations:

- Provides greater standardization of the testing & evaluation
 - Validates examination reliability
-

- Eliminates the need for training of evaluators & models/patients
- Reduces evaluation bias

Candidate errors in the computer-based simulation correspond to similar errors in previous examination formats with candidates having the following issues, but not limited to:

- Test anxiety
- Not properly preparing to take the examination by studying and reviewing materials
- Failing to read the instructions
- Transposing or entering data incorrectly (for example: enter the sphere as the cylinder)
- Leaving blanks in the examination by not entering a response
- Guessing the answer by selecting the same response for the different items

Tolerances

Result tolerance ranges are established based on accepted tolerances for opticianry tasks conducted on the job. Tolerance ranges were determined based on research that corresponds to tolerances in state licensing examinations as determined by the Boards and other accepted national standards.

Simulated Practical Skills and Tasks Performance

The simulation portion of the *National Optician's Practical Examination* does not measure an optician's technique in performing a skill task, only the interpretation and accuracy of recording results. Valid psychometric principles, test development methods, standard setting protocols, and evaluation methods are used to ensure a reliable interpretation of test scores and test statistics for performance-based testing.

With input from multiple subject matter experts who are licensed opticians and many of them on state licensing boards, the skill examinations were developed based on best practices, using common equipment and instruments.

All skill tasks were developed within specific tolerances to accommodate for real-world versus the simulated environment. The skill examination requires candidates within their scope of practice to identify and record results to be awarded licensure by their State. This examination does not require optician candidates to diagnose or treat.
