

CERTIFICATION EXAMINATION FOR OPHTHALMIC REGISTERED NURSES

HANDBOOK FOR CANDIDATES

Spring 2018 Testing Period

Application Deadline: February 1, 2018

Testing Begins: March 17, 2018

Testing Ends: March 31, 2018

Fall 2018 Testing Period

Application Deadline: August 1, 2018

Testing Begins: September 1, 2018

Testing Ends: September 15, 2018

NCBORN

NATIONAL CERTIFYING BOARD FOR
OPHTHALMIC REGISTERED NURSES



PROFESSIONAL TESTING CORPORATION® 1350 BROADWAY • 17th FLOOR • NEW YORK, NY 10018

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This handbook contains necessary information about the Certification Examination for Ophthalmic Registered Nurses. Please retain it for future reference. Candidates are responsible for reading these instructions carefully. This handbook is subject to change.

CERTIFICATION

The National Certifying Board for Ophthalmic Registered Nurses (NCBORN) endorses the concept of voluntary, periodic certification by examination for all ophthalmic registered nurses. Certification is one part of a process called credentialing. It focuses specifically on the individual and is an indication of current competence in a specialized area of practice. Board certification in ophthalmic registered nursing is highly valued and provides formal recognition of basic ophthalmic registered nursing knowledge.

PURPOSES OF CERTIFICATION

TO PROMOTE DELIVERY OF SAFE AND EFFECTIVE CARE IN OPHTHALMIC REGISTERED NURSING PRACTICE THROUGH THE CERTIFICATION OF QUALIFIED OPHTHALMIC REGISTERED NURSES BY:

1. Recognizing formally those individuals who meet the eligibility requirements of the National Certifying Board for Ophthalmic Registered Nurses and pass the Certification Examination for Ophthalmic Registered Nurses.
2. Encouraging continued personal and professional growth in the practice of ophthalmic registered nursing.
3. Establishing and measuring the level of knowledge required for certification in ophthalmic registered nursing.
4. Providing a standard of knowledge requisite for certification, thereby assisting the employer, public, and members of the health professions in the assessment of ophthalmic registered nurses.

ELIGIBILITY REQUIREMENTS

1. Currently licensed as a Registered Nurse in the United States or the equivalent in another country.
2. At least two years of full time or the equivalent (4,000 hours) experience in ophthalmic registered nursing practice.*
3. Completion and filing of an Application for the Certification Examination for Ophthalmic Registered Nurses.
4. Payment of required fee.

* Two years of ophthalmic nursing experience does not guarantee that one is ready to take the exam without preparation. The average nurse spends three or more months preparing for the exam. Please use this handbook to guide you through the Course Outline and References. NCBORN offers a study guide and online practice test to help you identify key areas to focus your learning.

ADMINISTRATION

The Certification Program is sponsored by the National Certifying Board for Ophthalmic Registered Nurses (NCBORN). The Certification Examination for Ophthalmic Registered Nurses is administered for the NCBORN by the Professional Testing Corporation (PTC), 1350 Broadway - 17th Floor, New York, New York 10018, (212) 356-0660, www.ptcny.com. Questions concerning the examination should be referred to PTC.

ATTAINMENT OF CERTIFICATION AND RECERTIFICATION

Eligible candidates who pass the Certification Examination for Ophthalmic Registered Nurses are eligible to use the registered designation CRNO after their names and will receive certificates from the NCBORN or complete an application for recertification and meet the recertification requirements. A registry of Certified Ophthalmic Registered Nurses will be maintained by the NCBORN and may be reported in its publications.

Ophthalmic registered nurse certification is recognized for a period of five years at which time the candidate must retake and pass the current Certification Examination for Ophthalmic Registered Nurses or complete an application for recertification by continuing education and meet the recertification requirements. For further information on Recertification by Continuing Education, please visit the ASORN website at www.asorn.org/certification.

REVOCAION OF CERTIFICATION

Certification will be revoked for any of the following reasons:

1. Falsification of an Application.
2. Revocation of current Registered Nurse license.
3. Misrepresentation of certification status.

The Appeals Committee of the NCBORN provides the appeal mechanism for challenging revocation of Board Certification. It is the responsibility of the individual to initiate this process.

APPLICATION PROCEDURE

More information regarding the NCBORN Examination may be obtained from the Professional Testing Corporation's website: <http://ptcny.com/clients/NCBORN/index.html>.

You must apply for the Certification Examination for Ophthalmic Registered Nurses online at <https://secure.ptcny.com/apply/>.

Read and follow the directions on the Application and in this Handbook for Candidates.

COMPLETION OF APPLICATION

Candidates must complete the examination application in full, using your name exactly as it appears on your current government issued photo ID such as a driver's license or a passport. The completed application, with all documentation, must be submitted online at <https://secure.ptcny.com/apply/>.

FEES

Please note: Fees are NOT refundable.

Application fees for the Certification Examination for Ophthalmic Registered Nurses:

ASORN Members	\$325.00
Non-Members	\$425.00

Retesting fees for the Certification Examination for Ophthalmic Registered Nurses (only valid if retesting within two years of the previous exam):

ASORN Members	\$225.00
Non-Members	\$325.00

Additional Fees for International Candidates: Please see “International Testing” on Page 5 for more information.

Active members of the Nurses Organization of Veterans Affairs (NOVA) may sit for the Certification Examination for Ophthalmic Registered Nurses at a rate that is \$50 less than the non-member rate. Active NOVA members who are also ASORN members may not combine the discounts.

Professional Testing Corporation accepts Visa, MasterCard, and American Express

Receipts of credit card payment are emailed automatically.

REFUNDS

There will be no refund of fees. Fees will not be transferred from one testing period to another.

EXAMINATION ADMINISTRATION

The Certification Examination for Ophthalmic Registered Nurses is administered during an established two week testing period on a daily basis, Monday through Saturday, excluding holidays, at computer-based testing facilities managed by PSI. PSI has several hundred testing sites in the United States, as well as Canada. Scheduling is done on a first-come, first-serve basis. To find a testing center near you, visit <http://www.ptcny.com/cbt/sites.htm> or call PSI at (800) 733-9267. Please note: Hours and days of availability vary at different centers. ***You will not be able to schedule your examination appointment until you have received a Scheduling Authorization from notices@ptcny.com.***

TESTING SOFTWARE TUTORIAL

A testing tutorial document is available to view, free of charge, online. Please visit www.ptcny.com/cbt/demo.htm. This document can give you an idea about the features of online testing.

SCHEDULING YOUR EXAMINATION APPOINTMENT

Once your application has been received and processed and your eligibility verified, you will be sent an email from PTC confirming receipt of payment and acceptance of application. Within six weeks prior to the first day of the testing period, you will be sent a Scheduling Authorization via email from notices@ptcny.com. Please ensure you enter your correct email address on the application and add the 'ptcny.com' domain to your email safe list. If you do not receive a Scheduling Authorization at least three weeks before the beginning of the testing period, contact the Professional Testing Corporation at (212) 356-0660 for a duplicate copy.

You MUST present your current driver's license, passport, or U.S. military ID at the test center. Temporary, paper driver's licenses are not accepted. The name on your Scheduling Authorization must exactly match the name on your photo I.D. Call PTC at 212-356-0660 if you need a duplicate Scheduling Authorization or if your name is not correct.

The Scheduling Authorization will indicate how to schedule your examination appointment as well as the dates during which testing is available. Appointment times are first-come, first-serve, so schedule your appointment as soon as you receive your Scheduling Authorization in order to maximize your chance of testing at your preferred location and on your preferred date.

After you make your test appointment, PSI will send you a confirmation email with the date, time and location of your exam. Please check this confirmation carefully for the correct date, time and location. Contact PSI at (800) 733-9267 if you do not receive this email confirmation or if there is a mistake with your appointment.

- **It is your responsibility as the candidate to call PSI to schedule the examination appointment.**
- **It is highly recommended that you become familiar with the testing site prior to the test date.**
- **Arrival at the testing site at the appointed time is the responsibility of the candidate. Please plan for weather, traffic, parking, and any security requirements that are specific to the testing location. Late arrival may prevent you from testing.**

SPECIAL NEEDS

NCBORN and PTC support the intent of and complies with the Americans with Disabilities Act (ADA). PTC will take steps reasonably necessary to make certification accessible to persons with disabilities covered by the ADA. Special testing arrangements may be made upon receipt of the Application, examination fee, and a completed and signed Request for Special Needs Accommodations Form, available from www.ptcny.com or by calling PTC at (212) 356-0660. This Form must be uploaded with the online application at least EIGHT weeks before the testing period begins. Please use this Form if you need to bring a service dog, medicine, food or beverages needed for a medical condition with you to the testing center.

Only those requests made and received on the official Request for Special Needs Accommodations Form (found at www.ptcny.com) will be reviewed. Letters from doctors and other healthcare professionals must be accompanied by the official Form and will not be accepted without the Form.

Information supplied on the Request for Special Accommodations Form will only be used to determine the need for special accommodations and will be kept confidential

INTERNATIONAL TESTING

Candidates outside of the United States and Canada must complete and submit the Request for Special Testing Center Form found on the www.ptcny.com homepage. This form must be uploaded to your application no later than 8 weeks prior to the start of the chosen testing period. Fees for testing at an international computer test center (outside of the United States and Canada) are \$100.00 in addition to the examination fee. PTC will arrange a computer based examination at an international test center for you.

Please note that all examinations are administered in English.

CHANGING YOUR EXAMINATION APPOINTMENT

If you need to cancel your examination appointment or reschedule to a different date within the two-week testing period, you must contact PSI at (800) 733-9267 no later than noon, Eastern Standard Time, of the second business day PRIOR to your scheduled appointment. **Please note: PSI does not have the authority to authorize refunds or transfers to another testing period.**

RULES FOR THE EXAMINATION

1. All Electronic devices that can be used to record, transmit, receive, or play back audio, photographic, text, or video content, including but not limited to, cell phones, laptop computers, tablets, Bluetooth devices, wearable technology such as smart watches, MP3 players such as iPods, pagers, cameras and voice recorders are not permitted to be used and cannot be taken in the examination room. The test center may have lockers or you may be asked to lock your personal items in your car. For this reason, we suggest that you do not bring personal items with you, other than what is specifically needed for your examination.
2. No papers, books or reference materials may be taken into or removed from the testing room.
3. Simple, nonprogrammable calculators are permitted. A calculator is also available on screen if needed.
4. No questions concerning content of the examination may be asked during the examination session. The candidate should read carefully the directions that are provided on screen at the beginning of the examination session.
5. Candidates are prohibited from leaving the testing room while their examination is in session, with the sole exception of going to the restroom.
6. Bulky clothing, such as sweatshirts (hoodies), jackets, coats and hats, except hats worn for religious reasons, may not be worn while taking the examination.
7. All watches and "Fitbit" type devices cannot be worn during the examination. It is suggested that these items are not brought to the test center.

REPORT OF RESULTS

Candidates will be notified in writing by PTC within four weeks of the close of the testing period whether they have passed or failed the examination. Scores on the major areas of the examination and on the total examination will be reported. Successful candidates will also receive certificates from the NCBORN.

Decisions regarding certification may be appealed by filing written notification to the NCBORN office within 30 days of postmark of results notification.

REEXAMINATION

The Certification Examination for Ophthalmic Registered Nurses may be taken as often as desired upon filing of a new Application and fee. There is no limit to the number of times the examination may be repeated.

CONFIDENTIALITY

1. The NCBORN will release the individual test scores ONLY to the individual candidate.
2. Any questions concerning test results should be referred to NCBORN or the Professional Testing Corporation.

CONTENT OF EXAMINATION

1. The Certification Examination for Ophthalmic Registered Nurses is a computer-based examination composed of a maximum of 250 multiple-choice, objective questions with a total testing time of four (4) hours.
2. The content for the examination is described in the Content Outline starting on page 7.
3. The questions for the examination are obtained from individuals with expertise in ophthalmic registered nursing and are reviewed for construction, accuracy, and appropriateness by the NCBORN.
4. The NCBORN, with the advice and assistance of the Professional Testing Corporation, prepares the examination.
5. The Certification Examination for Ophthalmic Registered Nurses will be weighted in approximately the following manner:

I. OCCULAR CONDITIONS	15%
II. PHARMACOLOGY	20%
III. NURSING ASSESSMENT OF THE OPHTHALMIC PATIENT	25%
IV. OPHTHALMIC NURSING INTERVENTIONS AND PATIENT EDUCATION	30%
V. PROFESSIONAL ISSUES	10%

PRACTICE TEST

A practice test consisting of 75 questions with a testing time of 2 hours is available online in order to assist candidates in preparing for the Certification Exam.

The practice test is meant to provide candidates with an example of the type of content included in the Certification Exam for Ophthalmic Registered Nurses, such as question format, style, and level of difficulty.

The practice test can be found at the PTC website at: <http://www.ptcny.com/clients/NCBORN/#practicetest>

STUDY GUIDE

A Study Guide is available for purchase on the ASORN website, www.asorn.org/publications. The Study guide contains two practice exams of 250 questions each weighted similar to the CRNO exam, supplemental questions in each of the exam content areas, and question answers, with location, in ASORN publications.

CONTENT OUTLINE

I. OCULAR CONDITIONS

- A. Developmental
 - 1. Age-related
 - 2. Presbyopia
 - 3. Myopia
 - 4. Astigmatism
 - 5. Hyperopia
 - 6. Normal Anatomy
- B. Congenital and Hereditary
 - 1. Strabismus and Amblyopia
 - 2. Glaucoma
 - 3. Cataracts
 - 4. Retinoblastoma
 - 5. Retinopathy of Prematurity
 - 6. Marfan's Disease
 - 7. Retinitis Pigmentosa
 - 8. Other
- C. Systemic
 - 1. Endocrine
 - a. Diabetes
 - b. Graves' Disease
 - c. Thyroid Conditions
 - d. Pituitary Tumors
 - 2. Hypertension
 - 3. Multiple Sclerosis
 - 4. Myasthenia Gravis
 - 5. Rheumatologic Disorders
 - a. Lupus Erythematosus
 - b. Sjogren's Syndrome

- c. Temporal Arteritis
- d. Rheumatoid Arthritis
- e. Other
- 6. Acquired Immune Deficiency Syndrome (AIDS)
- 7. Other
- D. Acquired
 - 1. Lid Disorders
 - 2. Conjunctival Disorders
 - 3. Corneal Disorders

 - 4. Glaucoma
 - a. Narrow Angle
 - b. Open Angle
 - c. Low Tension
 - d. Ocular Hypertension
 - e. Neovascular
 - f. Secondary
 - g. Angle Closure
 - 5. Cataracts
 - 6. Retinal Disorders
 - 7. Macular Dysfunctions
 - 8. Neurological
 - 9. Inflammations and Infections
 - 10. Nutritional Deficiencies
 - 11. Lacrimal Disorders
 - 12. Pupillary Disorders
 - 13. Other
- E. Trauma
- F. Malignancies/Tumors

II. PHARMACOLOGY

- A. Administration Routes and Techniques
 - 1. Topical
 - a. Drops
 - b. Ointments
 - c. Other
 - 2. Injections
 - a. Intraocular
 - b. Retrobulbar
 - c. Intravenous
 - d. Subconjunctival
 - e. Other
 - 3. Oral
 - a. Hyperosmotics/Osmotics
 - b. Carbonic Anhydrase Inhibitors
 - c. Other
- B. Types and Effects of Drugs
 - 1. Mydriatics
 - 2. Antibiotics
 - 3. Miotics

4. Cycloplegics
5. Corticosteroids
6. Anesthetics
7. Nonsteroidal Anti-inflammatory
8. Hyperosmotics/Osmotics
9. Beta Blockers
10. Systemic
11. Antivirals
12. Lubricants
13. Carbonic Anhydrase Inhibitors
14. Diagnostics
15. Antimetabolites
16. Viscoelastics
17. Antivascular Endothelial Growth Factor
18. Prostaglandins
19. Other

III. NURSING ASSESSMENT OF THE OPHTHALMIC PATIENT

- A. Health History
 1. Patient Interviewing
 - a. Medical/Ocular History
 - b. Medication History
 - c. Problems and Findings
 - d. Family History
 - e. Allergies
 2. Laboratory Results
 3. Vital Signs
- B. Basic Diagnostic Tests and Techniques
 1. Visual Acuity
 - a. Snellen
 - b. Jaeger Near
 - c. Other Charts
 - d. Pinhole
 - e. Hand/Fingers
 - f. Other
 2. Color
 - a. Ishihara
 - b. Other
 3. Macular Function
 - a. Amsler Grid
 - b. Other
 4. Stereopsis
 5. Visual Field
 6. Muscle Function
 7. Keratometry
 8. Pachymetry
 9. Pupils
 10. Other
- C. Special Diagnostic Tests
 1. Patient Preparation
 2. Types of Procedures

- a. Angiography
 - b. Tonometry
 - c. Direct and Indirect Ophthalmoscopy
 - d. Ophthalmic Photography
 - e. Ultrasound
 - f. Tear Function
 - g. Slit Lamp Examination
 - 1) Gonioscopy
 - 2) Fundus
 - 3) Other
 - h. Specular Microscopy
 - i. Exophthalmometry
 - j. Corneal Topography
 - k. Ocular Imaging
 - l. Other
3. Complications
- D. Triage

IV. OPHTHALMIC NURSING INTERVENTIONS AND PATIENT EDUCATION

- A. Operative Procedures
- 1. Laser
 - a. YAG
 - b. Argon/Green
 - c. Excimer
 - d. Diode
 - e. Other
 - 2. Intraocular
 - a. Cataract Extractions
 - b. Glaucoma
 - c. Keratoplasties
 - d. Retinal-Vitreous Procedures
 - e. Foreign Body Removal
 - f. Evisceration
 - 3. Extraocular
 - a. Pterygium Excision
 - b. Chalazion Incision
 - c. Lesion Excision
 - d. Enucleation
 - e. Muscle Procedures
 - f. Lacrimal Procedures
 - g. Oculoplastics
 - h. Lids
 - i. Trauma
 - j. Cornea
 - k. Retinal Procedures
 - 4. Refractive
- B. Perioperative Procedures and Care
- 1. Supplies and Instrumentation
 - 2. Aseptic Technique
 - 3. Physiological Monitoring

- 4. Emotional Support
- 5. Other
- C. Discharge Planning
 - 1. Patient and Family Teaching
 - a. Activities of Daily Living (ADL) and Self-Care
 - b. Medications
 - c. Psychological Aspects
 - d. Other
 - 2. Ocular Dressings
 - 3. Wound Care
 - 4. Emergencies
- D. Complications
 - 1. Hemorrhage
 - 2. Corneal Abrasion
 - 3. Vasovagal Response
 - 4. Cardiac/Respiratory Arrest
 - 5. Retinal/Vitreous
 - 6. Intraocular Pressure
 - 7. Toxic Anterior Segment Syndrome
 - 8. Other
- E. Visual Impairment and Blindness
 - 1. Activities of Daily Living (ADL)
 - 2. Low Vision
 - 3. Community and National Resources
 - 4. Counseling
- F. Trauma

V. PROFESSIONAL ISSUES

- A. Ethics
- B. Legal Aspects
 - 1. Professional Practice
 - 2. Confidentiality
 - 3. Patient Rights and Informed Consent
 - 4. Release of Documentation
 - 5. Documentation
- C. Management and Supervision
 - 1. Staff
 - 2. Patient and Family
 - 3. Professional
 - 4. Materials and Equipment
- D. Patient and Staff Education
 - 1. Ocular Hygiene and Preventive Care
 - 2. Safety and Prevention
 - a. Ocular Trauma
 - b. Infection Control
 - c. Environmental Hazards
 - d. National Patient Safety Goals
- E. Patient Teaching
 - 1. Principles and Methods
 - 2. Disease Process

SAMPLE EXAMINATION QUESTIONS

In the following questions, choose the one best answer.

1. The patient with keratoconus is typically

1. female.
2. under 35.
3. over 55.
4. arthritic.

2. Epinephrine eyedrops may cause

1. diplopia.
2. corneal edema.
3. retinal detachment.
4. an attack of acute glaucoma.

3. Which of the following is the most common reason for patients to seek ophthalmic medical attention?

1. Painful eyes
2. A change in vision
3. Red and itching eyes
4. A discharge from the eyes

4. What is the best method for a nurse to assist a blind patient to ambulate?

1. Walk next to the patient with the nurse's arm around the patient's waist
2. Walk slightly behind the patient gently holding the patient's elbow
3. Hold both of the patient's hands and guide gently towards the nurse
4. Walk slightly ahead of the patient allowing the patient to hold the nurse's elbow

5. Patient phone calls regarding complaints and concerns should be

1. kept in a log near the phone.
2. documented on the patient record.
3. discussed at staff meetings for follow up.
4. documented only when the physician must be consulted.

CORRECT ANSWERS TO SAMPLE QUESTIONS

1. 2; 2. 4; 3. 2; 4. 4; 5. 2

REFERENCES

The National Certifying Board of Ophthalmic Registered Nurses has prepared a suggested reference list to assist in preparing for the Certification Examination for Ophthalmic Registered Nurses. These references contain journals and textbooks which include information of significance to ophthalmic nursing practice. Inclusion of certain journals and textbooks on this list does not constitute an endorsement by the NCBORN of specific professional literature which, if used, would guarantee candidates successful passing of the certification examination.

AAO. (American Academy of Ophthalmology). Ophthalmic Medical Assisting: An Independent Study Course. AAO: San Francisco, current edition. Available at www.aao.org.

AORN. (Association of periOperative Registered Nurses). Standards, Recommended Practices and Guidelines. AORN: Denver, current edition. Available at www.aorn.org/bookstore.

ASORN. (American Society of Ophthalmic Registered Nurses). Care and Handling of Ophthalmic Microsurgical Instruments. ASORN, San Francisco, 2016. Available at www.asorn.org.

ASORN. Essentials of Ophthalmic Nursing, Book 1-5. ASORN, San Francisco, 2014-2016. Available at www.asorn.org.

ASORN. Ophthalmic Procedures in the Office and Clinic. ASORN, San Francisco, 2017. Available at www.asorn.org.

ASORN. Ophthalmic Procedures in the Operating Room and Ambulatory Surgery Center. ASORN, San Francisco, 2016. Available at www.asorn.org.

ASORN. Standards of Ophthalmic Clinical Nursing Practice. ASORN, San Francisco, 2014. Available at www.asorn.org.

ASORN. Certified Registered Nurse in Ophthalmology Examination Study Guide. ASORN, San Francisco, 2016. Available at www.asorn.org.

Gerstenblith, A.T. & Rabinowitz, M.P. (Eds.). The Wills Eye Manual: Office & Emergency Room Diagnosis & Treatment of Eye Disease. Wolters Kluwer Health/Lippincott Williams & Wilkins, Philadelphia. 6th edition, 2012.

Elfervig, L.S., Caring for the Patient with Visual Disorders. Pp. 2016-2056. In K. Osborn, C. Wraa, A. Watson, & R. Holleran, (Eds.). Medical-Surgical Nursing: Preparation for Practice, Pearson, New Jersey, 2nd edition, 2014.

Marsden, J. (Ed.). An Evidence Base for Ophthalmic Nursing Practice. Wiley's, West Sussex, England. 2007.

Quick Drug Reference: Ocular Edition. Anadem Publishing, current edition

Smith, S.C., Management of Clients with Visual Disorders. Pp.1699-1719. In Black, J.M. & Hokanson, H.J. Medical-Surgical Nursing: Clinical Management for Positive Outcomes. Elsevier. Saunders, St. Louis, 8th edition, 2009.