This handbook contains applications and important information for ALL NBRC credentialing programs. You may wish to retain this information for future reference.

TABLE OF CONTENTS

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The NBRC

The National Board for Respiratory Care, Inc. (NBRC) is a voluntary health certifying board created in 1960 to evaluate the professional competence of respiratory therapists and pulmonary function technologists. The primary purposes of the NBRC are to prepare and conduct examinations to test the qualifications of candidates for certification and registration in defined areas of respiratory care. The NBRC also cooperates with respiratory care educational programs, evaluates the qualifications of candidates for certification and registration, and maintains a directory of those credentialed.

The NBRC is governed by a 31-member Board of Trustees comprised of representatives appointed by the NBRC's four sponsors: the American Association for Respiratory Care (AARC), the American College of Chest Physicians (ACCP), the American Society of Anesthesiologists (ASA) and the American Thoracic Society (ATS). A Public Advisor is also elected by the Board to provide a consumer perspective.

The NBRC is a member of the Institute for Credentialing Excellence (ICE), and the following examination programs are accredited by the National Commission for Certifying Agencies (NCCA): CRT, RRT, CPFT, RPFT, Neonatal/Pediatric Specialty and Sleep Disorders Specialty. Accreditation by NCCA is a recognition signifying unconditional compliance with stringent testing and measurement standards among national certification organizations. This recognition attests to the NBRC's continued efforts to maintain the quality and integrity of examination programs on behalf of the respiratory care profession.

This Handbook

This handbook was developed to help you apply and prepare for NBRC credentialing examinations. Collectively, it contains the NBRC's admissions and examination policies, applications for testing, and other important information about the content of the respective examinations. These materials in no way substitute for a thorough education or your commitment to study, but they can help you increase your confidence and ability to perform well on the examinations.

Detailed content outlines and instructions for applying for each NBRC examination are provided in the back of this handbook. Web-based practice examinations and self-assessment examinations for all NBRC multiple-choice examinations and a sample simulation problem are available on the NBRC's website at www.nbrc.org. The multiple-choice practice examinations and SAEs are equal in length and difficulty to the actual examinations.

The practice examination for the Clinical Simulation Examination is a one-problem simulation exercise. Candidates for the Clinical Simulation Examination (CSE) should be aware that the purpose of this practice simulation is to familiarize them with the format of the examination and the functionality of the software. The difficulty of this practice simulation is not a reflection of the difficulty of the simulations on the actual examination. Candidates are encouraged to review information elsewhere in this handbook for specific information about the content of the CSE.

Testing Agency

Applied Measurement Professionals, Inc. (AMP), a wholly owned subsidiary of the National Board for Respiratory Care, Inc., is engaged in educational and occupational measurement and provides examination development and administration to a variety of client organizations. Under an agreement with its parent corporation, AMP assists in the development of examinations and provides test administration services. References to the testing agency in this publication refer to AMP.

Nondiscrimination Policy

The NBRC does not discriminate among applicants on the basis of age, gender, race, religion, national origin, disability, marital status, or sexual orientation.

Special Examination Accommodations

The NBRC complies with the Americans with Disabilities Act and ensures that no disabled individual is deprived of the opportunity to take an examination solely by reason of that disability. Special examination arrangements may be made for these individuals. ***If you require special accommodations, complete the Request for Special Examination Accommodations form included in this handbook and submit it with your application.***

NBRC Examinations and Admissions Policies

All NBRC examinations are based on national job analysis research. Each examination is developed by a committee comprised of respiratory care practitioners or pulmonary function technologists and physicians whose knowledge and experience qualify them as content experts. Examination questions are solicited from educators and practitioners throughout the country; item writers are provided detailed instructions for developing appropriate questions. The questions are reviewed, revised, and approved by subject-matter consultants and members of the examination committees. The testing agency also reviews and edits the questions for conformity to testing and measurement principles and assists the examination committees in selecting and assembling final versions of the examinations.

All NBRC examinations have been validated. This research demonstrates that the examinations are predictive of job performance. Validation of the examinations was accomplished in accordance with standards put forth by the American Psychological Association and in compliance with the Uniform Guidelines on Employee Selection Procedures.

Pretesting on NBRC Examinations

Multiple-Choice Examinations

All NBRC multiple-choice examinations contain questions that are being pretested for use in future versions of the examinations. Pretesting questions allows examination committees to collect meaningful statistics about new questions that may appear as scored questions on future examinations. With pretesting methodology, examinees are ensured their scores are the result of sound measurement practices and that scored questions are reflective of current practice.

Pretesting is accomplished by interspersing new, untried questions throughout the examination. These questions are not scored as part of the candidate's credentialing examination, and they do not affect an individual's pass/fail status. The pretest questions are scattered throughout the examination so candidates will answer them with the same care they would questions to be scored, as part of the national examination. The statistical performance of the pretest questions is later evaluated, and questions which perform well can then be included on a future examination as scored questions.

To keep the credentialing examinations secure and reflective of current practice, new questions must continuously be developed and introduced in versions of the examination. Pretesting is an accepted psychometric practice and it assures candidates receive immediate scores using only previously used questions. The following table presents information about the number of pretest and scored questions in the NBRC multiple-choice credentialing examinations:

Examination	Total Questions		Candidates Must Answer
	Scored Questions	Pretest Questions	
CRT	140	20	160
RRT Written	100	15	115
NPS	120	20	140
SDS	160	20	180
ACCS	150	20	170
CPFT	100	15	115
RPFT	100	15	115

Clinical Simulation Examination (CSE)

Scores from the Clinical Simulation Examination (CSE) are based on responses to 10 problems. Up to two additional pretest problems are included but do not count in the scoring of the examination. Pretesting permits evaluation of problem fairness before use for credentialing purposes. Pretest problems are randomly embedded and are not identified in the examination, so candidates should complete all problems with the same level of effort. The time for candidates to complete the CSE is four hours.

CRT – Certification Examination for Entry-Level Respiratory Therapists

The Entry-Level CRT Examination is designed to objectively measure essential tasks required of entry-level respiratory therapists. The examination consists of 160 multiple-choice questions (140 scored questions and 20 pretest questions) distributed among three major content areas: patient data, equipment, and therapeutic procedures. Candidates will be given three hours to complete the Entry-Level CRT Examination.

CRT Examination for Entry-Level Respiratory Therapists Admission Policies

1. Applicants shall be 18 years of age or older.
2. Applicants shall have a minimum of an associate degree from a respiratory therapist education program 1) supported or accredited by the Commission on Accreditation for Respiratory Care (CoARC), or 2) accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and graduated on or before November 11, 2009.

   Or

3. Applicants enrolled in an accredited respiratory therapy program in an institution offering a baccalaureate degree may be admitted to the CRT Examination with a "special certificate of completion" issued by a sponsoring educational institution. The CoARC will authorize such institutions to issue the "special certificate of completion" at the advanced level following completion of the science, general academic and respiratory therapy coursework commensurate with the requirements for accreditation.

RRT – Registry Examination for Advanced Respiratory Therapists

The Registry Examination System was developed to objectively measure essential tasks required of advanced respiratory therapists and to set uniform standards for measuring such knowledge. The CRT credential is a prerequisite for admission to the Registry Examination. The RRT Examinations consist of a written portion and a clinical simulation portion; candidates must schedule separate examination appointments for each of these portions. However, candidates may attempt both parts on the same day, provided testing sessions are available. Individuals who attempt both parts of the examination and achieve passing scores will be awarded the Registered Respiratory Therapist (RRT) credential.

The ***Written Registry Examination for Advanced Respiratory Therapists*** consists of 115 multiple-choice questions (100 scored questions and 15 pretest questions) covering the recall, application, and analysis of patient data, equipment, and therapeutic procedures. Written Registry candidates will be given two hours to complete the examination.

The ***Clinical Simulation Examination (CSE)*** consists of 12 separate patient management problems (10 scored problems and up to two pretest problems). The clinical setting and patient situation for each problem are designed to simulate reality and be relevant to the clinical practice of respiratory care. Candidates will be given four hours to complete the CSE.

To ensure that each Clinical Simulation Examination is consistent in content, the 10 scored problems cannot be chosen at random. Such factors as problem length, patient type, disease process, degree of difficulty and content tested by individual problems must be considered.

A typical Clinical Simulation Examination will include the following:

A. Two problems involving adult patients with COPD; e.g., pre/postoperative evaluation, critical care management, mechanical ventilation, pulmonary function evaluation, home care/rehabilitation, infection control.
B. One or two problems involving adult trauma patients; e.g., chest/head/skeletal injury, burns, smoke inhalation, hypothermia.
C. One or two problems involving adult patients with cardiovascular disease; e.g., congestive heart failure, coronary artery disease, valvular heart disease, cardiac surgery.
D. One or two problems involving adult patients with neurological or neuromuscular disorders; e.g., myasthenia gravis, Guillain-Barré, tetanus, muscular dystrophy, drug overdose.
E. One problem involving a pediatric patient; e.g., epiglottitis, croup, bronchiolitis, asthma, cystic fibrosis, foreign body aspiration, toxic substance ingestion, bronchopulmonary dysplasia.
F. One problem involving a neonatal patient; e.g., delivery room management, resuscitation, infant apnea, meconium aspiration, respiratory distress syndrome, congenital heart defect.
G. Potentially one problem involving an adult patient with other medical or surgical conditions; e.g., thoracic surgery, head and neck surgery, carbon monoxide poisoning, obesity-hypoventilation, acquired immune deficiency syndrome (AIDS).

(IMPORTANT NOTE: Two pretest problem involving any one of the above patient types will also be included.)

Registry Examination for Advanced Respiratory Therapists Admission Policies

1. Applicants shall be 18 years of age or older.
2. Applicants shall satisfy ONE of the following educational requirements:
   a. Be a CRT and have a minimum of an associate degree* from a respiratory therapist education program 1) supported or accredited by the Commission on Accreditation for Respiratory Care (CoARC), or 2) accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and graduated on or before November 11, 2009.

*Graduates of accredited 100-level respiratory therapist education programs are not eligible for admission to the RRT Examination under this admission provision.

Or

b. Be a CRT having been enrolled in an accredited respiratory therapy program in an institution offering a baccalaureate degree offering a "special certificate of completion" issued by a sponsoring educational institution. The CoARC will authorize such institutions to issue the "special certificate of completion" at the advanced level following completion of the science, general academic and respiratory therapy coursework commensurate with the requirements for accreditation.

Or

c. Be a CRT with four years** of full-time clinical in respiratory therapy under licensed medical supervision following Certification and prior to applying for the Registry Examination. In addition, the applicant shall have at least 62 semester hours of college credit from a college or university accredited by its regional association or its equivalent. The 62 semester hours of college credit must include the following courses: anatomy and physiology, chemistry, microbiology, physics, and mathematics.

Or

e. Be a CRT having earned a minimum of an associate degree from an accredited entry-level respiratory therapist educational program with two years of full-time, clinical experience in respiratory care under licensed medical supervision following Certification and prior to applying for the examination.

Or

f. Be a CRT with a baccalaureate degree in an area other than respiratory care, including college credit level courses in anatomy and physiology, chemistry, mathematics, microbiology, and physics. In addition, the applicant shall have two years of full-time clinical experience‡ in respiratory care under licensed medical supervision following Certification and before applying for the examination. In addition, the applicant shall have at least 62 semester hours of college credit from a college or university accredited by its regional association or its equivalent.

** Individuals certified (CRT) prior to January 1, 1983, are required to complete only three years of clinical experience.

‡ Clinical experience in respiratory care under licensed medical supervision is interpreted as a minimum of 21 hours per week. Clinical experience must be completed before the candidate applies for this examination.

RRT Eligibility Time Limit

Effective January 1, 2005, new graduates of accredited advanced-level education programs will have three years after graduation to complete the RRT Examination. Individuals who do not earn the RRT credential within this time limit will be required to retake and pass the CRT Examination to regain eligibility, and any previous passing performance on a portion of the RRT shall be nullified. Following regaining eligibility by taking and passing the CRT Examination, the candidate will have another three (3) years to earn the RRT credential. The individual must apply as a new candidate and pay all applicable fees to take the RRT Examinations.

Neonatal/Pediatric Respiratory Care Specialty Examination

The Neonatal/Pediatric Respiratory Care Specialty Examination is designed to objectively measure essential tasks required of respiratory therapists in this specialty area. Achievement of the CRT credential plus one year of clinical experience in neonatal respiratory care or the RRT credential is required for admission to the Neonatal/Pediatric Specialty Examination. The examination consists of 140 multiple-choice items (120 scored items and 20 pretest items) distributed among three major content areas: clinical data, equipment and therapeutic procedures. Candidates will be given three hours to complete this examination.

Neonatal/Pediatric Respiratory Care Specialty Examination Admission Policies

1. Applicants shall be Registered Respiratory Therapists (RRT); or
2. Applicants shall be Certified Respiratory Therapists (CRT) with one year of clinical experience‡‡ in neonatal respiratory care following Certification.

‡‡ Clinical experience is defined as a minimum of 10 hours per week for a calendar year in neonatal respiratory care under the supervision of a Medical Director of respiratory care or a special care area acceptable to the Board. Clinical experience must be completed before the candidate applies for this examination.

Sleep Disorders Specialty Examination

The Specialty Examination for Respiratory Therapists Performing Sleep Disorders Testing and Therapeutic Intervention is designed to objectively measure essential knowledge, skills and abilities required of respiratory therapists in this specialty area.

The examination consists of 180 multiple choice questions (160 scored items and 20 pretest items) distributed among five major content areas: Pretesting, Sleep Disorders Testing, Study Analysis, Administrative Functions, and Treatment Plan. Candidates will be given four hours to complete this examination, and should expect to find polygraphic tracings based on old and new recording guidelines.

Specialty Examination for Respiratory Therapists Performing Sleep Disorders Testing and Therapeutic Intervention Admission Policies

1. Be a CRT or RRT having completed a CoARC or CAAHEP accredited respiratory therapist program including a sleep add-on track;

Or

2. Be a CRT with 6 months of full time* clinical experience following Certification in a sleep diagnostics and treatment setting under medical supervision (MD, DO, or PhD);

Or

3. Be an RRT with 3 months of full time* clinical experience following Certification in a sleep diagnostics and treatment setting under medical supervision following Certification (MD, DO, or PhD).

* Full time experience is defined as a minimum of 21 hours per week per calendar year in a sleep diagnostics and treatment setting under medical supervision following Certification (MD, DO, or PhD) acceptable to the Board. Clinical experience must be completed before the candidate applies for this examination.

Adult Critical Care Specialty Examination

The Adult Critical Care Specialty Examination is designed to objectively measure essential knowledge, skills and abilities required of respiratory therapists in this specialty area. Achievement of the RRT credential plus one year of clinical experience in an adult critical care setting is required for admission to the Adult Critical Care Specialty Examination. This examination consists of 170 multiple-choice items (150 scored items and 20 pretest items) distributed among two major content areas: respiratory critical care and general critical care. Candidates will be given four hours to complete this examination.

Adult Critical Care Specialty Examination Admission Policy

1. Be an RRT with at least one year of full-time clinical experience* in a critical care setting (e.g., intensive care unit, emergency room, post-anesthesia recovery unit, long-term acute care setting).

*Full time experience is defined as a minimum of 21 hours per week per calendar year in a critical care setting under medical supervision following Certification (MD, DO or PhD) acceptable to the Board. Clinical experience must be completed before the candidate applies for this examination.

CPFT – Certification Examination for Entry-Level Pulmonary Function Technologists

The Entry-Level CPFT Examination is designed to objectively measure essential tasks required of entry-level pulmonary function technologists at beginning practice. The examination consists of 115 multiple-choice questions (100 scored questions and 15 pretest questions) distributed among three major content areas: instrumentation/equipment, diagnostic procedures, and data management. Candidates will be given two hours to complete the CPFT Examination.

Certification Examination for Entry-Level Pulmonary Function Technologists Admission Policies

1. Applicants shall be 18 years of age or older.
2. Applicants shall satisfy ONE of the following:
   a. Have a minimum of an associate degree from a respiratory therapist education program 1) supported or accredited by the Commission on Accreditation for Respiratory Care (CoARC), or 2) accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and graduated on or before November 11, 2009.

   Or

   b. Be a Certified Respiratory Therapist (CRT) credentialed by the NBRC.

   Or

   c. Be a Registered Respiratory Therapist (RRT) credentialed by the NBRC.

   Or

   d. Complete 62 semester hours of college credit from a college or university accredited by its regional association or its equivalent, including college credit level courses in biology, chemistry, and mathematics. A minimum of six months of clinical experience* in the field of pulmonary function technology under the direction of a Medical Director of a pulmonary function laboratory or a special care area is also required prior to applying for the examination.

   Or

   e. Be a high school graduate (or the equivalent) and complete two years of clinical experience* in the field of pulmonary function technology under the direction of a Medical Director of a pulmonary function laboratory or a special care area prior to applying for the examination.

* Clinical experience is defined as a minimum of eight hours per week for a calendar year in pulmonary function technology under the supervision of a Medical Director of a pulmonary function laboratory or a special care area acceptable to the Board. Clinical experience must be completed before the candidate applies for this examination.

RPFT – Registry Examination for Advanced Pulmonary Function Technologists

The RPFT Examination is designed to objectively measure essential tasks required of an advanced pulmonary function technologist. The CPFT credential is a prerequisite for admission to the RPFT Examination. The examination consists of 115 multiple-choice questions (100 scored questions and 15 pretest questions) distributed among three major content areas: instrumentation/equipment, diagnostic procedures, and data management. Candidates will be given two hours to complete this examination.

Registry Examination for Advanced Pulmonary Function Technologists Admission Policies

1. Applicants shall be 18 years of age or older.
2. Applicants shall be Certified Pulmonary Function Technologists (CPFT)* credentialed by the NBRC prior to applying for the examination.

* Individuals who successfully completed the CCPT Examination with a specialty in Pulmonary Technology previously offered by the National Society for Cardiovascular and Pulmonary Technology (NSCPT) or the National Board for Cardiovascular and Pulmonary Credentialing (NBCPC) were recognized as CPFTs by the NBRC in July 1984 and are eligible for the RPFT Examination. To apply for the RPFT Examination, these individuals must submit a photocopy of their CCPT certificate with their application and fee.

Education and Clinical Experience Requirements

Education

In enforcing the requirement of 62 semester hours of college credit, the NBRC will accept credit hours obtained at any public or private post-secondary vocational and/or technical school or institution, community or junior college, or university accredited by an agency recognized by either the Council for Higher Education (CHEA) or by the U.S. Department of Education (USDE), provided the course work is listed on an official transcript reflecting either semester hours or quarter hours of credit. All course work must be completed before applying for the examination.

Verification of Clinical Experience

Eligibility requirements for the RRT, Neonatal/Pediatric Specialty, Sleep Disorders Specialty, Adult Critical Care Specialty, and CPFT Examinations contain admissions provisions which specify varying amounts of clinical experience; these varying requirements are supported by national research conducted when the respective credentialing programs were implemented. Completion of the required length of clinical experience by the time of application for testing must be verified by the candidate's Medical Director in Section VI of the application. The following definitions of Medical Directors are provided to help applicants identify the appropriate professional required to document their clinical experience.

The **Medical Director of a Respiratory Care Department/Service** shall be a licensed physician member of the active medical staff who has special interest and knowledge in the diagnosis, treatment, and assessment of respiratory problems and shall be responsible for the quality of respiratory care services provided in the inpatient, ambulatory care and/or home care settings. The physician shall be accountable to the medical staff and to the hospital administration for activities within the department.

In those instances where a respiratory care practitioner is actively employed in an area not under the direction of the Respiratory Care Department/Service, verification of clinical experience/active employment may be accomplished by one of the following:

Medical Director of a Special Care Area – shall be a licensed physician member of the active medical staff who is knowledgeable in the diagnosis, treatment, and assessment of respiratory problems and shall be responsible for the quality of respiratory care or pulmonary function technology services provided. The physician shall be accountable to the medical staff for activities within the Special Care Area.

Medical Director of a Home Care/Ambulatory Service – shall be a licensed physician knowledgeable in the diagnosis, treatment, and assessment of respiratory problems. The physician shall be responsible through the generation of appropriate policies for assuring that the quality of care provided to home care patients is comparable to that provided to inpatients, hospital ambulatory care patients, and emergency care patients in hospitals and that each patient receiving respiratory home care services is under the care of a licensed physician who has the primary responsibility for the patient's care. The physician shall have authority at the policy-making level of the company to carry out this responsibility.

Continuing Competency Program (CCP) Requirements

All individuals credentialed by the NBRC on or after July 1, 2002, are required to participate in the Continuing Competency Program (CCP). Individuals credentialed prior to July 1, 2002, are not required to participate, and may choose to do so voluntarily, but their original credential will remain in effect. The policies governing the program follow:

I. **Length of Initial Credentialing Period:** Effective July 1, 2002, all credentials issued by the NBRC will be awarded for a term of five years, calculated from the end of the calendar month in which the credential was issued. An exact expiration date will be contained on credentialing certificates, clearly indicating the requirement that the individual renew the credential through the CCP.

II. **Continuing Competency Program Options:** Individuals have the following three options from which to choose in renewing their credentials for an additional five years beyond their initial credentialing date:

A. Provide proof of completion of a minimum of 30 hours of Category I Continuing Education (CE) acceptable to the NBRC.

"Category I" Continuing Education is defined as participation in an educational activity directly related to respiratory therapy or pulmonary function technology which includes any one of the following:

1. Lecture – a discourse given for instruction before an audience or through teleconference.
2. Panel – a presentation of a number of views by several professionals on a given subject with none of the views considered a final solution.
3. Workshop – a series of meetings for intensive, hands on, study or discussion in a specific area of interest.
4. Seminar – a directed advanced study or discussion in a specific field of interest.
5. Symposium – a conference of more than a single session organized for the purpose of discussing a specific subject from various viewpoints and by various presenters.
6. Distance Education – includes such enduring materials as text, Internet, or CD, provided the proponent has included an independently scored test as part of the learning package.

The NBRC intends for the completion of continuing education credit to coordinate with the requirements of state licensure agencies. Individuals can use the same continuing education hours to satisfy state requirements as well as NBRC Continuing Competency Program requirements. Individuals may also use AARC-CRCE credit to fulfill the NBRC Continuing Competency Program requirements. Continuing education information must be submitted online at www.nbrc.org.

Or

B. Retake the respective examination(s) for the credential being renewed and achieve a passing score.

Individuals may take the recredentialing examination anytime during the five-year period. The new five-year recredentialing period will begin as of the date of passing the examination.

Individuals holding multiple NBRC credentials, and who elect to recredential through the examination option, must do so by passing the examination for the highest level credential held that is subject to the CCP.

Or

C. Pass another NBRC credentialing examination not previously completed.

Passing an NBRC credentialing examination, not previously completed, shall automatically extend the recredentialing period of all of the other credentials held by the applicant for an additional five years, calculated from the date of the additional credentialing examination just passed. The result of this policy will be that the credentials held by this individual will each expire on the same date, allowing recredentialing for all credentials held to occur simultaneously in the future.

Individuals who hold NBRC credentials completed prior to July 1, 2002, and who pass an NBRC credentialing examination, not previously completed, after July 1, 2002, shall be required to participate in the CCP only for the credential achieved after July 1, 2002, and may voluntarily participate for all other credentials held. Credentials achieved prior to July 1, 2002, shall not be impacted by this program.

What to do if your credential expires:

- If you are within 6 months of credential expiration, you have the option of entering your CEUs online and paying a $250 reinstatement fee. Please note: this is a completely online process and CEUs must have been earned during the 5-year credential term.
- If the grace period option is not utilized, you have two years following expiration to apply for testing and to reinstate your credential. You will be required to pay the new application fee and a $150 expired credential fee. If you successfully complete the examination, your credential will be reinstated without having to meet the then-current admission requirements. However, if two years lapse and you have not successfully passed the examination, you are required to apply as a new applicant and meet all admission policies in effect at that time. Please note: if you have more than one expired credential, you must apply for and pass all examinations to reinstate all expired credentials.

Why do I need to comply?

In order to maintain each credential you have earned subject to the CCP, you must follow one of the three methods for compliance. Once credentials expire, they can no longer be used because they are federally registered trademarks that are reserved for the use by those individuals who successfully complete the examination(s) and participate in the mandatory Continuing Competency Program. This means that any use of this credential designation, whether using it to sign a patient chart or medical document, applying for a state license as an individual holding the credential, or seeking employment as a therapist with the credential, violates the NBRC's Judicial and Ethics Policies and can result in disciplinary action by the Board.

The status of your credential may also affect your state-issued license to practice respiratory care. Many states require that you hold an active credential in order to maintain your license. By allowing your credential(s) to expire, you may be putting your license to practice and your livelihood at risk. If you believe your credential is at risk for expiration, you are encouraged to check with your state licensure agency to confirm the requirements of maintaining your license. A directory of all state licensure agencies can be found on our website.

Voluntary Recredentialing

Individuals credentialed prior to July 1, 2002 are not required to participate in the NBRC Continuing Competency Program and may choose to voluntarily recredential.

The NBRC has a voluntary recredentialing program and encourages all credentialed practitioners to retake their respective examinations periodically to assess their competencies against current standards. These examinations are offered at reduced fees for practitioners maintaining active status with the NBRC. The NBRC allows individuals to attempt an examination for recredentialing every three years or when the content of an examination is revised. Requests for exceptions to this policy for state licensing or reinstatement of eligibility for the RRT Examination will be considered on an individual basis.

Individuals applying for an examination for recredentialing should submit the standard examination application and indicate their status as a candidate for recredentialing by checking the appropriate box. Individuals who demonstrate professional competency by passing an NBRC Examination for recredentialing receive a certificate recognizing them as recredentialed. The American Association for Respiratory Care (AARC) awards CRCE credit for successful completion of an NBRC Examination for recredentialing and many states accept recredentialing as completion of some or all of the requirements for license/certificate renewal.

Examination	No. of CRCEs Awarded
Entry-Level CRT	10
Entry-Level CPFT	10
Neonatal/Pediatric Specialty	10
Sleep Disorders Specialty	10
RPFT	10
RRT (Written and Clinical Simulation)	15

NBRC and State Credentialing

The NBRC cooperates with states that have enacted legislation to regulate the practice of respiratory care. To ensure the value and recognition of the voluntary national credentials, the NBRC has adopted policies that permit the Entry-Level CRT Examination to be administered on behalf of state agencies for legal credentialing. Candidates for state credentialing apply according to procedures established by the state; questions concerning legal credentialing should be directed to the responsible state agency.

Eligible candidates may attempt the examination simultaneously for voluntary NBRC Certification and state credentialing without payment of an additional fee. The NBRC mails correspondence to state credentialing candidates advising them of the procedures to follow for documenting their eligibility for the CRT credential. Candidates must submit proof of graduation from an accredited respiratory care education program and complete an Entry-Level CRT Examination application form.

Candidates who believe they are eligible for state credentialing and voluntary NBRC Certification should carefully read all correspondence mailed to them. **It is the candidate's responsibility to ensure all required documents are submitted to the NBRC, even if the same information has already been submitted to a state; state agencies do not forward proof of a candidate's eligibility to the NBRC. Failure to follow the required application procedures will result in a candidate for state credentialing not receiving the CRT credential, even though a passing score may be achieved on the examination.** Candidates with questions about taking the Entry-Level CRT Examination simultaneously for state credentialing and NBRC Certification should contact the NBRC Executive Office.

Application Procedures and Examination Policies

Filing Your Application and Notification of Eligibility

NBRC examinations are administered by computer at more than 170 sites across the United States and Internationally. Examinations are administered by appointment only Monday through Saturday at 9:00 AM and 1:30 PM. There are no application deadlines and candidates who meet the admission requirements for an examination may submit their applications at any time. An application is included in the back of this handbook. It is YOUR responsibility to ensure that the application and all supporting documents have been properly completed and that the information provided is accurate. Your careful attention will enable prompt and efficient processing. Applications that are found to contain inaccurate or untruthful responses may be denied. **Ineligible applications will be returned, less a $50 processing fee.** When the admission requirements are satisfied, applicants may register by one of the following methods:

1. **Apply and/or schedule online.**

   Visit the NBRC's website at www.nbrc.org to complete an application online. Once you complete the online application process you will receive an immediate response from the NBRC. You will either be notified of additional information required to complete the application process or you will be prompted to schedule your examination appointment.

   Online application submission is available for all individuals paying the examination fee by credit card (VISA, MasterCard, American Express, and Discover).

   Or

2. **Mail your application form. THIS IS A TWO-STEP PROCESS**

   A. Complete all sections of the application form. Mail it to the NBRC with the required documentation and examination fee (paid by credit card, personal check, cashier's check, or money order) to the address indicated on the form. The NBRC recommends using certified mail or a certificate of mailing and keeping your receipt as proof that your application was sent to the NBRC. However, sending your application by express mail does not mean that it will be processed in an express manner.

   Within approximately two weeks after receipt by the NBRC, your application will be processed and a confirmation notice of eligibility sent. If eligibility cannot be confirmed, a letter explaining why the application is incomplete will be sent. If you do not receive a confirmation of eligibility or an incomplete notice from the NBRC within four weeks after mailing your application, contact the NBRC. If your application is not on file, you will be asked to send a replacement application form and fee.

   AND

   B. The confirmation notice will contain a toll-free telephone number and website address for you to schedule an examination appointment. This toll-free line is answered from 7:00 AM to 9:00 PM (Central Time) Monday through Thursday, 7:00 AM to 7:00 PM on Friday, and 8:30 AM to 5:00 PM on Saturday. Appointments can be scheduled online, 24 hours a day, 7 days a week.

Holidays

Examinations will not be offered on the following holidays:

January 1, 2013 – New Year's Day
January 21, 2013 – Martin Luther King Jr. Day
February 18, 2013 – President's Day
March 29, 2013 – Good Friday
May 27, 2013 – Memorial Day
July 4-5, 2013 – Independence Day
September 2, 2013 – Labor Day
October 14, 2013 – Columbus Day
November 11, 2013 – Observance of Veteran's Day
November 28-29, 2013 – Thanksgiving Holiday
December 24-26, 2013 – Christmas Holiday
December 31, 2013-January 1, 2014 – New Year's Holiday

All individuals are scheduled for examination appointments on a first-come, first-served basis. Refer to the following chart:

If you call the NBRC to schedule an examination appointment before 3:00 PM Central Time on...	Depending upon availability, your examination may be scheduled beginning...
Monday	Wednesday
Tuesday	Thursday
Wednesday	Friday/Saturday
Thursday	Monday
Friday	Tuesday

Application Expiration

Once you submit an application and are deemed eligible, your eligibility to take an examination is valid for 90 calendar days. If you fail to schedule an examination appointment within the 90-day period, you will forfeit the application and all fees paid to take the examination. A complete application and examination fee are required to reapply for examination.

Name and Address Change

If you move or change your name, you should immediately notify the NBRC. Address changes may be submitted online at www.nbrc.org or by email at nbrc-info@nbrc.org.

Examination Fees

	New Applicant Fee	Reapplicant Fee	Recredentialing Fee	
			Active	Inactive
CRT	$190	$150	$75	$150
RRT Written Only	$190	$150	$75	$150
RRT CSE Only	$200	$200	$125	$200
RRT Both	$390	$350	$200	$350
CPFT	$200	$170	$75	$170
RPFT	$250	$220	$75	$220
NPS	$250	$220	$75	$220
SDS	$300	$250	$75	$250
ACCS	$300	$250	$75	$250

Expired Credential Application Fee – A one-time compliance fee of $150 per examination type is required for each examination type of a previously held credential that has since expired.

A $50 discount will be offered to those who apply for the RRT Examinations (both portions) within sixty (60) days of earning the CRT credential, and similarly, a $50 discount to RPFT candidates who apply for the RPFT Examination within sixty (60) days of earning the CPFT credential. NPS candidates who apply for this specialty examination within sixty (60) days of earning the RRT credential will also receive a $50 discount off the examination fee.

Examination fees may be submitted by credit card (VISA, Mastercard, American Express, and Discover), personal check, cashier's check, or money order payable to NBRC. Do not send cash. If you submit a money order or cashier's check, keep your receipt as proof of payment. Postdated checks are not an acceptable form of payment. **A $50 nonrefundable processing fee is included in the application fee.**

A $25 fee will be charged for any declined credit card or check returned unpaid to the NBRC for any reason. You must send a certified check or money order for the amount due, including the NSF fee, to the NBRC to cover returned checks or declined credit card transactions.

Transfer and Refund of Fees

The NBRC's policies regarding transferring and/or refunding examination fees are:

- Candidates deemed ineligible for an examination will receive a refund of their application fee, less a $50 processing fee.
- Candidates who do not schedule an examination appointment within 90 days from the date their eligibility is confirmed will forfeit their entire application fee and must reapply and resubmit the application fee.
- Candidates may transfer their examination appointment on **one** occasion to another date (within the 90-day eligibility period) without penalty by contacting the NBRC at least **two** business days prior to their scheduled appointment. Holidays are not considered business days. See following table:

If your examination is schedule on...	You must call the NBRC by 3:00 PM Central Time to change your reservation by the *previous*...
Monday	Wednesday
Tuesday	Thursday
Wednesday	Friday
Thursday	Monday
Friday	Tuesday

- Candidates who are hospitalized or experience a death in the immediate family that prevents them from attempting the examination, may transfer their examination fees and reschedule the examination appointment. This policy is strictly enforced, and proof of the candidate's hospitalization or a death in the immediate family is required. After approval by the NBRC, the candidate may schedule another appointment for the examination.
- Candidates who fail to appear for an examination appointment or arrive at the Assessment Center more than 15 minutes late for their appointment will not be tested, will not receive a refund, and cannot transfer their fees to a future examination appointment. Individuals who are late or miss an examination appointment will be required to submit another application and fee.

Assessment Center Locations/Facilities

Assessment Centers have been selected to provide accessibility to the most candidates in all states and major metropolitan areas. Specific driving directions and maps for each AMP Assessment Center location are available on the NBRC's website at www.nbrc.org.

The NBRC and the testing agency are concerned with providing the best Assessment Center facilities possible for candidates attempting NBRC examinations. Candidates can assist the NBRC and the testing agency in this endeavor by answering the questions about the examination environment and facilities following the examination questions in the computerized examination.

International Examinations

Candidates who qualify for NBRC examinations and request testing in international locations will be accommodated through web-based technology and given computerized examinations in a testing environment similar to the conditions available through the NBRC's national Assessment Center Network. Please refer to our website for a current listing of International testing centers.

Candidates who desire to take an examination outside the United States should submit a written request containing the desired date of testing and preferred location along with the required additional $150 fee with their application. Please note that active Military Personnel deployed overseas are not required to pay the $150 foreign test center fee.

Inclement Weather

In the event of inclement weather or unforeseen emergencies on the day of an examination, the NBRC and AMP will determine whether circumstances warrant the cancellation, and subsequent rescheduling, of an examination at a particular Assessment Center. The examination will usually not be rescheduled if the proctor is able to open the Assessment Center.

Candidates may visit AMP's website at www.goAMP.com prior to the examination to determine if AMP has been advised that any Assessment Centers are closed. Every attempt will be made to administer all examinations as scheduled. However, should an examination be canceled at an Assessment Center, all scheduled candidates will be contacted about rescheduling their examinations. Candidates may also contact the AMP Assessment Center hotline at 1-800-380-5416.

Release of Information

The NBRC and its testing agency are committed to protecting the confidentiality of candidates' records and have adopted policies to ensure their privacy. Information about candidates for credentialing and their examination results are not released by telephone under any circumstances. However, nothing in these policies prohibits transfer of data in the custody of the testing agency to the NBRC. Candidates' examination results and credentialing status may be released to state licensure agencies, accredited respiratory care education programs, and the Commission on Accreditation for Respiratory Care (CoARC).

Verification of Scores

In computer-delivered testing, the computer accepts responses from a keyboard or mouse in digitized form. As a result, computer-administered testing eliminates problems that may have previously arisen with scanning paper-and-pencil answer sheets, since all responses are recorded by candidates during their examinations. However, verification of examination scores from electronic responses can be requested in writing for a fee of $15 for multiple-choice examinations and $25 for the Clinical Simulation Examination. Requests must be submitted to the NBRC, in writing, within 12 months after the examination.

Duplicate Score Reports

Candidates may purchase additional copies of their score reports at a cost of $25 per copy. Requests must be submitted to the NBRC, in writing, within 12 months after the examination. The request must include the candidate's name, Social Security number, mailing address, telephone number, date of examination, and the examination taken. Submit this information with the required fee payable to the NBRC. Duplicate score reports will be mailed within approximately two weeks after receipt of the request and fee.

Cancellation of Scores

The NBRC and its testing agency are concerned with only reporting valid scores. On rare occasions, circumstances may make examination scores invalid. The NBRC and/or its testing agency reserve the right to cancel or withhold any examination scores if, in their sole opinion, there is cause to question the validity of the scores. Scores declared invalid and canceled by the NBRC and/or its testing agency may be grouped into two categories:

1. Doubts may be raised about the validity of candidates' scores because of suspected misconduct; in such circumstances, candidates are to cooperate with the investigation of their scores. If scores are canceled because of suspected candidate misconduct, the NBRC will investigate such matters to determine if candidates will be eligible for re-examination.
2. Some scores may be rendered invalid because of circumstances beyond the candidate's control, such as mistiming. The testing agency will investigate such situations. When such occurrences result in canceling candidates' scores, the NBRC is notified that there are no reportable scores for reasons beyond the candidates' control. In this event, the testing agency arranges a free make-up examination for all candidates concerned.

In addition to the reasons listed in this section, the NBRC may cancel or invalidate examination results if, upon investigation, NBRC policies outlined in this publication are found to have been violated.

Appeals

The NBRC provides an appeal mechanism for challenging denial of admission to the examination or revocation of certification. It is the responsibility of the individual to initiate the appeal process by written request to the Admissions Committee. Please send written requests to the NBRC Executive Office, 18000 W. 105th Street, Olathe, KS 66061-7543.

Inactive Eligibility Records

An application on file in the Executive Office shall be considered inactive after a period of one year has elapsed without the applicant being scheduled for an examination or providing any indication of a desire to attempt an examination. When a file is inactivated, all application fees shall be forfeited and the candidate shall be required to submit a new application and fee and to provide documentation of eligibility under current admission policies to re-enter the NBRC examination system. Candidates whose eligibility records for the RRT Examination become inactivated will have any previous passing performance on a portion of the RRT nullified and will have to repeat and successfully complete both portion(s) to earn the RRT credential.

NBRC Judicial and Ethics Policies

Applications for NBRC examinations may be refused if the NBRC receives evidence to indicate applicants may have committed any of the following violations:

1. Obtaining or attempting to obtain Certification, Registration, Recertification, or Reregistration by fraud, deception, or artifice.
2. Knowingly assisting another person or other persons in obtaining or attempting to obtain Certification, Registration, Recertification, or Reregistration by fraud, deception, or artifice.
3. Unauthorized use of a Certification or Registry certificate or falsification of credentials, or any other NBRC documents.
4. Unauthorized possession and/or distribution of any official NBRC testing or examination materials to include copying and/or reproduction of any part of NBRC examination questions or problems.
5. Credentialed practitioners and/or examination candidates may be disciplined for offenses directly related to their practice of respiratory therapy and/or pulmonary function technology which gives cause to question the individual's ability to practice in a safe and competent manner. Such offenses include, but are not limited to:
   a. Conviction in a court of law, after all appeals have been exhausted, of a drug or alcohol-related offense in connection with the individual's practice.
   b. Conviction in a court of law, after all appeals have been exhausted, of a job-related offense indicating the individual's intentional negligence and/or purposeful misconduct that results in endangering the health and/or safety of a patient.
   c. Conviction in a court of law, after all appeals have been exhausted, of an act of physical violence (murder, assault, rape, robbery, etc.) that would cause question as to the individual's ability to appropriately interact with patients and others on the job.
   d. Revocation or denial of a license to practice respiratory therapy and/or pulmonary function technology, or another health related profession, by an authorized state agency due to:
      1. a drug or alcohol-related offense in connection with the individual's practice.
      2. a job-related offense indicating the individual's intentional negligence and/or purposeful misconduct that results in endangering the health and/or safety of a patient.
      3. an act of physical violence (murder, assault, rape, robbery, etc.) that would cause question as to the individual's ability to appropriately interact with patients and others on the job.
   e. Voluntary surrender of a license to practice respiratory therapy and/or pulmonary function technology, or another health related profession, by a credentialed individual and/or examination candidate to an authorized state agency after the filing of a complaint proceeding by an authorized state agency alleging:
      1. a drug or alcohol-related offense in connection with the individual's practice.
      2. a job-related offense indicating the individual's intentional negligence and/or purposeful misconduct that results in endangering the health and/or safety of a patient.
      3. an act of physical violence (murder, assault, rape, robbery, etc.) that would cause question as to the individual's ability to appropriately interact with patients and others on the job.
   f. Use of any authorized designation (RRT, CRT, RPFT, CPFT, CRT-NPS, RRT-NPS, CRT-SDS, RRT-SDS, RRT-ACCS) in any unauthorized manner, including, but not limited to, disparaging usage or usage for commercial gain.

If the NBRC determines that any evidence warrants additional consideration, applicants will be notified and will have an opportunity to present information on their behalf. Upon receiving information from all parties involved, the Judicial & Ethics Committee will either issue a decision or recommend that a formal hearing be conducted and a final decision made by the Judicial and Ethics Committee.

The Day of the Examination

Report to the AMP Assessment Center no later than your scheduled testing time; ANYONE WHO ARRIVES MORE THAN 15 MINUTES AFTER THEIR SCHEDULED TESTING TIME WILL NOT BE ADMITTED.

To gain admission to the Assessment Center, you need to present two forms of identification, one with a current photograph. Both forms of identification must be current and include your current name and signature. You will also be required to sign a roster for verification of identity.

Bring two pieces of identification including ONE of the following:

1. driver's license with photograph
2. state identification card with photograph
3. passport
4. military identification card with photograph

The second form of identification must display your name and signature for signature verification.

YOU MUST PRESENT PROPER IDENTIFICATION TO GAIN ADMISSION TO THE ASSESSMENT CENTER.

Please note: A temporary driver's license or any other temporary form of identification (e.g., employment and student I.D. cards) are not acceptable.

After your identification has been verified, you will be directed to the examination room and assigned to a testing computer. You will be instructed to enter your Social Security number on the computer screen, and take your photograph. This photograph will appear in the upper right corner of the computer screen during your examination, and it will be printed on your score report.

Security

AMP administration and security standards are designed to ensure all candidates are provided the same opportunity to demonstrate their abilities. The Assessment Center is continuously monitored by audio and video surveillance equipment for security purposes.

The following security procedures apply during the examination:

- Examinations are proprietary. No cameras, notes, tape recorders, Personal Digital Assistants (PDAs), pagers or cellular phones are allowed in the testing room. Possession of a cellular phone or other electronic devices is strictly prohibited and will result in dismissal from the examination.
- No calculators are permitted.
- No guests, visitors or family members are allowed in the testing room or reception areas.

Personal Belongings

No personal items, valuables, or weapons should be brought to the Assessment Center. Only wallets and keys are permitted. Coats must be left outside the testing room. You will be provided a soft locker to store your wallet and/or keys with you in the testing room. You will not have access to these items until after the examination is completed.

Please note the following items will not be allowed in the testing room except securely locked in the soft locker.

- watches
- hats
- cell phones or personal communication devices

Once you have placed everything into the soft locker, you will be asked to pull your pockets out to ensure they are empty. If all personal items will not fit in the soft locker you will not be able to test. The site will not store any personal belongings.

If any personal items are observed in the testing room after the examination is started, the administration will be forfeited.

Examination Restrictions

- Pencils will be provided during check-in.
- You will be provided with one piece of scratch paper at a time to use during the examination, unless noted on the sign-in roster for a particular candidate. You must return the scratch paper to the supervisor at the completion of testing, or you will not receive your score report.
- No documents or notes of any kind may be removed from the Assessment Center.
- No questions concerning the content of the examination may be asked during the examination.
- Eating, drinking or smoking will not be permitted in the Assessment Center.
- You may take a break whenever you wish, but you will not be allowed additional time to make up for time lost during breaks.

Misconduct

If you engage in any of the following conduct during the examination you may be dismissed, your scores will not be reported and examination fees will not be refunded. Examples of misconduct are when you:

- create a disturbance, are abusive, or otherwise uncooperative;
- display and/or use electronic communications equipment such as pagers, cellular phones, PDAs;
- talk or participate in conversation with other examination candidates;
- give or receive help or is suspected of doing so;
- leave the Assessment Center during the administration;
- attempt to record examination questions or make notes;
- attempt to take the examination for someone else;
- are observed with personal belongings, or
- are observed with notes, books or other aids without it being noted on the roster.

Copyrighted Examination Questions

All examination questions are the copyrighted property of the NBRC. It is forbidden under federal copyright law to copy, reproduce, record, distribute, or display these examination questions by any means, in whole or in part, without written permission. Doing so may subject you to severe civil and criminal penalties.

Sample Examination

Prior to attempting the examination, you will be given the opportunity to practice taking an examination on the computer. The time you use for this practice session (10 minutes) is NOT counted as part of your examination time, and it in no way affects your examination score. When you are comfortable with the computer-testing process, you may quit the practice session and begin the timed examination.

Timed Examination

Following the sample examination, you will begin the timed examination. Before beginning, instructions for taking the examination will be provided on-screen. The following time limits are in effect for NBRC examinations:

Examination	Testing Time
Entry-Level CRT	3 hours
RRT Written	2 hours
Clinical Simulation	4 hours
CPFT	2 hours
RPFT	2 hours
Neonatal/Pediatric Specialty	3 hours
Sleep Disorders Specialty	4 hours
Adult Critical Care Specialty	4 hours

The computer will monitor the time you spend on the examination. The examination will terminate at the allotted time limit. If you wish to keep track of the time during the examination, you may click on the “Time” box in the lower right-hand corner of the screen or select the TIME key on the keyboard. A digital clock will indicate the time remaining for you to complete the examination. You may toggle this feature on and off as you desire.

When You Finish the Examination

After you have completed the examination and answered the questions regarding your testing experience, you will be instructed to report to the Assessment Center proctor to receive your score report. The score report will include your photograph and your examination results indicating "pass" or "fail."

For multiple-choice examinations, scores will be reported as RAW scores (number of correctly answered questions) for major content areas, minor content areas and the total examination. Your total RAW score will also be converted to a SCALED score. The TOTAL SCALED score determines whether you pass or fail the examination. Because different examination forms may vary slightly in difficulty from one to another, it is desirable to report examination scores as SCALED scores to ensure all candidates have demonstrated the same level of competence, regardless of which form of the examination they took.

The minimum passing level (MPL) on NBRC multiple-choice examinations has been established from a base form of the respective credentialing examination using a modified Angoff procedure. This accepted psychometric procedure uses the judgments of content experts to determine the number of correct answers required to achieve the passing SCALED SCORE for the examination. The passing scaled scores for NBRC multiple-choice examinations are:

Examination	Passing Scaled Score
Entry-Level CRT	75
RRT Written	70
Neonatal/Pediatric Specialty	75
Sleep Disorders Specialty	75
Adult Critical Care Specialty	75
CPFT	75
RPFT	75

The passing point for the Clinical Simulation Examination was set by the examination committee and may vary from one form of the examination to another, depending on the 10 scored problems included on the examination form you attempted. The examination committee follows strict guidelines in selecting the 10 scored problems for each examination form to ensure the versions of the examination are parallel in difficulty.

Each section, Information Gathering (IG) or Decision Making (DM), in a simulation was evaluated by content experts when the problem was developed, and a minimum pass level was established for the section using the scoring weights assigned to the options in that section. The MPL for an individual problem on the examination (IG or DM) is the sum of the MPL for all of the IG and DM sections contained in the problem; the MPL for the total examination is determined by summing the MPLs for both IG and DM over all 10 scored problems on the examination form.

To assist candidates in evaluating their performance on the Clinical Simulation Examination, three sets of score data are presented: the candidate's score for each problem on the examination, the MPL for each problem on the examination, and the MAX score that could be obtained by following the optimum path through the problem and selecting only positively weighted options. The TOTAL PERCENT SCORE for IG and DM on the entire examination determines whether you pass or fail the Clinical Simulation Examination. Candidates must achieve TOTAL PERCENT passing scores in both IG and DM to successfully complete this examination.

If You Pass the Examination

Successful candidates will receive the appropriate NBRC credential. The national credentials and any designated acronym are listed below. Your date of credential will be listed as the date you passed the respective examination(s).

CRT – Certified Respiratory Therapist

RRT – Registered Respiratory Therapist*

CPFT – Certified Pulmonary Function Technologist

RPFT – Registered Pulmonary Function Technologist

CRT-NPS or RRT-NPS – Neonatal/Pediatric Specialist

CRT-SDS or RRT-SDS – Sleep Disorders Specialist

RRT-ACCS – Adult Critical Care Specialist

*The RRT credential is awarded only after the candidate passes both the RRT Written and Clinical Simulation portions of the examination.

On approximately the 15th day of the month following the month in which you successfully completed the examination, the NBRC will mail your certificate, uniform patch and wallet card. You will receive active NBRC status for the remainder of the calendar year following the date of the examination and an online subscription to NBRC Horizons, the NBRC's quarterly newsletter. Your name will also be listed in the online NBRC Directory published on the NBRC's website. For further instructions regarding service order requests, please visit the NBRC website, www.nbrc.org.

In successive years, you can renew and maintain active status by submitting the annual renewal form mailed by the NBRC or by renewing online at www.nbrc.org. The requirements for active status are active involvement in respiratory care and/or pulmonary function technology under licensed medical supervision, submission of a renewal form, and payment of the required fee. The active status renewal period begins January 1 and expires December 31 each year.

Practitioners who do not satisfy the requirements for active status will not have access to NBRC Horizons and will not be listed in the NBRC Active Directory. However, all individuals credentialed by the NBRC (active and inactive) will be listed in the searchable "All Listing" available to all hospitals and state regulatory agencies to assist employers, state agencies, and others wishing to verify credentials. Persons holding inactive status may be reactivated by satisfying the requirements for active status at any time during the calendar year. Credentialed practitioners who are not actively practicing respiratory care and/or pulmonary function technology, yet wish to support the NBRC through annual renewal, may renew as an "NBRC Supporter" and be listed in the NBRC Directory as well as receive an online subscription to *NBRC Horizons*.

If You Fail the Examination

Failing candidates may repeat an examination by submitting a reapplication form and the appropriate fee. **Note that there are no waiting periods between attempts for the NBRC examinations.** To qualify for the examination, you must maintain an active application file in the Executive Office (refer to page 9, Inactive Eligibility Records). There is no limit to the number of times an individual may attempt an examination.

Examination Preparation

Examination Content

To begin your preparation in an informed and organized manner, you should know what to expect from the actual examination in terms of the content areas and complexity levels tested. The abbreviated examination matrices and detailed content outlines included with this handbook describe the content areas and three complexity levels covered on each examination. The matrix can be used to get a general impression of the examination, and with closer inspection, can give you specific study direction. For example, you can determine the relative importance of each content area on the examination by reviewing the number of questions in each section. The detailed content outline presents the specific patient care settings and content areas available for testing. Examination questions cover the range of three cognitive levels.

Cognitive Levels

Recall is the ability to recall or recognize specific information.

Application is the ability to comprehend, relate, or apply knowledge to new or changing situations.

Analysis is the ability to analyze information, to put information together to arrive at solutions, and/or to evaluate the usefulness of the solutions.

Study Suggestions

Candidates should remember that the questions on NBRC credentialing examinations are job-related; they are not designed to test the recall of isolated facts or the basic information presented in specific courses of the curriculum for respiratory care education programs.

Study Resources

A variety of textbooks are currently available to assist candidates in preparing for the credentialing examinations. You should contact a faculty member at an accredited respiratory care education program or experienced colleague if you need help determining which references to review in a specific content area. For your convenience, a list of publications that present standards to which some examination questions may refer is presented below. The most current version of each reference should be used.

American Heart Association

- Standards and Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC)
- Textbook of Advanced Cardiac Life Support
- Textbook of Pediatric Basic Life Support
- Textbook of Neonatal Resuscitation (American Heart Association/ American Academy of Pediatrics)
- Textbook of Pediatric Advanced Life Support

National Committee for Clinical Laboratory Standards, Wayne, Pennsylvania

- Blood Gas Pre-analytical Considerations: Specimen Collection, Calibration and Controls Oxygen Content Hemoglobin, Oxygen Content (Saturation) and Related Quantities in Blood Terminology, Measurement, and Reporting Percutaneous Collection of Arterial Blood for Laboratory Analysis Tentative Standard for Definitions of Qualities and Conventions Related to Blood Ph and Gas Analysis

AARC Clinical Practice Guidelines

ATS Statement – Standardization of Spirometry, 1994 Update

Series "ATS/ERS Task Force: Standardization of Lung Function Testing", Edited by V. Brusasco, R. Crapo and G. Viegi, Vol. 26 Number 1.

Practice Examinations

Multiple-Choice Examinations

The NBRC is one of the few certifying boards providing full-length multiple-choice practice examinations for its credentialing examinations. These practice examinations are equal in content, length, and difficulty level to the actual credentialing examinations. The practice examinations are computerized and available in Web-based format from the NBRC's website at www.nbrc.org. They are designed to simulate taking an NBRC examination, and the software is identical to that which is used for the computerized administration of NBRC examinations. The actual credentialing examinations have time limits for completion, so allow yourself no more than the allotted time to simulate actual examination conditions. Remember, these questions sample the scope of content tested on the actual examination. It is suggested that you take these examinations, print the Performance Report, and identify the correct answer for any question you may have missed or were unable to answer.

Clinical Simulation Examinations (CSE)

The practice examination for the Clinical Simulation Examination is a one-problem simulation exercise. Candidates for the Clinical Simulation Examination (CSE) should be aware that the purpose of this practice simulation is to familiarize them with the format of the examination and the functionality of the software. The difficulty of this practice simulation is not a reflection of the difficulty of the simulations on the actual examination. Candidates are encouraged to review information elsewhere in this handbook for specific information about the content of the CSE.

Self-Assessment Examinations

Anyone preparing to take an NBRC examination can assess how they will perform before actually attempting a credentialing examination by taking the official NBRC Self-Assessment Examinations (SAEs). Many of the examination questions on SAEs were once used on official NBRC credentialing examinations and duplicate them in content and difficulty. These official NBRC SAEs not only help individuals prepare for the real examinations, they actually predict examination performance with close to 95 percent accuracy.

Previous research demonstrated that the NBRC SAEs can estimate performance on the actual credentialing examinations with surprising accuracy. In addition, the research revealed that approximately 23 percent of individuals using the SAEs actually improved their performance on the credentialing examinations. The feedback from the SAE provides an opportunity to evaluate and remedy less-than-desirable examination performance before taking the credentialing examination. The official NBRC SAEs are the only products that contain retired examination questions and the only ones that provide the respective NBRC examination committees' rationale for the best response to each question.

Official NBRC Self-Assessment Examinations (SAEs) are only available in Web-based format for purchase online through the NBRC's subsidiary, Applied Measurement Professionals, Inc. (AMP). The LXR Store, operated through the Logic eXtension Resources (LXR) division of AMP, offers all currently available NBRC Web-based SAEs for purchase online. Visit www.nbrc.org to order an SAE today.

Study Sequence

Using the practice examination and the SAEs, you can review hundreds of questions just like those on the actual credentialing examination. The following sequence may assist you in identifying content areas where additional study might be beneficial.

1. Read the NBRC Candidate Handbook and examination supplements completely.
2. Take the computerized practice examination under simulated examination conditions, free of distractions, and observing the established time limit.
3. Review the Performance Report after completing the practice examination and identify content areas where examination performance could be improved.
4. Review all questions answered incorrectly to determine topics where further study is needed.
5. Take at least one version of the SAE.
6. Review all questions answered incorrectly in the SAE as well as the explanations to determine where additional study would improve examination performance.

Examination Software

Multiple-Choice Examinations Software

During the examination, only one question will be presented on the screen at a time (see Figure 1). The question number appears in the lower right portion of the screen. The entire question appears on-screen. (Note: If a question contains more text than can appear on screen at the same time, a typical windows scroll bar will be available on the right side of the screen to allow viewing of the rest of the question.) After you have reviewed the question, indicate your choice by entering the letter of the option you think is the correct answer (A, B, C or D) or click on the option using the mouse. The response you have chosen will appear in the lower left portion of the screen. To change your answer, simply enter a different option by clicking on the option using the mouse or by pressing the A, B, C or D key. You may change your answers as many times as you wish during the timed testing period.

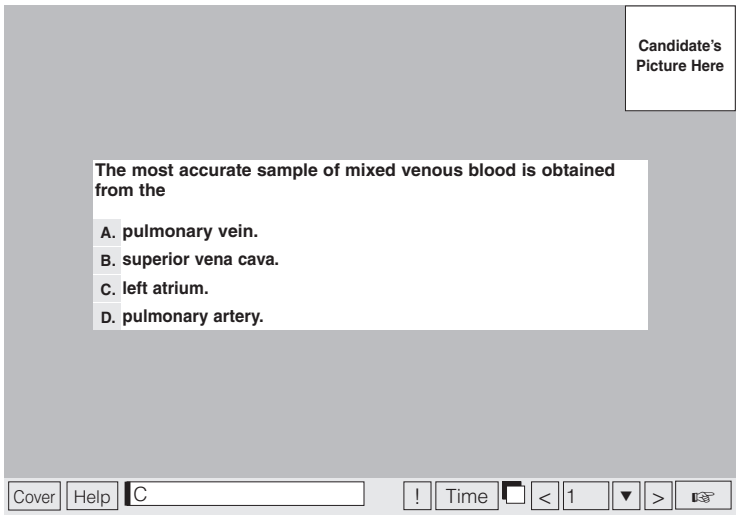

Figure 1.

You may leave an examination question unanswered and return to it later. You may also bookmark questions for later review by clicking in the blank square to the right of the Time button. Clicking on the hand icon or selecting the NEXT key advances to the next unanswered or bookmarked question on the examination. To identify all unanswered and bookmarked questions, repeatedly click on the hand icon or press the NEXT key. When you have completed the examination, the number of examination questions you answered is reported. If you have not answered all questions and you have time remaining, return to the examination and answer those questions. Be sure to answer each examination question before ending the examination. **There is no penalty for guessing.**

You may provide online comments for any question by clicking on the button displaying an exclamation point (!) to the left of the Time button. This opens a dialogue box where you may enter your comments.

When all questions have been answered or you wish to quit testing, you can click on the "COVER" button in the lower left corner of the toolbar or press the key labeled "COVER" on the keyboard. A screen is then displayed providing the number of questions answered out of the number possible, as well as the amount of any time remaining (see Figure 2). If there is time remaining, you have the option of returning to the examination by clicking on the "TEST" button, or by pressing the key labeled "TEST" on the keyboard. You may then continue to review questions and change responses, if desired. You can end the examination session by clicking on the "QUIT" button or by pressing the key labeled "QUIT" on the keyboard. This procedure is designed to ensure that you are truly finished testing before exiting the examination session. To end the examination, you will always be required to confirm your desire to quit the examination.

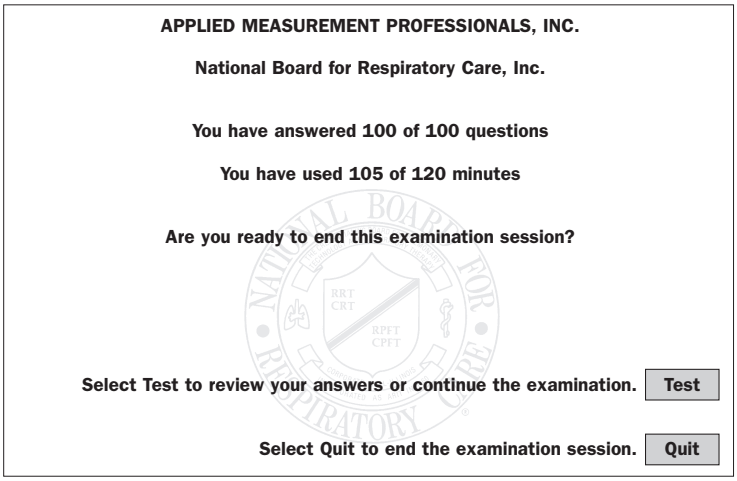

Figure 2.

A "Help Screen" will be accessible to you throughout the examination to explain the usage of the keyboard and navigating through the examination. The text of the "Help Screen" as it will appear during the examination follows in Figure 3.

MULTIPLE-CHOICE EXAMINATION HELP SCREEN

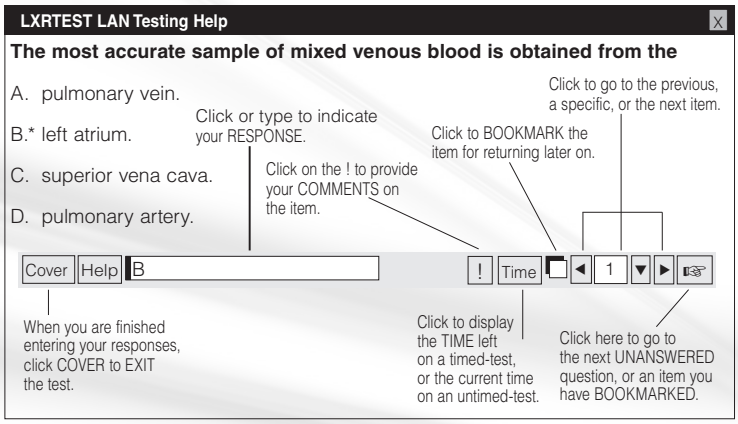

Figure 3.

Clinical Simulation Examination Software

Three windows appear on the screen at all times during a simulation examination (see Figure 4). The **Scenario Window** section is displayed across the top of the screen; the candidate's picture is displayed in the upper right-hand corner of this window. Each simulation begins with a brief paragraph in this window that provides preliminary information about the patient; subsequent sections contain information about the changing patient situation. A scroll bar is available when necessary to view all text. Each **Scenario Window** will also provide the candidate with specific instructions about whether to "CHOOSE ONLY ONE" response in the section or to "SELECT AS MANY" responses as appropriate to gather information about the patient.

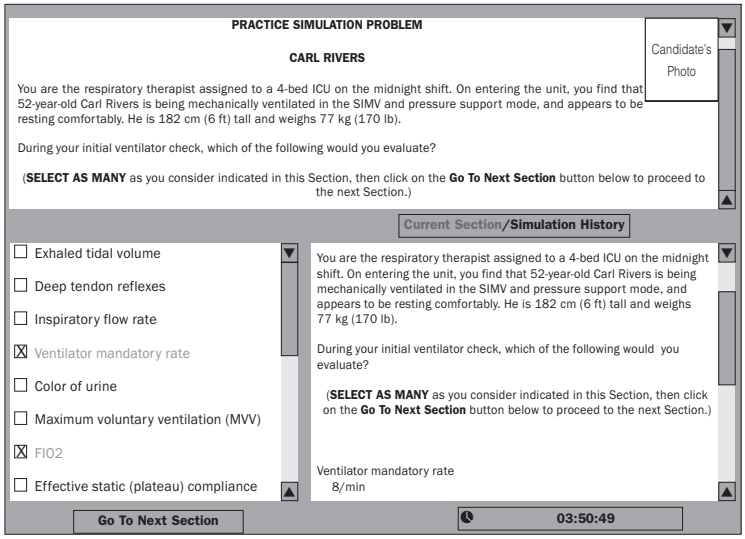

Figure 4.

The **Options Window** is displayed as the lower left portion of the screen and contains all options (choices or possible responses) from which to choose in the current section. A scroll bar is also available when necessary to view all options.

The **Simulation History Window** is displayed as the lower right portion of the screen. This window can be displayed in two formats using the button labeled "Current Section/Simulation History" located at the top of this window. When in the "Current Section" mode, the options chosen in the current section and the results for each choice are displayed in this window. When in the "Simulation History" mode, the scenarios from all previous sections as well as the options chosen and their results are displayed in the window. A scroll bar is available on the right side of this window to review previous scenarios and/or options and results.

Once you have read the scenario for each section and determined which option(s) are appropriate for selection, you can simply click the box to the left of the option to "choose" it. Immediately, the option selected and the results for that option appear in the right-hand **Simulation History Window.** After you select or "choose" an option, you cannot reconsider and "unselect" it, since the information from that option has been revealed.

In sections where you are instructed to "SELECT AS MANY as you consider indicated," you should select all of the options believed appropriate at the time and then click the "Go To Next Section" button at the bottom left of the screen to continue to the next section. A dialog box will appear requesting that you confirm you wish to continue to the next section and warning that returning to this section to make additional choices will not be possible. By selecting "Yes," the software automatically takes you to the next section of the patient simulation.

In sections where you are instructed to "CHOOSE ONLY ONE unless directed to make another selection," you should carefully review each option and then choose the one best option. A dialog box will then appear to present the results for the choice or request that you select another response in the section.

You are allowed four hours to complete all 11 problems (10 scored problems and one pretest problem) in the CSE. A clock button appears in the lower right portion of the screen; this displays the time remaining for the examination. You may toggle the clock button to display or hide the time remaining in the examination session.

A "Help Screen" will be accessible to you throughout the simulation examination to explain how to navigate through the examination.

Content Outlines

Certification Examination for Entry-Level Respiratory Therapists (CRT)

CRT Examination Matrix

Content Area	Cognitive Level: Recall	Application	Analysis	Number of Items
I. PATIENT DATA EVALUATION AND RECOMMENDATIONS	**11**	**14**	**1**	**26**
A. Review Data in the Patient Record	4	0	0	4
B. Collect and Evaluate Additional Pertinent Clinical Information	6	11	1	18
C. Recommend Procedures to Obtain Additional Data	1	3	0	4
II. EQUIPMENT MANIPULATION, INFECTION CONTROL, AND QUALITY CONTROL	**5**	**15**	**9**	**29**
A. Manipulate Equipment by Order or Protocol	4	10	8	22
B. Ensure Infection Control	0	2	1	3
C. Perform Quality Control Procedures	1	3	0	4
III. INITIATION AND MODIFICATION OF THERAPEUTIC PROCEDURES	**19**	**45**	**21**	**85**
A. Maintain Records and Communicate Information	2	3	0	5
B. Maintain a Patent Airway Including the Care of Artificial Airways	2	2	3	7
C. Remove Bronchopulmonary Secretions	1	3	0	4
D. Achieve Adequate Respiratory Support	2	5	1	8
E. Evaluate and Monitor Patient's Objective and Subjective Responses to Respiratory Care	3	7	5	15
F. INDEPENDENTLY MODIFY Therapeutic Procedures Based on the Patient's Response	2	9	7	18
G. RECOMMEND Modifications in the Respiratory Care Plan Based on the Patient's Response	3	10	4	17
H. Determine the Appropriateness of the Prescribed Respiratory Care Plan and Recommend Modifications When Indicated by Data	1	3	0	4
I. Initiate, Conduct, or Modify Respiratory Care Techniques in an Emergency Setting	1	1	1	3
J. Act as an Assistant to the Physician Performing Special Procedures	1	1	0	2
K. Initiate and Conduct Pulmonary Rehabilitation and Home Care	1	1	0	2
Totals	**35**	**74**	**31**	**140**

Open cells show an examination could include items from indicated cognitive levels. Shaded cells prevent appearance of items on examinations.

	Recall	Application	Analysis
I. PATIENT DATA EVALUATION AND RECOMMENDATIONS	**11**	**14**	**1**
A. Review Data in the Patient Record	**4**	**0**	**0**
1. Patient history e.g.,			
• present illness • medication history • DNR status			
• admission notes • progress notes • patient education (previous)			
• respiratory care orders • diagnoses			
2. Physical examination relative to the cardiopulmonary system e.g., vital signs, physical findings			
3. Laboratory data e.g.,			
• CBC • coagulation studies • sputum Gram stain			
• electrolytes • culture and sensitivities			
4. Pulmonary function results			
5. Blood gas results			
6. Imaging studies e.g.,			
• radiograph • CT • MRI			
7. Monitoring data			
a. fluid balance			
b. pulmonary mechanics e.g., maximum inspiratory pressure, vital capacity			
c. respiratory e.g.,			
• rate • I:E • tidal and minute volume			
d. pulmonary compliance, airways resistance, work of breathing			
e. noninvasive e.g.,.			
• pulse oximetry • capnography			
• V_D/V_T • transcutaneous O_2 / CO_2			
8. Cardiac monitoring			
a. ECG data results e.g., heart rate, rhythm			
b. hemodynamic monitoring results e.g.,			
• blood pressure • PA pressure			
• CVP • cardiac output / index			
9. Maternal and perinatal / neonatal history and data			
• Apgar scores • L / S ratio • gestational age			
B. Collect and Evaluate Additional Pertinent Clinical Information	**6**	**11**	**1**
1. Assess a patient's overall cardiopulmonary status by **inspection** to determine			
a. general appearance e.g.,.			
• venous distention • chest wall movement • cyanosis			
• edema • diaphoresis • breathing pattern			
• accessory muscle activity • clubbing			
b. airway assessment e.g., macroglossia, neck range of motion			
c. cough, sputum amount and character			
d. Apgar score, gestational age, transillumination of chest.			
2. Assess a patient's overall cardiopulmonary status by **palpation** to determine			
a. pulse, rhythm, force			
b. asymmetrical chest movements, tactile fremitus, crepitus, tenderness, secretions in the airway, and tracheal deviation			
3. Assess a patient's overall cardiopulmonary status by **percussion**			
4. Assess a patient's overall cardiopulmonary status by **auscultation** to determine presence of			
a. breath sounds			
b. heart sounds and rhythm.			
c. blood pressure			
5. Interview a patient to determine			
a. level of consciousness and orientation, emotional state, and ability to cooperate.			
b. level of pain			
c. presence of dyspnea, sputum production, and exercise tolerance			
d. nutritional status			
e. social history e.g., smoking, substance abuse			
f. advance directives e.g., DNR status			
6. Assess a patient's learning needs			
7. Review a chest radiograph to determine			
a. position of endotracheal or tracheostomy tube			
b. presence of, or change in, cardiopulmonary abnormalities e.g.,			
• pneumothorax • pleural fluid			
• consolidation • pulmonary edema			

* The number in each column is the number of items in that content area and cognitive level contained in each examination. For example, in category I.A., two items will be asked at the recall level, four items at the application level and no items at the analysis level. The items could be asked relative to any tasks listed (1-6) under category I.A.

	Recall	Application	Analysis
c. position of indwelling tubes and catheters			
d. presence of foreign bodies			
e. position of or change in hemidiaphragms or mediastinum			
8. Review lateral neck radiographs e.g., epiglottitis, foreign body			
9. Perform procedures			
a. 12-lead ECG			
b. transcutaneous monitoring			
c. pulse oximetry and capnography			
d. tidal volume, minute volume, vital capacity, and peak flow measurements			
e. bedside spirometry e.g., FVC, FEV_1			
f. arterial sampling – percutaneous or line			
g. arterialized capillary blood sampling			
h. timed walk test e.g., 6-minute			
i. oxygen titration with exercise			
j. blood gas / hemoximetry analysis			
k. cardiopulmonary calculations e.g., $P(A\text{-}a)O_2$, V_D / V_T			
l. hemodynamic monitoring e.g., blood pressure, CVP			
m. lung mechanics e.g.,			
• plateau pressure • MEP • compliance			
• MIP • airways resistance			
n. apnea monitoring			
o. overnight pulse oximetry			
p. tracheal tube cuff pressure and / or volume			
q. arterial line insertion			
r. stress testing e.g., ECG, pulse oximetry			
s. pulmonary function laboratory studies			
t. CPAP / BIPAP titration during sleep			
10. Interpret procedure results including			
a. 12-lead ECG e.g.,			
• rate • artifacts			
• irregular rhythm			
b. transcutaneous monitoring			
c. pulse oximetry and capnography			
d. tidal volume, minute volume, vital capacity, and peak flow measurements			
e. bedside spirometry e.g., FVC, FEV_1			
f. arterial sampling – percutaneous or line			
g. arterialized capillary blood sampling			
h. timed walk test e.g., 6-minute			
i. oxygen titration with exercise			
j. blood gas / hemoximetry analysis			
k. cardiopulmonary calculations e.g., $P(A\text{-}a)O_2$, V_D / V_T			
l. hemodynamic monitoring e.g., blood pressure, CVP			
m. lung mechanics e.g.,			
• plateau pressure • MEP • MIP			
n. apnea monitoring			
o. overnight pulse oximetry			
p. tracheal tube cuff pressure and/or volume			
q. arterial line insertion			
r. stress testing e.g., ECG, pulse oximetry			
s. pulmonary function laboratory studies			
t. CPAP / BIPAP titration during sleep			
C. Recommend Procedures to Obtain Additional Data	**1**	**3**	**0**
1. Radiographic and other imaging studies			
2. Diagnostic bronchoscopy e.g., evaluate hemoptysis, atelectasis			
3. Sputum Gram stain, culture and sensitivities e.g., pneumonia			
4. Bronchoalveolar lavage (BAL)			
5. Pulmonary function testing			
6. Lung mechanics e.g., compliance, airways resistance			
7. Blood gas analysis, pulse oximetry, and transcutaneous monitoring			
8. ECG			
9. Capnography			
10. Hemodynamic monitoring e.g., blood pressure, CVP			
11. Sleep studies			

	Recall	Application	Analysis
II. EQUIPMENT MANIPULATION, INFECTION CONTROL, AND QUALITY CONTROL	**5**	**15**	**9**
A. Manipulate Equipment by Order or Protocol	**4**	**10**	**8**
1. Oxygen administration devices			
a. low-flow devices e.g., nasal cannula			
b. high-flow devices e.g., air entrainment mask			
c. high-flow nasal cannula			
2. CPAP devices – mask, nasal, or bilevel			
3. Humidifiers			
4. Nebulizers			
5. Resuscitation devices e.g., manual resuscitator (bag-valve), mouth-to-valve mask resuscitator			
6. Ventilators			
a. pneumatic, electric, fluidic, and microprocessor			
b. noninvasive positive pressure			
7. Artificial airways			
a. oro- and nasopharyngeal airways			
b. endotracheal tubes			
c. tracheostomy tubes and devices			
d. speaking tubes and valves			
e. intubation equipment			
f. laryngeal mask airway (LMA)			
g. esophageal-tracheal Combitube®			
8. Suctioning devices			
9. Gas delivery, metering, and clinical analyzing devices			
a. gas cylinders, regulators, reducing valves, connectors and flowmeters, and air / oxygen blenders			
b. oxygen conserving devices e.g., reservoir cannula, pulse-dose			
c. oxygen concentrators			
d. air compressors			
10. Point-of-care analyzers e.g., blood gas, electrolytes			
11. Patient breathing circuits			
a. continuous mechanical ventilation			
b. IPPB			
c. CPAP and PEEP valve assemblies			
d. non-invasive ventilation			
12. Environmental devices			
a. aerosol (mist) tents			
b. oxygen hoods			
13. Incentive breathing devices			
14. Airway clearance devices			
a. percussors and vibrators			
b. positive expiratory pressure (PEP) devices			
c. vibratory PEP devices			
15. Manometers e.g., aneroid, digital, water			
16. Respirometers e.g., flow-sensing devices			
17. ECG monitors			
18. ECG machines (12-lead)			
19. Vacuum systems e.g., • pumps • collection bottles • regulators • pleural drainage devices			
20. Oximetry monitoring devices e.g., pulse oximeter, transcutaneous			
21. Metered dose inhalers (MDI) and MDI spacers			
22. Dry powder inhalers			
23. Bedside screening spirometers			
24. CO, He, O_2 and specialty gas analyzers			
25. Bronchoscopes			
B. Ensure Infection Control	**0**	**2**	**1**
1. Assure cleanliness of equipment by • selecting or determining appropriate agent and technique for disinfection and/or sterilization • performing procedures for disinfection and/or sterilization • monitoring effectiveness of sterilization procedures			
2. Assure proper handling of biohazardous materials			
3. Incorporate ventilator-associated pneumonia protocol			

	Recall	Application	Analysis
4. Implement infectious disease protocols e.g.,.			
• avian flu • transmission prevention • SARS			
5. Adhere to infection control policies and procedures e.g., Standard Precautions.			
C. Perform Quality Control Procedures For	**1**	**3**	**0**
1. Blood gas analyzers, co-oximeters			
2. Gas analyzers.			
3. Point-of-care analyzers.			
4. Pulmonary function equipment			
5. Mechanical ventilators			
6. Gas metering devices e.g., flowmeter			
7. Noninvasive monitors e.g., transcutaneous			
8. Record and monitor QC data using accepted statistical methods			
III. INITIATION AND MODIFICATION OF THERAPEUTIC PROCEDURES	**19**	**45**	**21**
A. Maintain Records and Communicate Information	**2**	**3**	**0**
1. Record therapy and results using conventional terminology as required in the health care setting and/or by regulatory agencies			
a. specify therapy administered, date, time, frequency of therapy, medication, and ventilatory data			
b. note and interpret patient's response to therapy			
1) effects of therapy, adverse reactions, patient's subjective and objective response to therapy			
2) verify computations and note erroneous data			
3) auscultatory findings, cough and sputum production and characteristics			
4) vital signs			
5) pulse oximetry, heart rhythm, capnography			
2. Communicate information			
a. regarding patient's clinical status to appropriate members of the health care team			
b. relevant to coordinating patient care and discharge planning			
3. Accept and verify patient care orders			
4. Apply computer technology to			
a. document patient management.			
b. monitor workload assignments			
c. patient safety initiatives e.g., drug dispensing, order entry.			
5. Communicate results of therapy and alter therapy by protocol(s).			
6. Explain planned therapy and goals to a patient in understandable terms to achieve optimal therapeutic outcome.			
7. Educate a patient and family concerning smoking cessation and health management			
B. Maintain a Patent Airway Including the Care of Artificial Airways	**2**	**2**	**3**
1. Properly position a patient			
2. Insert oro- and nasopharyngeal airways			
3. Perform endotracheal intubation			
4. Maintain position in the airway and appropriate cuff inflation of			
a. LMA			
b. esophageal-tracheal Combitube®			
c. endotracheal tube			
d. tracheostomy tube			
5. Assess tube placement			
6. Perform tracheostomy care			
7. Change tracheostomy tubes			
8. Maintain adequate humidification			
9. Perform extubation			
C. Remove Bronchopulmonary Secretions	**1**	**3**	**0**
1. Perform			
a. postural drainage, percussion, or vibration			
b. nasotracheal suctioning			
c. oropharyngeal suctioning			
d. airway clearance using mechanical devices e.g., high frequency chest wall oscillation, vibratory PEP			
2. Suction artificial airways.			
3. Administer aerosol therapy with prescribed drugs			
4. Instruct and encourage bronchopulmonary hygiene techniques			
D. Achieve Adequate Respiratory Support	**2**	**5**	**1**
1. Instruct a patient in			
a. deep breathing and incentive spirometry techniques.			
b. inspiratory muscle training techniques			

	Recall	Application	Analysis
2. Initiate and adjust			
a. IPPB therapy			
b. continuous mechanical ventilation settings			
c. noninvasive ventilation			
d. elevated baseline pressure e.g., CPAP, PEEP			
3. Select ventilator graphics e.g., waveforms, scales			
4. Initiate and select appropriate settings for high frequency ventilation			
5. Administer medications			
a. aerosolized			
b. dry powder preparations			
c. endotracheal instillation			
6. Administer oxygen			
7. Initiate and modify weaning procedures			
8. Position patient to minimize hypoxemia			
9. Prevent procedure-associated hypoxemia e.g., oxygenate before and after suctioning and equipment changes			
10. Apply disease-specific ventilator protocols (e.g. ARDS-Net protocol)			
E. Evaluate and Monitor Patient's Objective and Subjective Responses to Respiratory Care	**3**	**7**	**5**
1. Recommend and review a chest radiograph			
2. Obtain a blood gas sample			
a. by puncture			
b. from an arterial or pulmonary artery catheter			
c. from arterialized capillary blood			
3. Perform			
a. transcutaneous monitoring			
b. pulse oximetry			
c. blood gas and hemoximetry analyses			
d. capnography			
e. hemodynamic assessment			
4. Interpret results of			
a. blood gases			
b. hemoximetry e.g., carboxyhemoglobin			
c. hemodynamics			
d. pulse oximetry			
e. capnography			
5. Observe for			
a. changes in sputum characteristics			
b. signs of patient-ventilator dysynchrony			
6. Measure and record vital signs, monitor cardiac rhythm, and evaluate fluid balance – intake and output			
7. Perform and interpret results of pulmonary function testing			
a. spirometry			
b. compliance and airways resistance			
c. lung volumes			
d. D_{Lco}			
e. exercise			
f. bronchoprovocation studies			
8. Recommend blood tests e.g., hemoglobin, potassium			
9. Monitor airway pressures, and adjust and check alarm systems			
10. Measure F_IO_2 and/or oxygen flow			
11. Auscultate the chest and interpret changes in breath sounds			
F. INDEPENDENTLY MODIFY Therapeutic Procedures Based on the Patient's Response	**2**	**9**	**7**
1. Terminate treatment based on patient's response to therapy			
2. Modify treatment techniques			
a. IPPB			
b. incentive breathing devices			
c. aerosol therapy			
1) modify patient breathing patterns			
2) change type of equipment and change aerosol output			
3) change dilution of medication			
4) adjust temperature of the aerosol			
d. oxygen therapy			
1) change mode of administration, flow, and F_IO_2			
2) set up or change an O_2 blender			
3) set up an O_2 concentrator or liquid O_2 system			

	Recall	Application	Analysis
e. specialty gas therapy e.g., He / O_2, NO			
1) change mode of administration			
2) adjust flow or gas concentration			
f. bronchial hygiene therapy			
1) alter patient position and duration of treatment and techniques			
2) coordinate sequence of therapies e.g., • chest percussion • postural drainage • PEP			
g. management of artificial airways			
1) reposition or change endotracheal or tracheostomy tube			
2) change type of humidification equipment			
3) initiate suctioning			
4) inflate and / or deflate the cuff			
5) perform tracheostomy care			
h. suctioning			
1) alter frequency and duration of suctioning			
2) change size and type of catheter			
3) alter negative pressure			
4) instill irrigating solutions			
i. mechanical ventilation			
1) improve patient synchrony			
2) enhance oxygenation			
3) improve alveolar ventilation			
4) adjust I : E settings			
5) modify ventilator techniques			
6) adjust noninvasive positive pressure ventilation			
7) monitor and adjust alarm settings			
8) adjust ventilator settings based on ventilator graphics			
9) change type of ventilator			
10) change patient breathing circuitry			
11) alter mechanical dead space			
12) initiate procedures for weaning			
G. RECOMMEND Modifications in the Respiratory Care Plan Based on the Patient's Response	**3**	**10**	**4**
1. Recommend			
a. institution of bronchopulmonary hygiene procedures			
b. treatment of pneumothorax			
c. sedation and/or use of muscle relaxant(s)			
d. adjustment of fluid balance			
e. adjustment of electrolyte therapy			
f. insertion or change of artificial airway			
g. weaning from mechanical ventilation			
h. extubation			
i. discontinuing treatment based on patient response			
2. Recommend changes in			
a. patient position			
b. inhaled drug dosage or concentration			
c. F_IO_2 and oxygen flow			
3. Recommend changes in mechanical ventilation to			
a. improve patient synchrony			
b. enhance oxygenation			
c. improve alveolar ventilation			
d. adjust I : E settings			
e. modify ventilator techniques			
f. adjust noninvasive positive pressure ventilation			
g. monitor and adjust alarm settings			
h. adjust ventilator settings based on ventilator graphics			
i. change type of ventilator			
j. change patient breathing circuitry			
k. reduce auto-PEEP			
l. reduce plateau pressure			
4. Recommend pharmacologic interventions including use of			
a. bronchodilators			
b. antiinflammatory drugs e.g., • leukotriene modifiers • corticosteroids • cromolyn sodium			
c. mucolytics and proteolytics e.g., • acetylcysteine • RhDNAse • hypertonic saline			

	Recall	Application	Analysis
d. cardiovascular drugs e.g., ACLS protocol agents			
e. antimicrobials e.g., antibiotics			
f. sedatives			
g. analgesics			
h. paralytic agents			
i. diuretics			
j. surfactants			
k. vaccines e.g., pneumovax, influenza			
H. Determine the Appropriateness of the Prescribed Respiratory Care Plan and Recommend Modifications When Indicated by Data	**1**	**3**	**0**
1. Analyze available information to determine the pathophysiological state			
2. Review			
a. planned therapy to establish therapeutic plan			
b. interdisciplinary patient and family plan			
3. Determine appropriateness of prescribed therapy and goals for identified pathophysiological state			
4. Recommend changes in therapeutic plan when indicated			
5. Perform respiratory care quality assurance			
6. Develop			
a. quality improvement program			
b. respiratory care protocols			
7. Monitor outcomes of			
a. quality improvement programs			
b. respiratory care protocols			
8. Apply respiratory care protocols			
I. Initiate, Conduct, or Modify Respiratory Care Techniques in an Emergency Setting	**1**	**1**	**1**
1. Treat cardiopulmonary emergencies according to			
a. BCLS			
b. ACLS			
c. Pediatric Advanced Life Support (PALS)			
d. Neonatal Resuscitation Program (NRP)			
2. Treat a tension pneumothorax			
3. Participate in			
a. land / air patient transport			
b. intra-hospital patient transport			
c. disaster management			
d. medical emergency team (MET) e.g., rapid response team			
J. Act as an Assistant to the Physician Performing Special Procedures	**1**	**1**	**0**
1. Intubation			
2. Bronchoscopy			
3. Thoracentesis			
4. Tracheostomy			
5. Chest tube insertion			
6. Moderate (conscious) sedation			
7. Cardioversion			
8. Ultrasound			
K. Initiate and Conduct Pulmonary Rehabilitation and Home Care	**1**	**1**	**0**
1. Monitor and maintain home respiratory care equipment			
2. Explain planned therapy and goals to a patient in understandable terms to achieve optimal therapeutic outcome			
3. Educate a patient and family in health management			
4. Interact with a case manager			
5. Counsel a patient and family concerning smoking cessation			
6. Instruct patient and family to assure safety and infection control			
7. Modify respiratory care procedures for use in home			
TOTALS	**35**	**74**	**31**

RRT Examination Matrix

Content Area	Cognitive Level: Recall	Application	Analysis	Number of Items
I. PATIENT DATA EVALUATION AND RECOMMENDATIONS	**4**	**7**	**17**	**28**
A. Review Data in the Patient Record	1	4	0	5
B. Collect and Evaluate Additional Pertinent Clinical Information	2	2	14	18
C. Recommend Procedures to Obtain Additional Data	1	1	3	5
II. EQUIPMENT MANIPULATION, INFECTION CONTROL, AND QUALITY CONTROL	**2**	**2**	**8**	**12**
A. Manipulate Equipment by Order or Protocol	2	2	4	8
B. Ensure Infection Control	0	0	2	2
C. Perform Quality Control Procedures	0	0	2	2
III. INITIATION AND MODIFICATION OF THERAPEUTIC PROCEDURES	**0**	**6**	**54**	**60**
A. Maintain Records and Communicate Information	0	1	3	4
B. Maintain a Patent Airway Including the Care of Artificial Airways	0	0	3	3
C. Remove Bronchopulmonary Secretions	0	0	3	3
D. Achieve Adequate Respiratory Support	0	0	5	5
E. Evaluate and Monitor Patient's Objective and Subjective Responses to Respiratory Care	0	0	9	9
F. INDEPENDENTLY MODIFY Therapeutic Procedures Based on the Patient's Response	0	0	9	9
G. RECOMMEND Modifications in the Respiratory Care Plan Based on the Patient's Response	0	1	13	14
H. Determine the Appropriateness of the Prescribed Respiratory Care Plan and Recommend Modifications When Indicated by Data	0	2	4	6
I. Initiate, Conduct, or Modify Respiratory Care Techniques in an Emergency Setting	0	1	2	3
J. Act as an Assistant to the Physician Performing Special Procedures	0	0	2	2
K. Initiate and Conduct Pulmonary Rehabilitation and Home Care	0	1	1	2
Totals	**6**	**15**	**79**	**100**

Open cells show an examination could include items from indicated cognitive levels. Shaded cells prevent appearance of items on examinations.

	Recall	Application	Analysis
I. PATIENT DATA EVALUATION AND RECOMMENDATIONS	**4**	**7**	**17**
A. Review Data in the Patient Record	**1**	**4**	**0**
1. Patient history e.g.,			
• present illness • medication history • DNR status			
• admission notes • progress notes • patient education (previous)			
• respiratory care orders • diagnoses			
2. Physical examination relative to the cardiopulmonary system e.g., vital signs, physical findings			
3. Laboratory data e.g.,			
• CBC • coagulation studies • sputum Gram stain			
• electrolytes • culture and sensitivities			
4. Pulmonary function results			
5. Blood gas results			
6. Imaging studies e.g.,			
• radiograph • CT • MRI			
7. Monitoring data			
a. fluid balance			
b. pulmonary mechanics e.g., maximum inspiratory pressure, vital capacity			
c. respiratory e.g.,			
• rate • tidal and minute volume • I:E			
d. pulmonary compliance, airways resistance, work of breathing			
e. noninvasive e.g.,			
• pulse oximetry • capnography			
• V_D/V_T • transcutaneous O_2 / CO_2			
8. Cardiac monitoring			
a. ECG data results e.g., heart rate, rhythm			
b. hemodynamic monitoring results e.g.,			
• blood pressure • PA pressure			
• CVP • cardiac output / index			
9. Maternal and perinatal / neonatal history and data			
• Apgar scores • gestational age • L / S ratio			
10. Sleep study results e.g., diagnosis, treatment			
B. Collect and Evaluate Additional Pertinent Clinical Information	**2**	**2**	**14**
1. Assess a patient's overall cardiopulmonary status by inspection to determine			
a. general appearance e.g.,			
• venous distention • chest wall movement • cyanosis			
• edema • diaphoresis • breathing pattern			
• accessory muscle activity • clubbing			
b. airway assessment e.g., macroglossia, neck range of motion			
c. cough, sputum amount and character			
d. Apgar score, gestational age, transillumination of chest.			
2. Assess a patient's overall cardiopulmonary status by palpation to determine			
a. pulse, rhythm, force			
b. asymmetrical chest movements, tactile fremitus, crepitus, tenderness, secretions in the airway, and tracheal deviation			
3. Assess a patient's overall cardiopulmonary status by percussion			
4. Assess a patient's overall cardiopulmonary status by auscultation to determine presence of			
a. breath sounds			
b. heart sounds and rhythm.			
c. blood pressure			
5. Interview a patient to determine			
a. level of consciousness and orientation, emotional state, and ability to cooperate			
b. level of pain			
c. presence of dyspnea, sputum production, and exercise tolerance			
d. social history e.g., smoking, substance abuse			
e. advance directives e.g., DNR status			
6. Assess a patient's learning needs			

* The number in each column is the number of items in that content area and cognitive level contained in each examination. For example, in category I.A., no items will be asked at the recall level, one item at the application level and three items at the analysis level. The items could be asked relative to any tasks listed (1-8) under category I.A.

	Recall	Application	Analysis
7. Review a chest radiograph to determine	■	■	■
a. quality of imaging e.g., patient positioning, exposure			
b. position of endotracheal or tracheostomy tube	■	■	
c. position of indwelling tubes and catheters	■	■	
d. presence of foreign bodies	■	■	
e. position of or change in hemidiaphragms or mediastinum	■	■	
8. Review lateral neck radiographs e.g., epiglottitis, foreign body	■	■	
9. Perform procedures	■	■	■
a. 12-lead ECG	■		
b. transcutaneous monitoring	■		
c. pulse oximetry and capnography	■		
d. tidal volume, minute volume, vital capacity, and peak flow measurements	■		
e. bedside spirometry e.g., FVC, FEV_1	■		
f. arterial sampling – percutaneous or line	■	■	
g. arterialized capillary blood sampling	■	■	
h. timed walk test e.g., 6-minute	■		
i. oxygen titration with exercise	■	■	
j. blood gas / hemoximetry analysis	■	■	
k. exhaled nitric oxide			■
l. hemodynamic monitoring e.g., blood pressure, CVP	■	■	
m. lung mechanics e.g., • plateau pressure • MEP • compliance • MIP • airways resistance	■	■	
n. ventilator graphics e.g., pressure / volume loop			
o. apnea monitoring	■	■	
p. overnight pulse oximetry	■		
q. tracheal tube cuff pressure and / or volume	■	■	
r. arterial line insertion	■	■	
s. stress testing e.g., ECG, pulse oximetry	■	■	
t. pulmonary function laboratory studies	■	■	
u. CPAP / BIPAP titration during sleep	■	■	
v. auto-PEEP detection			
10. Interpret procedure results including	■	■	■
a. 12-lead ECG e.g.,. • rate • irregular rhythm • artifacts	■	■	
b. transcutaneous monitoring	■	■	
c. pulse oximetry and capnography	■	■	
d. tidal volume, minute volume, vital capacity, and peak flow measurements	■	■	
e. bedside spirometry e.g., FVC, FEV_1	■	■	
f. arterial sampling – percutaneous or line	■	■	
g. arterialized capillary blood sampling	■	■	
h. timed walk test e.g., 6-minute	■	■	
i. oxygen titration with exercise	■	■	
j. blood gas / hemoximetry analysis	■	■	
k. exhaled nitric oxide			
l. cardiopulmonary calculations e.g., $P(A\text{-}a)O_2$, V_D / V_T	■	■	
m. hemodynamic monitoring e.g., blood pressure, CVP	■	■	
n. lung mechanics e.g., • plateau pressure • MIP • MEP	■	■	
o. ventilator graphics e.g., pressure/volume loop			
p. apnea monitoring	■	■	
q. overnight pulse oximetry	■	■	
r. tracheal tube cuff pressure and/or volume	■	■	
s. arterial line insertion	■	■	
t. stress testing e.g., ECG, pulse oximetry	■	■	
u. pulmonary function laboratory studies	■	■	
v. CPAP / BIPAP titration during sleep	■	■	
w. auto-PEEP detection			
C. Recommend Procedures to Obtain Additional Data	**1**	**1**	**3**
1. Blood tests e.g., hemoglobin, potassium			
2. Radiographic and other imaging studies	■	■	
3. Diagnostic bronchoscopy e.g., evaluate hemoptysis, atelectasis	■	■	
4. Sputum Gram stain, culture and sensitivities e.g., pneumonia	■	■	
5. Bronchoalveolar lavage (BAL)	■	■	
6. Pulmonary function testing	■	■	
7. Lung mechanics e.g., compliance, airways resistance	■	■	

	Recall	Application	Analysis
8. Blood gas analysis, pulse oximetry, and transcutaneous monitoring			
9. ECG			
10. Capnography			
11. Hemodynamic monitoring e.g., blood pressure, CVP			
12. Insertion of monitoring catheters e.g., arterial			
13. Sleep studies			
14. Thoracentesis e.g., pleural effusion			
II. EQUIPMENT MANIPULATION, INFECTION CONTROL, AND QUALITY CONTROL	**2**	**2**	**8**
A. Manipulate Equipment by Order or Protocol	**2**	**2**	**4**
1. CPAP devices – mask, nasal, or bilevel			
2. Ventilators			
a. pneumatic, electric, fluidic, and microprocessor			
b. noninvasive positive pressure			
c. high frequency			
3. Artificial airways			
a. laryngeal mask airway (LMA)			
b. esophageal-tracheal Combitube®			
4. Gas delivery, metering, and clinical analyzing devices			
a. oxygen concentrators			
b. portable liquid oxygen systems			
c. portable oxygen concentrators			
d. air compressors			
5. Point-of-care analyzers e.g., blood gas, electrolytes			
6. Incubators			
7. High frequency chest wall oscillation			
8. He / O_2			
9. Hemodynamic monitoring devices			
a. pressure transducers			
b. catheters e.g., arterial, pulmonary artery			
10. CO, He, O_2 and specialty gas analyzers			
11. Bronchoscopes			
B. Ensure Infection Control	**0**	**0**	**2**
1. Assure proper handling of biohazardous materials			
2. Incorporate ventilator-associated pneumonia protocol			
3. Implement infectious disease protocols e.g.,. • avian flu • SARS • transmission prevention			
4. Adhere to infection control policies and procedures e.g., Standard Precautions			
C. Perform Quality Control Procedures For	**0**	**0**	**2**
1. Blood gas analyzers, co-oximeters			
2. Gas analyzers			
3. Point-of-care analyzers			
4. Pulmonary function equipment			
5. Mechanical ventilators			
6. Gas metering devices e.g., flowmeter			
7. Noninvasive monitors e.g., transcutaneous			
8. Record and monitor QC data using accepted statistical methods			
III. INITIATION AND MODIFICATION OF THERAPEUTIC PROCEDURES	**0**	**6**	**54**
A. Maintain Records and Communicate Information	**0**	**1**	**3**
1. Record therapy and results using conventional terminology as required in the health care setting and/or by regulatory agencies			
a. specify therapy administered, date, time, frequency of therapy, medication, and ventilatory data			
b. note and interpret patient's response to therapy			
1) effects of therapy, adverse reactions, patient's subjective and objective response to therapy			
2) verify computations and note erroneous data			
3) auscultatory findings, cough and sputum production and characteristics			
4) vital signs			
5) pulse oximetry, heart rhythm, capnography			
2. Communicate information			
a. regarding patient's clinical status to appropriate members of the health care team			
b. relevant to coordinating patient care and discharge planning			
3. Accept and verify patient care orders			

	Recall	Application	Analysis
4. Apply computer technology to patient safety initiatives e.g., drug dispensing, order entry			
5. Communicate results of therapy and alter therapy by protocol(s)			
6. Explain planned therapy and goals to a patient in understandable terms to achieve optimal therapeutic outcome			
7. Educate a patient and family concerning smoking cessation and health management			
B. Maintain a Patent Airway Including the Care of Artificial Airways	**0**	**0**	**3**
1. Properly position a patient			
2. Perform endotracheal intubation			
3. Maintain position in the airway and appropriate cuff inflation of			
a. LMA			
b. esophageal-tracheal Combitube®			
c. endotracheal tube			
d. tracheostomy tube			
4. Perform extubation			
C. Remove Bronchopulmonary Secretions	**0**	**0**	**3**
1. Perform			
a. postural drainage, percussion, or vibration			
b. nasotracheal suctioning			
c. oropharyngeal suctioning			
d. airway clearance using mechanical devices e.g., high frequency chest wall oscillation, vibratory PEP			
2. Suction artificial airways			
3. Administer aerosol therapy with prescribed drugs			
4. Instruct and encourage bronchopulmonary hygiene techniques			
D. Achieve Adequate Respiratory Support	**0**	**0**	**5**
1. Instruct a patient in deep breathing and incentive spirometry techniques			
2. Initiate and adjust			
a. IPPB therapy			
b. continuous mechanical ventilation settings			
c. noninvasive ventilation			
d. elevated baseline pressure e.g., CPAP, PEEP			
3. Select ventilator graphics e.g., waveforms, scales			
4. Initiate and select appropriate settings for high frequency ventilation			
5. Administer medications			
a. aerosolized			
b. dry powder preparations			
c. endotracheal instillation			
6. Initiate and modify weaning procedures			
7. Position patient to minimize hypoxemia			
8. Apply disease-specific ventilator protocols (e.g. ARDS-Net protocol)			
E. Evaluate and Monitor Patient's Objective and Subjective Responses to Respiratory Care	**0**	**0**	**9**
1. Recommend and review a chest radiograph			
2. Obtain a blood gas sample			
a. by puncture			
b. from an arterial or pulmonary artery catheter			
c. from arterialized capillary blood			
3. Perform			
a. transcutaneous monitoring			
b. blood gas and hemoximetry analyses			
c. capnography			
d. hemodynamic assessment			
4. Interpret results of			
a. hemodynamics			
b. capnography			
5. Observe for signs of patient-ventilator dysynchrony			
6. Measure and record vital signs, monitor cardiac rhythm, and evaluate fluid balance – intake and output			
7. Perform and interpret results of pulmonary function testing			
a. spirometry			
b. compliance and airways resistance			
c. lung volumes			
d. D_{Lco}			
e. exercise			
f. bronchoprovocation studies			

	Recall	Application	Analysis
8. Recommend blood tests e.g., hemoglobin, potassium			
9. Auscultate the chest and interpret changes in breath sounds			
F. INDEPENDENTLY MODIFY Therapeutic Procedures Based on the Patient's Response	**0**	**0**	**9**
1. Terminate treatment based on patient's response to therapy			
2. Modify treatment techniques			
a. IPPB			
b. incentive breathing devices			
c. specialty gas therapy e.g., He / O_2, NO			
1) change mode of administration			
2) adjust flow or gas concentration			
d. management of artificial airways			
1) reposition or change endotracheal or tracheostomy tube			
2) perform tracheostomy care			
e. mechanical ventilation			
1) improve patient synchrony			
2) enhance oxygenation			
3) improve alveolar ventilation			
4) adjust I : E settings			
5) modify ventilator techniques			
6) adjust noninvasive positive pressure ventilation			
7) adjust ventilator settings based on ventilator graphics			
8) change type of ventilator			
9) alter mechanical dead space			
10) initiate procedures for weaning			
G. RECOMMEND Modifications in the Respiratory Care Plan Based on the Patient's Response	**0**	**1**	**13**
1. Recommend			
a. institution of bronchopulmonary hygiene procedures			
b. treatment of pneumothorax			
c. sedation and/or use of muscle relaxant(s)			
d. adjustment of fluid balance			
e. adjustment of electrolyte therapy			
f. insertion or change of artificial airway			
g. weaning from mechanical ventilation			
h. extubation			
i. discontinuing treatment based on patient response			
2. Recommend changes in			
a. patient position			
b. inhaled drug dosage or concentration			
3. Recommend changes in mechanical ventilation to			
a. improve patient synchrony			
b. enhance oxygenation			
c. improve alveolar ventilation			
d. adjust I : E settings			
e. modify ventilator techniques			
f. adjust noninvasive positive pressure ventilation			
g. adjust ventilator settings based on ventilator graphics			
h. change type of ventilator			
i. alter mechanical dead space			
j. reduce auto-PEEP			
k. reduce plateau pressure			
4. Recommend pharmacologic interventions including use of			
a. cardiovascular drugs e.g., ACLS protocol agents			
b. antimicrobials e.g., antibiotics			
c. sedatives			
d. analgesics			
e. paralytic agents			
f. diuretics			
g. surfactants			
h. vaccines e.g., pneumovax, influenza			
H. Determine the Appropriateness of the Prescribed Respiratory Care Plan and Recommend Modifications When Indicated by Data	**0**	**2**	**4**
1. Analyze available information to determine the pathophysiological state			
2. Review			
a. planned therapy to establish therapeutic plan			
b. interdisciplinary patient and family plan			

	Recall	Application	Analysis
3. Determine appropriateness of prescribed therapy and goals for identified pathophysiological state			
4. Recommend changes in therapeutic plan when indicated			
5. Perform respiratory care quality assurance			
6. Develop			
a. quality improvement program			
b. respiratory care protocols			
7. Monitor outcomes of			
a. quality improvement programs			
b. respiratory care protocols			
8. Apply respiratory care protocols			
9. Conduct health management education			
I. Initiate, Conduct, or Modify Respiratory Care Techniques in an Emergency Setting	**0**	**1**	**2**
1. Treat cardiopulmonary emergencies according to			
a. ACLS			
b. Pediatric Advanced Life Support (PALS)			
c. Neonatal Resuscitation Program (NRP)			
2. Treat a tension pneumothorax			
3. Participate in			
a. land / air patient transport			
b. intra-hospital patient transport			
c. disaster management			
d. medical emergency team (MET) e.g., rapid response team			
J. Act as an Assistant to the Physician Performing Special Procedures	**0**	**0**	**2**
1. Intubation			
2. Bronchoscopy			
3. Thoracentesis			
4. Tracheostomy			
5. Chest tube insertion			
6. Insertion of venous or arterial catheters			
7. Moderate (conscious) sedation			
8. Cardioversion			
K. Initiate and Conduct Pulmonary Rehabilitation and Home Care	**0**	**1**	**1**
1. Initiate and adjust apnea monitors			
2. Explain planned therapy and goals to a patient in understandable terms to achieve optimal therapeutic outcome			
3. Educate a patient and family in health management			
4. Interact with a case manager			
5. Counsel a patient and family concerning smoking cessation			
6. Instruct patient and family to assure safety and infection control			
7. Modify respiratory care procedures for use in home			
8. Initiate treatment for sleep disorders e.g., CPAP			
Totals	**6**	**15**	**79**