The National Alliance of
Respiratory Therapy Regulatory Bodies

L'Alliance nationale des organismes de
réglementation de la thérapie respiratoire

2024

EDUCATION AND EXAMINATION RESOURCE

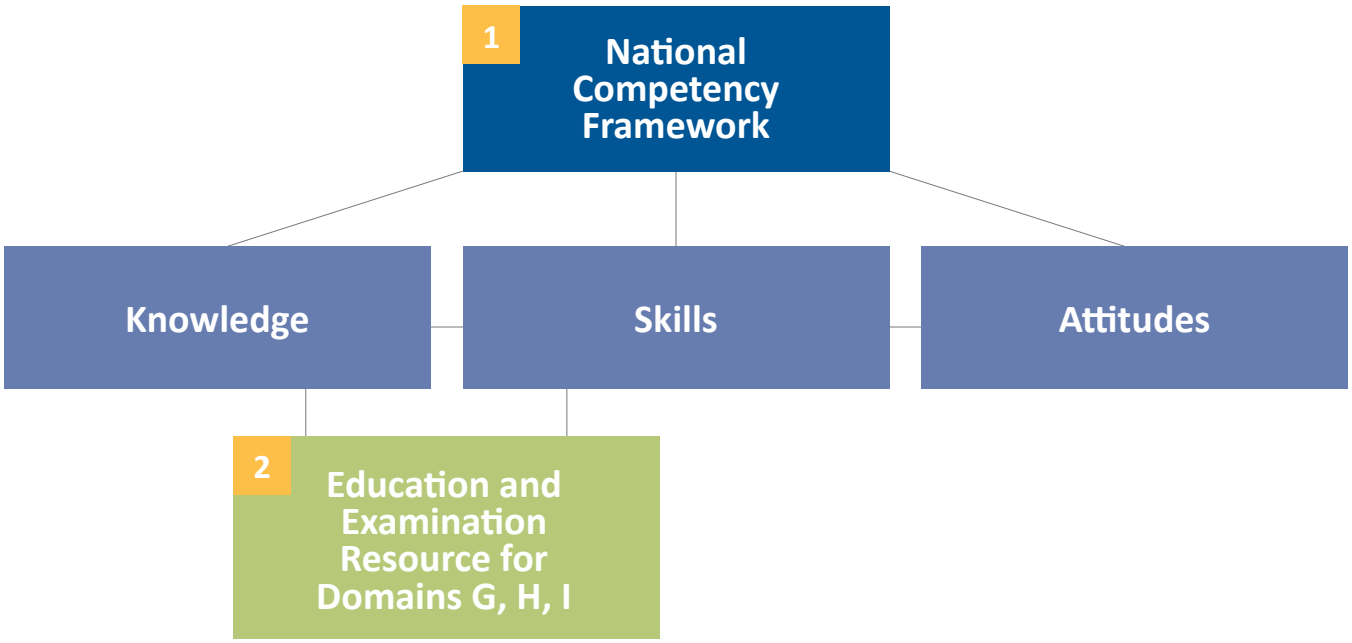
to support the National Competency Framework for Entry-to-Practice Respiratory Therapists in Canada

CONTENTS

INTRODUCTION

Purpose and Context

The Education and Examination Resource (EER) is the second of two documents that are meant to address the needs of a number of audiences. The EER supports the National Competency Framework (NCF) for Entry-to-practice Respiratory Therapists in Canada. It is an expanded list of foundational knowledge and minimum entry-to-practice skills for the more "clinical" aspects of the respiratory therapist's practice: Clinical Assessment and Care Planning (Domain G), Therapeutic Interventions (Domain H), and Prevention, Health Promotion, and Education (Domain I).



The EER was written to assist with development of curriculum and assessment tools. It captures topics that are important to respiratory therapy practice in Canada overall, but that are at a level of detail not suitable for a pan-Canadian competency profile. The document uses examples to illustrate content and any lists are non-exhaustive unless explicitly stated.

1. The National Competency Framework will be useful for all audiences, but was specifically designed to meet the needs of regulators (including the NARTRB), provincial governments, accreditation bodies, educators, employers, and the public.
2. The Education and Examination Resource will be most useful for educators (including preceptors/clinical supervisors), exam item writers, and respiratory therapists — most notably for the development of their learning plans

Note: To support labour mobility, the document does not exclude areas that may not be part of a jurisdiction's specific scope of practice.

NAVIGATING THE DOCUMENT

Foundational Knowledge - **Section 1** captures the scientific areas upon which all other knowledge and skills are founded. These include physiology, chemistry, pharmacology, pulmonary pathology, etc. A deep understanding of foundational science plays a crucial role in effective clinical decision-making, learning new information and relating it to past information, and demonstrating flexible problem-solving abilities.

Respiratory Therapy Knowledge and Skills, Techniques and Tasks - Sections 2 and 3 provide a non-exhaustive education resource with detailed clinical knowledge, skills, techniques, and tasks pertaining to domains G: Clinical Assessment and Care Planning, H: Therapeutic Interventions, and I: Prevention, Health Promotion, and Education.

Appendix A provides an overview of the relationship between the entry-to-practice competencies and the present document.

Appendix B presents the linkage between the "Domains of Learning" as described by Sherbino and Frank (2011), and full and partial competence requirements identified in the NCF 2024. Three examples illustrate how to interpret the quick reference for ranges of proficiency.

Appendix C delves into the relationship between proficiency, action verbs, and learning and assessment taxonomies.

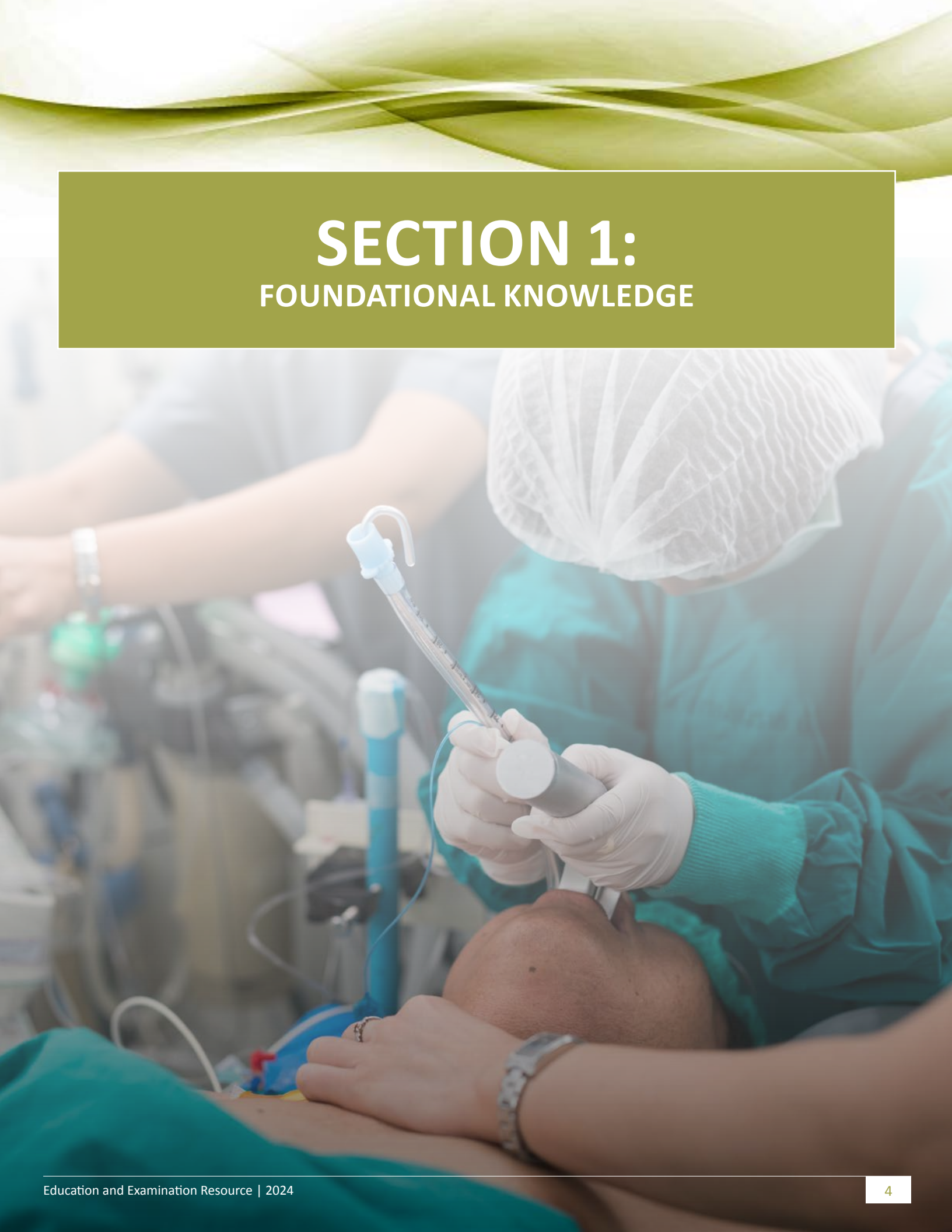
Appendix D includes the results of high-level mapping of the NCF 2016 competencies against the updated competencies contained within the NCF 2024 and .and this resource.

Use of examples: to increase clarity, examples are included for some knowledge and skill items. Clinical educators are expected to incorporate the most recent knowledge and their expertise as they engage in curriculum development and lesson planning.

Sources: The content of this document is informed by the National Competency Framework for the Profession of Respiratory Therapy (National Alliance of Respiratory Therapy Regulatory Bodies, 2016), the Competencies for Entry into Respiratory Therapy Practice (American Association of Respiratory Care, 2016), and the Respiratory Therapy – National Competency Profile Companion Document (Canadian Society of Respiratory Therapists, 2011).

The EER will be reviewed periodically to ensure it reflects current practice.

SECTION 1:
FOUNDATIONAL KNOWLEDGE



Section 1: Foundational knowledge

A resource to support respiratory therapy educators in curriculum development and assessment. Adaptation to provincial and jurisdictional scope is required.

1	APPLY SCIENTIFIC KNOWLEDGE OF ANATOMY AND PHYSIOLOGY	
1.1	**Organization and function of the human body**	☐ chemical processes needed for the function of human physiology ☐ cellular mechanism as a fundamental and essential unit ☐ functions of the principal human tissues
1.2	**Stages of prenatal development**	☐ stages of pregnancy and delivery ☐ events of embryonic and fetal development ☐ newborn's adaptation to extra-uterine life
1.3	**Skin, bones and muscles**	☐ integumentary system ☐ structure and function of the bones ☐ structure and function of the muscles ☐ changes and consequences of aging on the bones and muscles
1.4	**Nervous system: its regulation and integration of the physiological processes**	☐ structure and physiology of the nervous tissue ☐ function of the central nervous system ☐ function of the peripheral nervous system and the reflex activity ☐ function of the autonomic nervous system ☐ changes and consequences of aging on the nervous system
1.5	**Homeostasis and the role of each contributing system**	☐ composition and characteristics of venous and arterial blood ☐ functions of the lymphatic system ☐ functions of the immune system ☐ overall function of the digestive system ☐ metabolism and function of the liver ☐ thermoregulatory mechanism with emphasis on the newborn
1.6	**Urinary system**	☐ anatomy of the kidney ☐ mechanism of urine formation ☐ functions of the urinary system in relation to the maintenance of homeostasis
1.7	**Fluid equilibrium, electrolytes and acid-base balance**	☐ regulation of water balance ☐ regulation of electrolytes: sodium, potassium, calcium, magnesium and anions ☐ acid-base balance: chemical buffer systems, respiratory regulation and renal mechanisms

Section 1: Foundational knowledge

1	APPLY SCIENTIFIC KNOWLEDGE OF ANATOMY AND PHYSIOLOGY	
1.8	**Endocrine system**	☐ major endocrine organs ☐ functional role of the major endocrine organs: pituitary, thyroid, parathyroid, adrenal, pineal and thymus glands
1.9	**Pulmonary system**	☐ components of the pulmonary system ☐ relationship between the pulmonary and other systems ☐ changes to the pulmonary system throughout the course of life
1.10	**Pulmonary ventilation**	☐ principles of physics in relation to pulmonary ventilation ☐ functionality of inhalation and exhalation during one breath cycle ☐ function of external respiration ☐ lung volumes and lung capacities
1.11	**Neurological control of breathing and respiratory compensation**	☐ regulation of breathing ☐ types of respiratory patterns ☐ reflect actions triggered by blood and pulmonary receptors ☐ other factors which influence respiratory frequency and amplitude ☐ various mechanisms known to contribute to respiratory compensation
1.12	**Functional physiology of blood**	☐ biochemical profile of venous and arterial blood ☐ composition of plasma and its components ☐ mechanism of blood coagulation ☐ principle of blood transfusion, cell saving and restoration of blood volume ☐ flow and function of pulmonary and systemic circulation
1.13	**Gas exchanges**	☐ composition of atmospheric, alveolar, and blood gases ☐ gas exchange between the blood, the lungs and tissues ☐ how gases are transported in the blood ☐ anatomical and physiological factors known to affect gas exchange
1.14	**Functional physiology of the cardiovascular system**	☐ anatomy and function of the heart as an integral part of the cardiovascular system ☐ electromechanical physiology pertaining to each functional phase of a cardiac cycle ☐ physiology of blood circulation during one complete cardiac cycle ☐ changes and consequences of aging on the cardiovascular system
1.15	**Electrophysiology of the heart**	☐ neurochemical control of the cardiovascular system ☐ intrinsic conduction system and the extrinsic innervation of the heart ☐ graphic recording of electrical changes on an electrocardiogram during various heart activities

Section 1: Foundational knowledge

2	APPLY SCIENTIFIC KNOWLEDGE OF CHEMISTRY AND BIOCHEMISTRY	
2.1	**Chemical terms and concepts as they pertain to respiratory therapy**	☐ element, atom, nucleus, proton, neutron, electron, valence and isotope ☐ atomic number, atomic weight, molecular weight ☐ chemical compound, molecule ☐ ion, cation, anion, electrolyte, and salt ☐ chemical bonds - ionic and covalent compounds ☐ oxidation and reduction ☐ kinetic energy, potential energy, and gradient ☐ anabolism and catabolism ☐ organic, inorganic compounds ☐ equilibrium ☐ reversible reaction ☐ law of mass action ☐ water as a universal solvent, physical characteristics of water and hydrogen bonding ☐ hydrolysis reaction ☐ dissociation ☐ enzyme ☐ acidity, basicity ☐ electrode (cathode, anode) voltage, current and resistance
2.2	**Biochemical terms and concepts as they pertain to respiratory therapy**	☐ mixture, solution, solvent, solute, crystalloid, colloid and suspension ☐ strong acid, strong base ☐ acidosis and acidemia ☐ alkalosis and alkalemia ☐ fixed acid ☐ volatile acid ☐ buffers – chemical buffers, closed buffer systems and open buffer systems ☐ conjugate base ☐ amphoteric compound or molecule ☐ law of electro-neutrality and anion gap ☐ gradient, diffusion, osmosis, facilitated diffusion, filtration and active transport

Section 1: Foundational knowledge

3	APPLY SCIENTIFIC KNOWLEDGE OF ANATOMY AND PHYSIOLOGY	
3.1	**Behaviour of gases**	☐ potential and kinetic energy ☐ Avogadro's law ☐ Boyle's, Charles', Gay-Lussac's laws ☐ Combined and idea gas laws ☐ pressure: units of measure and conversion factors ☐ volume: units of measure and conversion factors
3.2	**States of matter and change of state**	☐ melting point and boiling point ☐ critical temperature, critical pressure, and filling density ☐ evaporation, surface area and contact time ☐ vapour and vapour pressure ☐ latent heat of vapourization (fusion) ☐ humidity, absolute humidity, relative humidity and humidity deficit ☐ condensation and dew point ☐ standard temperature atmospheric pressure dry (STPD), ambient temperature atmospheric pressure saturated (ATPS), body temperature ambient pressure gas saturated with water vapour (BTPS)
3.3	**Surface tension**	☐ Laplace's law ☐ capillary action ☐ cohesion and adhesion
3.4	**Gas diffusion**	☐ atmospheric composition and its gases ☐ Dalton's law of partial pressures ☐ Graham's law ☐ Henry's law ☐ solubility coefficient ☐ Fick's law of diffusion
3.5	**Fluid dynamics and gas mixing/entrainment**	☐ Poiseuille's law ☐ Reynold's number ☐ laminar and turbulent flow ☐ Bernoulli's principle ☐ Venturi effect ☐ Coanda effect

Section 1: Foundational knowledge

3	APPLY SCIENTIFIC KNOWLEDGE OF ANATOMY AND PHYSIOLOGY	
3.6	**Behaviour of aerosols**	☐ Stoke's law of sedimentation ☐ stability and particle size ☐ gravitational forces ☐ inertial impaction ☐ penetration ☐ retention ☐ deposition ☐ clearance
3.7	**Other physical principles**	☐ Beer's law and light absorption ☐ Doppler effect ☐ Hooke's law, elasticity and compliance

4	APPLY SCIENTIFIC KNOWLEDGE OF PHARMACOLOGICAL PRINCIPLES	
4.1	**Application of medications**	☐ basic sources of medications ☐ classification system of medications: chemical, experimental, generic official and trade ☐ characteristics of the following formulations: oral, injectable, aerosol, micronized powder, suppository, sublingual transdermal and topical ☐ advantages and disadvantages of the following routes of administration: enteral, parenteral, topical, and inhalational
4.2	**Pharmacologic response of adrenergic and cholinergic drugs**	☐ drug classification based on the autonomic nervous system (ANS) divisions ☐ location and action of adrenergic receptors ☐ adrenergic and anti-adrenergic drug action ☐ location and action of cholinergic receptors ☐ cholinergic and anti-cholinergic drug action
4.3	**Classes of medications**	Indications, mechanism of action, routes of administration and side effects of: ☐ sympathomimetic and parasympathomimetic bronchodilators ☐ xanthine bronchodilators ☐ mucolytic agents ☐ anti-inflammatories ☐ anti-asthmatic medications ☐ antihistamine drugs ☐ antibiotic, antiviral and antifungal drugs ☐ diuretics

Section 1: Foundational knowledge

4	**APPLY SCIENTIFIC KNOWLEDGE OF PHARMACOLOGICAL PRINCIPLES**	
4.4	**Specific classes of cardiovascular medications**	Indications, mechanism of action, routes of administration, and side effects of: ☐ cardiotonic agents ☐ antianginal agents ☐ diuretic agents ☐ antiarrhythmic agents ☐ antihypertensive agents ☐ antithrombotic and thrombolytic agents
4.5	**Drugs utilized in anaesthesia**	Indications, mechanism of action, routes of administration, and side effects of: ☐ intravenous anaesthetic drugs, including their pharmacokinetics ☐ narcotics and narcotic antagonists ☐ benzodiazepines, barbiturates, and benzodiazepine antagonists ☐ depolarizing and non-depolarizing muscle relaxants, including their neuromuscular transmission, structure, metabolism and excretion ☐ cholinesterase inhibitors, including their physical structure and role as reversal agents ☐ muscarinic antagonists, including their physical structure and their use in conduction with cholinesterase inhibitors ☐ local anaesthetics
4.6	**Inhalational anaesthetic agents**	☐ host, infectious disease, colonization, microflora, virulence, pathogen, and saprophyte ☐ Pharmacokinetics, pharmacodynamics of inhalational anaesthetic agents ☐ diffusion hypoxia, solubility, second gas effect, compartments of anaesthesia, balanced anaesthesia and interaction with carbon dioxide absorbents ☐ characteristics of inhalational anaesthetic agents ☐ factors which alter the effects of inhaled anaesthetic agents ☐ effects of inhalational agents on pulmonary ventilation
5	**APPLY SCIENTIFIC KNOWLEDGE OF MICROBIOLOGY**	
5.1	**Mechanism of infectious diseases**	☐ host, infectious disease, colonization, microflora, virulence, pathogen, and saprophyte ☐ host-microorganism interaction ☐ incidence and prevalence among endemic, epidemic, and pandemic ☐ stages of an infectious disease ☐ systemic manifestations of infectious disease ☐ mechanisms and significance of antimicrobial and antiviral drug resistance ☐ actions of intravenous immunoglobulin and cytokines in treatment of infectious diseases

Section 1: Foundational knowledge

5	APPLY SCIENTIFIC KNOWLEDGE OF MICROBIOLOGY	
5.2	**Agents of infectious diseases**	☐ structural characteristics and mechanisms of reproduction for viruses, bacteria, rickettsia, chlamydia, fungi, and parasites ☐ modes of transmission ☐ mechanism of infectious diseases using incidence, portal of entry, source of infection, symptomatology, disease source, site of infection, agent, and host characteristics

6	APPLY SCIENTIFIC KNOWLEDGE OF PULMONARY PATHOPHYSIOLOGY	
6.1	**Pathophysiology of diseases and disorders of the pulmonary system**	☐ respiratory failure (including both hypoxia and hypercapnia) in acute and chronic states
6.2	**Obstructive processes of the lung**	☐ factors that produce obstruction such as: dynamic compression, loss of radial traction (tethering), inflammation, foreign bodies, secretions, hypertrophy, and spasm ☐ factors affecting air flow in the lower airways (i.e., below the glottis): airway lumen size, elastic recoil of the lung, physical properties of the inhaled gas ☐ the characteristics of airway obstruction, including: change in lung volumes/flows and gas exchange abnormalities ☐ upper and lower airway obstructions
6.3	**Obstructive airway disorders**	☐ asthma, bronchiectasis, bronchiolitis, bronchogenic neoplasm, bronchopulmonarydysplasia (BPD), choanal atresia, chronic obstructive pulmonary disease (COPD), chronic bronchitis and emphysema, croup, cystic fibrosis, epiglottitis, laryngo/tracheo/bronchomalacia, foreign body aspiration, meconium aspiration syndrome (MAS), obstructive sleep apnea (OSA), Pierre Robin syndrome, pulmonary interstitial emphysema (PIE), vascular ring, vocal cord dysfunction ☐ basic principles of sleep studies and screening (stages of sleep and sleep study screening / sleep related disorders / the three categories of Sleep Apnea Syndrome (SAS) / signs, symptoms, and diagnostic procedures for the evaluation of SAS)
6.4	**Restrictive processes of the respiratory system**	☐ restrictive processes of the respiratory system in terms of origin: extrapulmonary versus intrapulmonary ☐ effects of restrictive processes on pulmonary function: decreased compliance / decreased lung volumes / diffusion impairment / airway remodeling / gas exchange abnormalities / pulmonary hypertension
6.5	**Extrapulmonary disorders**	☐ bronchopleural fistula ☐ pleural effusion ☐ pneumothorax ☐ thoracic cage disorders ☐ traumatic chest wall injuries

Section 1: Foundational knowledge

6	APPLY SCIENTIFIC KNOWLEDGE OF PULMONARY PATHOPHYSIOLOGY	
6.6	**Intrapulmonary disorders**	☐ acute respiratory distress syndrome (ARDS) ☐ atelectasis ☐ collagen disorders ☐ diaphragmatic hernia ☐ hyaline membrane disease ☐ hypersensitivity pneumonitis ☐ pulmonary fibrosis ☐ inhalation of toxic gases ☐ neoplasms ☐ oxygen toxicity ☐ pharmacological toxicity ☐ pneumoconiosis ☐ pneumonia ☐ pneumonitis ☐ pulmonary contusion / hemorrhage ☐ pulmonary edema ☐ sarcoidosis ☐ transient tachypnea of the newborn (TTN)

7	APPLY SCIENTIFIC KNOWLEDGE OF CARDIOVASCULAR PATHOPHYSIOLOGY	
7.1	**Coronary atherosclerotic heart disease**	☐ coronary atherosclerotic disease
7.2	**Valvular heart disorders**	☐ tricuspid stenosis, incompetence, regurgitation ☐ mitral stenosis, incompetence, regurgitation ☐ aortic stenosis, incompetence, regurgitation ☐ pulmonary stenosis, incompetence, regurgitation
7.3	**Inflammatory heart disorders**	☐ pericarditis ☐ endocarditis ☐ myocarditis ☐ cardiomyopathies: dilated, hypertrophic, restrictive
7.4	**Peripheral vascular disorders**	☐ arterial: arteriosclerosis / arterial thrombosis and embolism / aneurysm / aortic dissection / arterioplastic disease (Raynaud's) / pulmonary embolism ☐ venous: thrombophlebitis / deep venous thrombosis / varicose veins

Section 1: Foundational knowledge

7	APPLY SCIENTIFIC KNOWLEDGE OF CARDIOVASCULAR PATHOPHYSIOLOGY	
7.5	**Congenital heart defects**	☐ atrial septal defect ☐ aortic stenosis ☐ coarctation of the aorta ☐ hypoplastic left / right ventricle ☐ patent ductus arteriosus ☐ pulmonary stenosis ☐ right ventricular outflow tract obstruction ☐ Tetralogy of Fallot ☐ total anomalous pulmonary venous return ☐ transposition of the great vessels ☐ tricuspid atresia ☐ truncus arteriosus ☐ ventricular septal defect
7.6	**Types of shock**	☐ anaphylactic ☐ cardiogenic ☐ distributive ☐ hypovolemic ☐ neurogenic ☐ septic
7.7	**Cardiovascular abnormalities**	☐ hypertension ☐ myocardial infarction ☐ congestive heart failure ☐ rheumatic heart disease ☐ dissemination intravascular coagulation

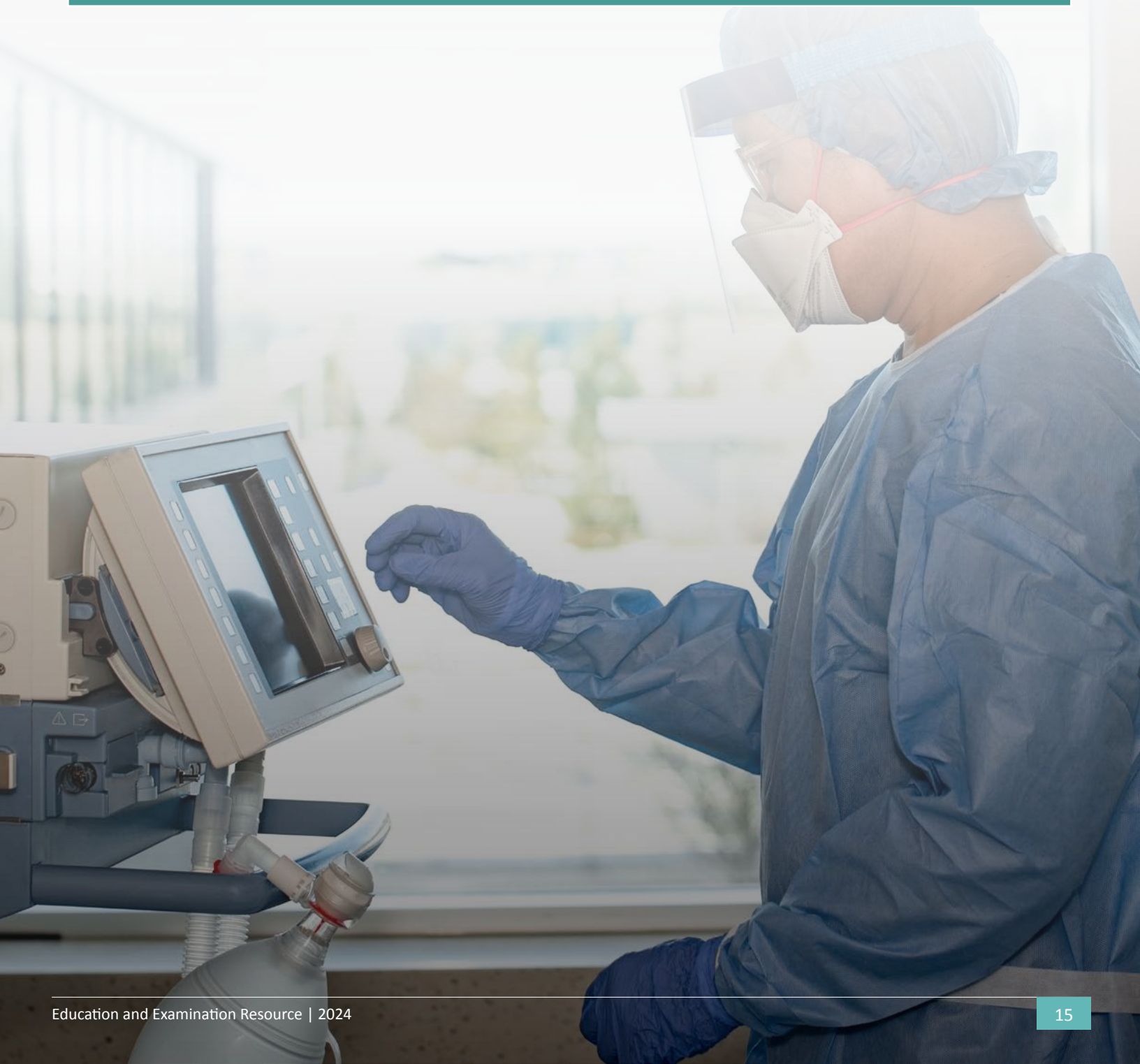
8	APPLY SCIENTIFIC KNOWLEDGE OF OTHER DISEASES AND DISORDERS	
8.1	**Disorders of the central nervous system**	☐ central apnea syndromes ☐ cerebrovascular accident ☐ cerebral arterial-venous malformation ☐ intraventricular hemorrhage ☐ periventricular leukomalacia ☐ Reye's syndrome ☐ space occupying lesions ☐ sudden infant death syndrome (SIDS) ☐ thermal instability ☐ trauma ☐ brain death

Section 1: Foundational knowledge

8	APPLY SCIENTIFIC KNOWLEDGE OF OTHER DISEASES AND DISORDERS	
8.2	**Disorders of the peripheral nervous system**	☐ amyotrophic lateral sclerosis (ALS) ☐ diaphragmatic paralysis ☐ Guillain-Barré syndrome ☐ muscular dystrophy ☐ myasthenia gravis ☐ multiple sclerosis ☐ post-polio syndrome ☐ spinal muscular atrophy disorders
8.3	**Renal failure**	☐ acute renal failure ☐ chronic renal failure
8.4	**Specific metabolic disorders**	☐ diabetes ☐ nephritis
8.5	**Particular conditions that impair human physiology**	☐ inhalation injuries ☐ electrical and surface burn injuries ☐ hyperthermia and hypothermia ☐ drowning and near-drowning ☐ hypobarism and hyperbarism ☐ multiple organ dysfunction syndrome (MODS) ☐ obesity ☐ hepatitis A & C ☐ cancers
8.6	**Systemic infections**	☐ influenza (flu) ☐ H1N1 flu virus ☐ human immunodeficiency virus (HIV) / acquired immunodeficiency syndrome (AIDS) ☐ pneumonia (pneumococcal) ☐ poliomyelitis ☐ tuberculosis ☐ SARS ☐ blastomycosis ☐ ebola ☐ other current or relevant diseases

9	MEDICAL, RESPIRATORY THERAPY AND PHARMACOLOGICAL TERMINOLOGY
	vocabulary, acronyms, abbreviations, symbols according to jurisdictional practices

SECTION 2:
ASSESSMENT, DIAGNOSTICS, CARE PLANNING, PREVENTION, HEALTH PROMOTION, AND EDUCATION



Section 2: Assessment, diagnostics, care planning, prevention, health promotion, and education

A resource to support respiratory therapy educators in curriculum development and assessment for domains G and I of the NCF. Adaptation to provincial and jurisdictional scope is required.

10. Clinical Assessment

Knowledge

Also see G1 Assess patient's clinical status

- [ ] common diseases and disorders
- [ ] clinical manifestations, signs, and symptoms
- [ ] diagnostic and monitoring tools
- [ ] diagnostic imaging techniques (e.g., X-ray, computed tomography, magnetic resonance imaging and angiography, ultrasound)
- [ ] technical and clinical characteristics of assessment results
- [ ] objective and subjective data
- [ ] normal and abnormal findings, values, and measures; reference guidelines
- [ ] applications, indications, contraindications, complications, and corrective action associated with interventions, procedures, or medications
- [ ] lung sounds
- [ ] reflex assessment methods (e.g., peripheral nerve stimulation)
- [ ] mechanism of action of pulse-oximeter (e.g., wavelength)

Skills, Techniques, and Tasks

- [ ] Collect and document patient history through various sources:
- [ ] based on presentation and practice context
- [ ] types of data: medical, surgical, family history, social determinants of health
- [ ] techniques: interview, chart review, shift reports
- [ ] patient goals and alignment to care plan

Assess the accuracy and quality of all data

Assess the patient

- [ ] examine cardiopulmonary condition (e.g., auscultation, palpation, percussion, respiratory pattern and rate, digital clubbing, cyanosis, accessory muscle use, nasal flaring, pupillary response)
- [ ] examine and monitor level of consciousness (e.g., bispectral index, bronchiectasis severity index - BSI, Glasgow Coma Scale - GCS)
- [ ] observe signs and symptoms indicating pulmonary or cardiovascular pathophysiology (e.g., shortness of breath, chest pain, swelling of the lower extremities)
- [ ] select appropriate diagnostic test(s) and site(s) (see testing in the next section)
- [ ] perform head to toe inspection (e.g., pedal edema, digital cap refill, modelling)
- [ ] measure vital signs (e.g., blood pressure, heart rate, respiratory rate; non-invasive blood pressure measurement; manual and automatic techniques; pulse oximetry)

Section 2: Assessment, diagnostics, care planning, prevention, health promotion, and education

10. Clinical Assessment

Skills, Techniques, and Tasks

☐ perform other laboratory and point-of-care testing (e.g., electrolytes, lactates, complete blood cell count, blood glucose, diagnostic imaging, metabolic testing, exhaled nitric oxide testing)
Consider patient positioning and its impact on clinical condition
Perform non-invasive monitoring, including application sites, transcutaneous monitoring
Perform invasive monitoring (e.g., hemodynamics, ventilatory parameters)
Correlate assessment data with patient's clinical status
Share information (e.g., with members of the healthcare team)
Assess functional capacity (e.g., walk test, exercise tolerance, orthopnea)

11. Cardiopulmonary Diagnostics

Knowledge

Also see G2 Utilize cardiopulmonary testing, and Foundational Knowledge, including Anatomy and Physiology

Sample collection
Data collection and interpretation
American Thoracic Society and Canadian Thoracic Society Standards (incl. sleep diagnostic testing)
Methods of coaching, recognition of improperly performed maneuvers, and corrective actions

Skills, Techniques, and Tasks

Use: ☐ impulse oscillometry ☐ lung volume testing flow transducer ☐ electrocardiogram (3-lead, 5-lead, 12-lead, 15-lead, 18-lead) ☐ ambulatory / portable monitoring systems ☐ continuous positive airway pressure devices ☐ flow-based, volume-based spirometers
Perform, review and/or interpret: ☐ pulmonary function studies (e.g., spirometry, lung volumes and diffusion studies) ☐ arterial and venous blood gases sampling and analysis ☐ pulse oximetry studies (e.g., walking oximetry testing, overnight oximetry - excluding polysomnography) ☐ levels 3 and 4 multichannel sleep tests (the American Academy of Sleep Medicine), excluding sleep studies ☐ electrocardiogram ☐ cardiac / pulmonary stress testing ☐ ultrasound (e.g., lung, invasive line insertion)
Initiate patient monitoring equipment (e.g., infant apnea monitors, pulse oximetry)

Section 2: Assessment, diagnostics, care planning, prevention, health promotion, and education

12. Care Planning and Implementation

Knowledge

Also see G3 Create and implement care plan

Care planning tools (e.g., SCORE in Quebec)
Goal setting (i.e., short- and long-term; specific, measurable, attainable, relevant, time-based)
Risk mitigation for proposed care plan and interventions (e.g., precautions, contraindications, harm reduction)
Rationale for intervention
Discharge criteria
Referrals and consultations
System navigation
Factors impacting patient compliance
Therapeutic relationships

Skills, Techniques, and Tasks

Establish respiratory therapy goals and objectives
Assess level of patient understanding
Design, develop, administer, evaluate, and modify respiratory care plans
Implement evidence-informed approaches to care planning, including: ☐ protocols ☐ medical directives ☐ clinical practice guidelines ☐ care pathways
Monitor and respond to variances in patient response and compliance to the care plan

Section 2: Assessment, diagnostics, care planning, prevention, health promotion, and education

13. Prevention, Health Promotion, and Education

Knowledge

Also see **I1 Teach patients and those involved in care**
I2 Advocate for access to care

Teaching and coaching techniques
Determinants and benefits of cardio-respiratory health
Methods for promoting a healthy cardio-respiratory lifestyle
Smoking / vaping cessation methods
Community health programs (i.e., purpose, strategies, goals)
Pulmonary rehabilitation programs (i.e., benefits, elements, implementation)

Skills, Techniques, and Tasks

Provide education on: ☐ medication and disease processes ☐ infection prevention and control ☐ maintenance of equipment ☐ complications and hazard recognition (e.g., oxygen safety presence of fire extinguishers, smoke detectors, smoking cessation, evacuation routes, open flames)
Evaluate home environment for appropriateness of prescribed therapy and identification of risk factors
Communicate and educate to empower and engage patients

SECTION 3:
THERAPEUTIC INTERVENTIONS

Section 3: Therapeutic interventions

A resource to support respiratory therapy educators in curriculum development and assessment for domain H of the NCF. Adaptation to provincial and jurisdictional scope is required.

14. Administer Medications or Other Substances

Knowledge

Also see H1 Administer medications or other substances

Classes of medications ☐ for example, bronchodilators, benzodiazepines, narcotics, prostacyclins, antibiotics, surfactants, adrenergics, anti / cholinergics, decongestants, mucolytics, pulmonary vasodilators, antimicrobials, and inhaled medical gases - for anaesthesia assistance, this includes inhaled anaesthetic agents ☐ in particular, see also Foundational Knowledge - Pharmacology
Substances ☐ for example, blood, plasma crystalloid substance
The "rights" associated with administration of medication or other substances ☐ right client, right medication or substance, right reason, right dose, right frequency, right route, right site, right time, right documentation
Dosage and concentrations
Indications, contraindications, complications, adverse responses (including oxygen and medical gas therapy)
Recommended applications and administration procedure for each medical gas
High / low flow oxygen delivery devices (e.g., nasal cannula, heated high flow nasal cannula)
Hyperbaric medicine

Skills, Techniques, and Tasks

Administer all classes of medications or other substances using the appropriate route: ☐ enteral, parenteral, topical ☐ buccal ☐ endotracheal ☐ infusion, inhalation, injection, instillation ☐ intramuscular, intranasal, intraosseous, intravenous ☐ oral, rectal, subcutaneous, sublingual, transdermal
Assess the need for oxygen or medical gas therapy
Provide aerosol or medical gas therapy, including high flow oxygen, using various devices
Verify medication or substance is not contraindicated
Perform dosage calculations
Prepare labelling according to pharmaceutical regulations and professional standards
Select, prepare, mix, and utilize medication or substance depending on patient condition, clinical situation, and scope of practice
Adjust or withdraw medication or substance according to order
Document medication or other substance administration

Section 3: Therapeutic interventions

15. Manage Airway

Knowledge

Also see H2 Manage airway

Physiological importance of humidity, significance of a humidity deficit in the respiratory tract
Physiological effects of heated or non-heated humidification
Purpose of various drugs commonly used during a bronchoscopy
Positions used to facilitate bronchopulmonary hygiene
Mechanical or pneumatic devices (e.g., positive expiratory devices, mechanical insufflator/exsufflator, intrapulmonary percussive ventilation)
Indicators of proper tube placement
Possible complications and corrective actions to take with airway management
Humidity therapy, devices, indications, and contraindications
Methods to identify physical characteristics of difficult airways (e.g., Mallampati airway classification scoring system, Cormack-Lehane classification system)
Risk factors associated with inter-hospital and intra-hospital transfer
Factors influencing the selection of equipment for transport
Equipment and accessories utilized for transport
Precautions required when transporting patients

Skills, Techniques, and Tasks

Evaluate the need for alternative airway
Select, insert, maintain, and remove artificial airway devices in various clinical situations, using appropriate techniques and equipment (e.g., nasopharyngeal airway, oropharyngeal airway, laryngoscope, video laryngoscope, bougie)
Assure proper position of artificial airway devices
Select manual ventilation equipment (i.e., mask, artificial airway device, manual resuscitator)
Perform: ☐ insertion of oropharyngeal, nasopharyngeal, laryngeal mask ☐ suction therapy (i.e., nasopharyngeal, oropharyngeal, endotracheal) ☐ directed cough, assisted cough, percussion, and postural drainage technique ☐ physiological techniques (e.g., breath stacking) ☐ pneumatic techniques (e.g., intermittent positive pressure breathing, modify resuscitator device) ☐ manual ventilation using self-inflating manual resuscitator, flow-inflating manual resuscitator, and T-piece resuscitator ☐ tracheostomy insertion, care, and weaning (e.g., corking, capping) ☐ lung expansion and airway clearance therapies
Obtain and / or prepare (assist with) collection of samples: ☐ sputum ☐ bronchoscopy
Manage difficult airway situations
Assist patients with tracheostomy / laryngectomy to communicate (e.g., use of equipment that is applied to the airway, such as a one-way valve for speech; tracheostomy cuff; letter board)
Manage airway during transport (intra and inter-hospital)

Section 3: Therapeutic interventions

16. Optimize Ventilation

Knowledge

Also see H3 Manage ventilation

Non-invasive / invasive ventilation ☐ physiological elements associated with spontaneous breathing and positive pressure breaths (incl. initiation and termination of positive pressure breath) ☐ compressible volume loss in a circuit and implications in ventilation ☐ indications, contraindications, complications, risk factors ☐ indications and applications of continuous positive airway pressure, bilevel positive airway pressure, and non-invasive interfaces (e.g., nasal mask, nasal pillows, oro-nasal mask, full-face mask, and helmet) ☐ factors affecting the delivered oxygen concentration and lung volume ☐ impact of positive pressure ventilation (PPV) on the cardiopulmonary system ☐ positive pressure ventilation set-up and strategies as they apply to treatment of patient pathophysiology ☐ impact of changes in patient lung condition (e.g., compliance and resistance) and how it affects ventilation ☐ weaning and discontinuation indicators from positive pressure ventilation ☐ mechanical ventilator control systems (e.g., flow / pneumatic) ☐ principles of mechanical ventilation ☐ functional characteristics of the lungs and airways that can be determined from specific waveforms and pulmonary mechanics
Pulmonary mechanics (e.g., patient triggering, plateau pressure, static and dynamic compliance, resistance, expiratory pause, occlusion pressure, patient-ventilator asynchrony, auto-peep, air trapping, lower and upper inflection points, auto triggering)
Modes of ventilation

Skills, Techniques, and Tasks

Conduct all equipment safety performance checks
Evaluate pulmonary mechanics
Evaluate the effectiveness and quality of the ventilation
Set appropriate ventilator alarms
Evaluate need for non-invasive ventilation
Determine appropriate interfaces for non-invasive devices
Adjust interventions based on patient condition (e.g., ventilator waveforms, vital signs)
Measure flow, pressure, volume, and the fraction of inspired oxygen in a positive pressure device
Select, apply, adjust, and wean ventilation modes on invasive and non-invasive mechanical ventilators based on the patient condition and response
Conduct clinical follow-up based on patient condition (e.g., check blood gas results, waveforms)
Interpret data available (e.g., ECG, ventilator waveforms, intracranial pressure)

Section 3: Therapeutic interventions

17. Optimize Resuscitation

The knowledge, skills, techniques, and tasks associated with resuscitation are clearly identified within the educational programs provided by the Heart and Stroke Foundation of Canada and Canadian Paediatric Society. They are not repeated here. Certification is not required for the purposes of licensing or registration, but may be required by individual employers and / or based on chosen areas of practice.

18. Vascular Access

Knowledge

Also see H5 Perform (assist with) invasive vascular access

Sites, procedures, techniques, equipment, complications associated with vascular access
Arterial lines or arterial puncture: sites, procedure and positioning for insertion, complications
Blood sample from capillary, venous, arterial puncture: methods and sites
Central line cannulation and pulmonary artery catheterization: sites, techniques, complications
The normal values and calculations related to central venous and pulmonary artery catheters
Hemodynamic pressure waveforms (incl. ventilatory effect on various pulmonary hemodynamic pressures)
Complications with sampling from indwelling catheters and treatment of complications
Zeroing and levelling methods of a transducer
Handling, transport and storage of blood samples

Skills, Techniques, and Tasks

In addition to what is stated in H5 Perform (assist with) invasive vascular access:

Perform punctures:

- ☐ arterial (required)
- ☐ capillary (optional)
- ☐ venous (optional)

19. Thermal Regulation

Knowledge

Also see H6.1 Provide thermal regulation

Benefits and drawbacks of various thermoregulation devices
Indications, contraindications, complications, and hazards associated with thermal regulation

Skills, Techniques, and Tasks

Use:

- ☐ incubator
- ☐ warming table or blanket
- ☐ blood and fluid warmer
- ☐ heated humidifier
- ☐ cooling blanket

Section 3: Therapeutic interventions

20. Gastric and Thoracic Suction and Drainage

Knowledge

Also see H6.2 Assist with gastric and thoracic suction and drainage techniques

Indications, contraindications, and complications
Gastric and thoracic suction and drainage equipment
Physiological effects associated with gastric and thoracic suction and drainage
Chest tube drain insertion technique

Skills, Techniques, and Tasks

In addition to what is stated in H5 Perform (assist with) invasive vascular access:

Perform or assist with gastric and thoracic suction and drainage techniques, as per provincial or territorial scope of practice, for example:

- ☐ prepare the patient for gastric or thoracic suction or drainage
- ☐ perform or assist with the insertion, placement, maintenance, removal of tubes and drains (e.g., chest tube, chest drain, esophageal tube)
- ☐ perform suction or drainage

21. Anaesthesia Assistance and Procedural Sedation

Knowledge

Also see H7 Implement interventions associated withanaesthesia assistance and analgesic sedation

Types and applications of anaesthesia and sedation

- ☐ general anaesthesia
- ☐ regional anaesthesia
- ☐ procedural sedation

Potential complications and their treatment, for example:

- ☐ hypovolemia
- ☐ anaphylaxis
- ☐ malignant hyperthermia
- ☐ transfusion reaction

Classification of Risk Assessment of the American Society of Anaesthesiologists

Specific considerations for patients with, for example, heart disease, pregnancy, full stomach and day surgery cases, chronic pain

Surgical positions (including their impact on anaesthetic techniques)

Precautions and guidelines for administration of anaesthesia and sedation

Phases of anaesthesia:

- ☐ induction
- ☐ maintenance
- ☐ emergence (may include post-anaesthetic recovery)

Section 3: Therapeutic interventions

21. Anaesthesia Assistance and Procedural Sedation

Skills, Techniques, and Tasks

(according to provincial and territorial scope of practice and practice guidelines inside and outside of operating rooms)

Perform pre-operative risk assessment
Perform pre-anaesthetic preparation
Perform / assist with all phases of anaesthesia
Monitor patient's physiological response to anaesthesia or surgical stimulation
Monitor patient during anaesthesia according to established guidelines
Adjust fluid and blood administration

22. Respond to Unique Needs of Patients and Caregivers

Knowledge

Patient characteristics, identity factors and their intersectionality impacting clinical assessment, testing, care planning and interventions, and ways to modify and adapt care:

- ☐ age
- ☐ gender, gender identity
- ☐ racial and / or ethnic background
- ☐ cognition and cognitive development
- ☐ decision-making ability
- ☐ emotional, psychological, and social well-being
- ☐ religion, spiritual beliefs
- ☐ language ability, communication style
- ☐ social and environmental factors impacting health
- ☐ history of trauma

Skills, Techniques, and Tasks

Modify approaches to clinical assessment
Modify approaches to communicate and establish a therapeutic relationship
Adapt interventions (e.g., equipment, technique)
Deliver culturally and psychologically safer respiratory care (e.g., trauma-informed, recovery-oriented)
Participate in palliative, end-of-life care, and / or medical assistance in dying

APPENDIX A, B, C & D

Appendix A: Relationship between the National Competency Framework and the Education and Examination Resource

THE NCF AND THE EER (all apply according to jurisdictional scope and standards of practice)	
National Competency Framework	**Education and Examination Resource**
A Evidence-informed Practice	This resource does not include knowledge, skills, or techniques for domains A – F. Instead, refer to detailed CanMEDS resources available from the Royal College of Physicians and Surgeons of Canada (royalcollege.ca).
B Professionalism	
C Communication	
D Collaboration	
E Practice Management	
F Safety	
G Clinical Assessment and Care Planning	10 Clinical Assessment 11 Cardiopulmonary Diagnostics 12 Care Planning 22 Respond to Unique Needs of Patients and Caregivers
H Therapeutic Interventions	14 Administer Medications and Other Substances 15 Manage Airway 16 Optimize Ventilation 17 Resuscitation 18 Vascular Access 19 Thermal Regulation 20 Gastric and Thoracic Suction and Drainage 21 Anaesthesia Assistance and Procedural Sedation
I Prevention, Health Promotion, Education	13 Prevention, Health Promotion, Education
FOUNDATIONAL KNOWLEDGE (1 – 8)	

Appendix B: Linking key concepts: Domains of learning and competence

The following table illustrates the linkage between the "Domains of Learning" as described by Sherbino and Frank (2011) and the ranges of proficiency identified for each clinical performance criterion in the NCF 2024.

The 2023 version is **less prescriptive and only identifies ranges of proficiency** for entry-to-practice competence from the perspective of full and partial competence for each patient group.

This allows **more autonomy for educators** to develop multi-modal learning and assessment activities over the course of a program. It also serves as an intuitive **quick reference for regulators, employers, and learners.**

Taxonomy	Cognitive	Affective	Psychomotor
1	Understanding	Receiving	Perception
2	Comprehension	Responding	Set
3	Application	Valuing	Guided
4	Analysis	Organizing	Mechanism
5	Synthesis	Internalizing	Complex overt
6	Evaluation	n/a	Adaptation
7	n/a	n/a	Origination
Corresponding levels in NCF 2024	Knows	Knows how, shows how	Does

Examples:

Proficiency

H2.3 Perform manual ventilation

Adult	Peds	Neo
●	●	●

The NCF 2023 requires respiratory therapists (RTs) to be fully competent in performing manual ventilation for all three patient groups. This means that for a learner to meet the entry-to-practice threshold, they need to master — AT A MINIMUM — the first five learning stages of the cognitive and psychomotor domains, and the first three learning stages of the affective domain.

H5.5 Collect samples using an indwelling catheter

Adult	Peds	Neo
●	◕	○

The NCF 2024 requires RTs to be fully competent in collecting samples using an indwelling catheter from adult patients. When it comes to specific circumstances related to pediatric patients, only partial competence is required. This means that for learners to meet the entry-to-practice threshold for adult patients, they need to demonstrate mastery of the first five learning stages of the cognitive and psychomotor domains, and the first three learning stages of the affective domain. However, for pediatric patients, they need only demonstrate mastery of the first three learning stages of the cognitive and psychomotor domains, and the first two learning stages of the affective domain. Only awareness is required when it comes to neonatal patients. This gives employers a clear indication that at entry-to-practice, an RT will require additional on-the-job training to reach full competence to collect samples using an indwelling catheter from pediatric patients and signficant on-the-job training to reach full competence to collect samples using an indwelling catheter from neonatal patients.

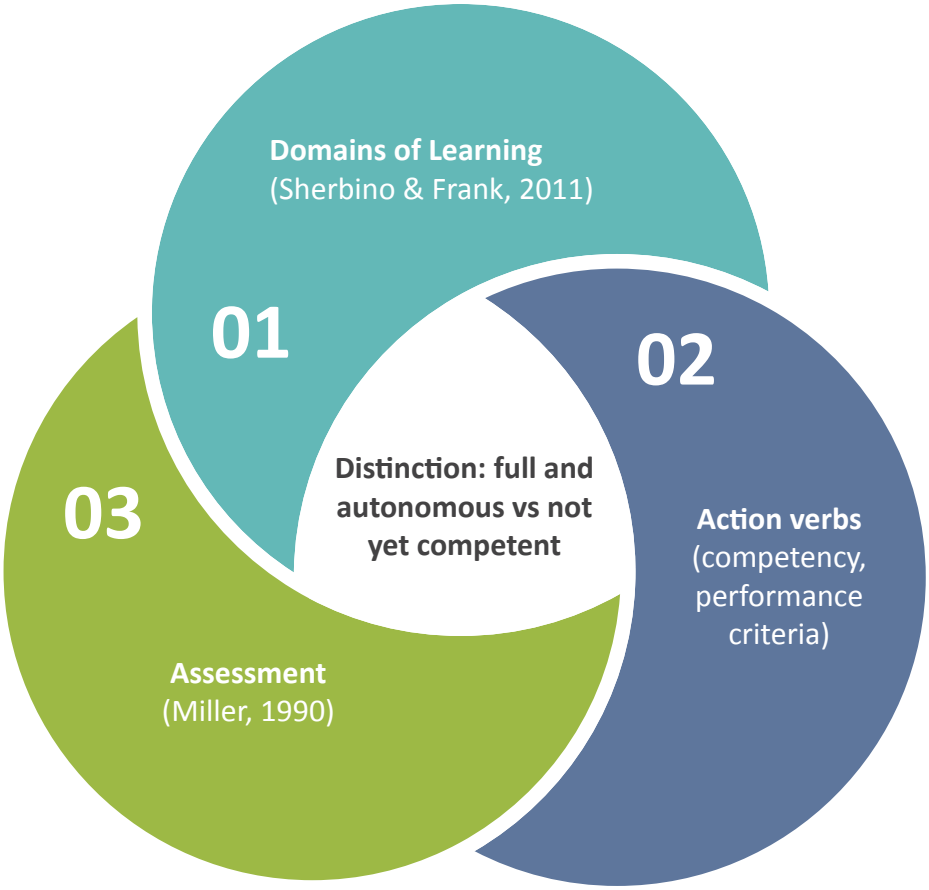
I2.4 Support patients in system navigation

Adult	Peds	Neo
◔	◔	◔

The NCF 2024 requires partial competence in supporting patients in system navigation. This means that for a learner to meet the entry-to-practice threshold, they need to demonstrate mastery of the first three learning stages of the cognitive and psychomotor domains, and the first two learning stages of the affective domain as it pertains to all three patient groups.

Appendix C: Perspectives on learning, assessment, and entry-to-practice competence

The NCF 2024 and the EER offer four interrelated perspectives on learning, assessment, and competence. Together, they provide educators with guidance on developing and implementing commensurate learning and assessment activities.



01 (Range of) Domains of Learning taxonomy describe the individual cognitive, affective, and psychomotor demands and requirements for entry-to-practice.

02 Action verbs in the competency statements, the performance criteria, and the education resource provide insight into the depth and breadth of the competency.

03 Miller's Pyramid of Clinical Competence offers guidance on assessment that progresses from "showing how", which constitutes performative competence, to "does" or full competence.

Ultimately, the distinction between "fully competent and autonomous" and "not yet competent" provides the regulator and employer with an important perspective. Drawing from their own respiratory therapy expertise and understanding of full and autonomous competence in practice, educators can create learning and assessment activities that prepare students for successful entry into practice.

Appendix D. Comparison mapping: NCF 2016 – NCF 2024[1]

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
B0.4 Apply evidence to practice B0.4.1 Use the best available evidence in making decisions about patient care B0.4.2 Identify the patient's unique health state, their individual risks and benefits from potential interventions B0.4.3 Identify the patient's preferences and values B3.2 Apply therapeutic and diagnostic procedures based on research data, methods, and results B3.2.1 Discuss pertinent data B3.2.2 Review published research and select relevant data	**A1 Apply evidence to practice** A1.1 Use the best available evidence in making decisions about patient care A1.2 Consider the patient's individual health state, risks, and benefits from potential interventions A1.3 Consider patient's beliefs, values, and goals in development of care plan A1.4 Access reliable evidence A1.5 Analyze evidence while reflecting on one's observations and experience
B5 Use critical thinking, problem-solving, and reasoning skills B5.1.1 / B5.1.2 Collect data / Distinguish and compare the elements of the situation B5.1.3 Review hypotheses and reflect on the validity of arguments, statements, and data B5.2.4 React properly to unforeseen situations B5.1 Analyze the data pertinent to the clinical situation in order to make a decision B5.3.5 Assess the outcome of a decision to guide future actions	**A2 Use critical thinking, problem-solving, and reasoning skills** A2.1 Assess complex issues from many points of view A2.2 Apply a methodical and scientific approach to solving problems A2.3 Develop approaches for managing ambiguities, incomplete information, and uncertainty A2.4 Use evidence and other knowledge sources to draw conclusions A2.5 Assess the outcome of a decision A2.6 Apply experiential knowledge to guide future actions
B1.6 Participate in quality improvement processes B1.6.1 Participate constructively in the organization's quality improvement process B1.6.2 Develop awareness of strengths and scope for improvement B1.6.3 Learn from feedback offered through the process B1.6.4 Modify practice in response to the process	**A3 Participate in projects and professional initiatives to support and improve service delivery** A3.1 Participate in activities, programs, and quality improvement processes A3.2 Reflect on progress, impact, and necessary changes to practice A3.3 Participate in research projects
B1 Exhibit professional behaviour B1.1.2 Behave in a professional manner in accordance with the standards of the profession B1.1.3 Wear professional attire in accordance with clinical requirements in all situations B1.1.4 Provide advice and treatment impartially and objectively, without pressure from external sources and being aware of conflicts of interest B1.1.5 Act with honesty and integrity, avoiding behaviour likely to bring the organization or profession into disrepute or undermine public confidence in the profession	**B1 Exhibit professional behaviour** B1.1 Conduct oneself in a professional manner at all times B1.2 Act in an impartial and objective manner B1.3 Manage conflicts of interest B1.4 Maintain organizational and public trust in the profession

[1]Note that some 2016 competencies and performance criteria have been omitted in this table as they were (i) incorporated into the 2024 clarifications, (ii) reclassified as "tasks" rather than competencies, or (iii) did not apply to entry-to-practice.

Appendix D. Comparison mapping: NCF 2016 – NCF 2024[1]

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
B1.2 Adhere to the scope of practice B1.2.1 Identify actions that would be outside the scope of practice B1.2.2 Advise the appropriate people of any potential needs outside the scope of practice B1.2.3 Identify and refer to appropriate persons who can provide the out-of-scope requirements **B1.3 Adhere to professional clinical, legal, and ethical guidelines / regulations** B1.3.1 Understand relevant guidelines / regulations B1.3.2 Apply the guidelines / regulations B1.3.3 Take action to prevent relevant guidelines / regulations being ignored **B1.4 Adhere to institutional / organizational policies and procedures** B1.4.1 Remain current with relevant institutional/organizational policies and procedures B1.4.2 Adhere to all applicable policies and procedures B1.4.3 Help ensure that the applicable policies and procedures are adhered to by all B1.4.5 Be aware of relevant environmental issues and avoid needless waste of resources B1.4.4 Report unsafe or inappropriate practices to the relevant authorities	**B2 Act in accordance with professional responsibilities** B2.1 Adhere to the scope of respiratory therapy practice B2.2 Adhere to professional clinical, legal, and ethical guidelines / regulations B2.3 Adhere to organizational policies and procedures B2.4 Report unsafe, unethical, or incompetent practices to the relevant authorities
B7.10 Manage stress B7.10.1 Recognize and anticipate stressful situations B7.10.2 Identify effective resources and strategies available for managing stress B7.10.3 Apply strategies for reducing and managing stress B7.10.4 Help others to reduce and manage stress and avoid conflict	**B3 Maintain personal health and well-being** B3.1 Reflect on the impact of practice on personal health and well-being B3.2 Pursue opportunities to maintain health and well-being B3.3 Take action when ability to practise safely, competently, or ethically is at risk B3.4 Report situations in the practice environment that may affect well-being or ability to practise safely
B1.5 Participate in professional development B1.5.1 Set personal goals and formulate a plan for personal professional development B1.5.2 Identify opportunities for professional development B1.5.3 Participate in appropriate professional development / continuing education activities	**B4 Demonstrate a commitment to continuous learning** B4.1 Engage in reflective practice B4.2 Set personal goals and formulate a plan for personal professional development B4.3 Source opportunities for professional development B4.4 Integrate new knowledge and skills into practice
B2.1 Demonstrate effective verbal and non-verbal communication skills B1.1.1 Use professional language B2.1.2 Use effective methods, including appropriate interview techniques, to obtain the patient's complete medical history and assess their level of health literacy	**C1 Demonstrate effective verbal and non-verbal communication skills** C1.1 Communicate in a transparent, clear, and timely manner C1.2 Use effective methods to obtain a comprehensive medical history C1.3 Employ active listening techniques

[1]Note that some 2016 competencies and performance criteria have been omitted in this table as they were (i) incorporated into the 2024 clarifications, (ii) reclassified as "tasks" rather than competencies, or (iii) did not apply to entry-to-practice.

Appendix D. Comparison mapping: NCF 2016 – NCF 2024[1]

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
B2.1.3 Employ active listening techniques to understand the needs of others B2.1.2 Use effective methods, including appropriate interview techniques, to obtain the patient's complete medical history and assess their level of health literacy B2.1.5 Use a variety of communication tools and techniques to enhance and assess understanding on the part of patients and their families B2.1.6 Use appropriate communication techniques to provide accurate and timely transfer of information at all transition points B2.1.7 Demonstrate insight into one's own communication style with patients and team members in various situations, and adjust this style appropriately to provide safe care B2.1.1 Show respect and empathy and communicate in a manner that is respectful of individual diversity	C1.4 Adapt communication according to patient's needs and health literacy C1.5 Provide accurate transfer of information C1.6 Adjust one's communication style according to urgency of the situation C1.7 Use respectful cross-cultural communication
B2.2 Communicate effectively through documentation B2.2.1 Provide appropriately detailed, legible, and clear entries to the patient health record, following every intervention with the patient B2.2.2 Clearly, legibly and accurately document patient care orders and prescriptions B2.2.3 Use appropriate and safe communication techniques in requests, reports and in correspondence out-side the health record **B2.3 Use information communication technologies** B2.3.1 Use information communication technologies appropriately and effectively to provide safe care to patients **B6.1 Use relevant computer and electronic data applications** B6.1.1 Use relevant computer systems and standard applications software effectively B6.1.2 Understand the importance of data collection and analysis in the health care setting B6.1.3 Record and access data in a data management system B6.1.4 Analyze data in a data management system **B6.4 Complete administrative reports** B6.4.1 Recognize the role of reporting in the health care setting B6.4.2 Assemble the required information B6.4.3 Complete and submit administrative reports accurately and on time B6.4.4 Review administrative reports and compare with previous reports to identify trends and exceptions, and provide feedback B6.4.5 Complete and submit health and safety reports	**C2 Communicate effectively through documentation** C2.1 Document pertinent information in the health record according to legislative and organizational requirements C2.2 Ensure private, confidential, and timely delivery of requests, reports and correspondence outside the health record C2.3 Use electronic and information technologies according to organizational protocols C2.4 Complete administrative reports according to organizational protocols

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Appendix D. Comparison mapping: NCF 2016 – NCF 2024[1]

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
B0.1 Demonstrate empathy and respect towards the patient and family B0.1.1 Respect the rights, privacy and dignity of all individuals B0.1.2 Consider and minimize the effects of psychosocial stress factors on the patient and family B0.1.3 Establish a caring, supportive attitude and behaviour towards the patient and family B0.1.4 Avoid any form of discrimination against patients and family, colleagues or others	**C3 Demonstrate empathy and respect towards the patient and family** C3.1 Respect the rights, privacy, and dignity of all individuals C3.2 Minimize the effects of psychosocial stress factors on the patient and family C3.3 Establish a caring, supportive attitude and behaviour towards the patient and family C3.4 Communicate in a manner that is respectful of individual diversity C3.5 Practise cultural humility C3.6 Practise cultural safety
B0.2 Establish partnerships with patients and families B0.2.1 Establish and maintain relationships B0.2.2 Actively collaborate with patients and families in decision-making and care planning B0.2.3 Support patients and families throughout the patient experience	**D1 Establish professional relationships with patients and families** D1.1 Establish a mutual understanding of presenting problem and circumstances D1.2 Obtain informed consent or seek assent from those who are unable to provide D1.3 Collaborate with patients and families in decision-making and care planning D1.4 Promote autonomy and self-determination
B3.1 Collaborate in professional consultation in an interprofessional health care team B8.3.4 Build mutual trust by being fair, reliable, consistent and credible B8.3.2 Give team members support when they need it, especially during periods of setback and change B8.3.3 Encourage members to express their ideas, opinions and concerns B3.1.1 Negotiate overlapping of responsibilities to support a collaborative approach to patient care B2.4 Manage conflict and difficult behaviour B2.4.1 Understand conflict and difficult behaviour exhibited B2.4.2 Identify who needs to be involved in resolving the conflict B2.4.3 Address underlying issues B2.4.4 Resolve conflict	**D2 Act in accordance with professional responsibilities** D2.1 Build mutual trust by being fair, reliable, consistent, and credible D2.2 Collaborate with health care team in decision-making and care planning D2.3 Support team members through encouraging behaviours and practices D2.4 Take appropriate steps if a care plan or order may compromise a patient's health or well-being D2.5 Clarify overlapping scopes of practice to support a collaborative approach to patient care D2.6 Use conflict management strategies
B6.3 Demonstrate responsible use of resources to minimize costs B6.3.1 Understand the impact of your practice on the cost of care **B5.2 Prioritize clinical activities according to the analysis of the situation** B5.2.2 Manage time and resource constraints B5.2.3 Demonstrate prioritization and task planning skills B6.3.2 Reduce waste	**E1 Use resources responsibly and efficiently** E1.1 Reflect on the impact of one's use of resources E1.2 Use effective organizational and time management skills E1.3 Prioritize clinical activities according to the situation E1.4 Contribute to an environmentally responsible culture within the practice setting

[1]Note that some 2016 competencies and performance criteria have been omitted in this table as they were (i) incorporated into the 2024 clarifications, (ii) reclassified as "tasks" rather than competencies, or (iii) did not apply to entry-to-practice.

Appendix D. Comparison mapping: NCF 2016 – NCF 2024[1]

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
B6.2 Participate in institutional or professional meetings B6.2.1 Participate in a meeting or on a committee **B6.6 Assess peer / student competence and performance** B6.6.1 Assess practice based on job description B6.6.2 Establish clear, specific goals and objectives B6.6.3 Perform the evaluation in accordance with the appropriate guide (for example, guide from a teaching institution, guide provided by the employer) **B6.7 Facilitate student and new staff orientation** B6.7.1 Assist the on-boarding of students and new staff in accordance with the program in effect B6.7.2 Develop a student and new staff orientation program and guide B8.1 Engage in projects and professional initiatives B8.1.1 Involve team members to achieve objectives B8.1.2 Plan activities, programs and resources B8.1.3 Monitor progress and impact B8.1.4 Adapt to changes	**E2 Engage in organizational or professional activities** E2.1 Participate in meetings or committees E2.2 Assist with student and new staff orientation E2.3 Participate in peer and student training / assessment
B6.5 Perform assessments other than those related to patients B6.5.1 Assess the health care working environment B7.2.2 Perform a point of care risk assessment **B7.3 Manage biohazardous materials** B7.3.1 Handle and safely dispose biohazardous materials **B7.4 Handle dangerous substances and materials** B7.4.1 Handle dangerous substances and materials in a safe manner B7.5 Adhere to Canadian Standards Association (CSA) standards for medical equipment B7.5.1 Utilize medical equipment in accordance with CSA norms and safety standards **B7.8 Use respiratory care equipment and supplies safely** B7.8.1 Prepare and assemble equipment and supplies for use B7.8.2 Perform required preventive maintenance and quality control procedures B7.8.3 Select the best available equipment for the required intervention B7.8.4 Verify respiratory equipment, including alarms, according to best practice guidelines **B7.6 Handle medical gases / liquids safely** B7.6.1 Utilize and store medical gases and liquids in a safe manner **B7.9 Apply the principles of the Occupational Safety, Health and Wellness (OSH&W) program** B7.9.1 Apply preventive measures to maximize health and safety **B7.1 Analyze the risk posed by a clinical situation**	**F1 Adhere to workplace health and safety standards** F1.1 Continuously assess the practice environment F1.2 Perform point of care risk assessment F1.3 Handle and safely dispose biohazardous materials F1.4 Handle dangerous substances and materials in accordance with safety standards F1.5 Utilize equipment and supplies in accordance with safety standards F1.6 Utilize and store medical gases and liquids in a safe manner F1.7 Apply preventive measures to maximize health and safety according to the occupational safety, health and wellness program

[1]Note that some 2016 competencies and performance criteria have been omitted in this table as they were (i) incorporated into the 2024 clarifications, (ii) reclassified as "tasks" rather than competencies, or (iii) did not apply to entry-to-practice.

Appendix D. Comparison mapping: NCF 2016 – NCF 2024[1]

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
B7.2 Apply infection prevention and control precautions B7.2.1 Use proper technique for hand hygiene B7.2.3 Apply infection prevention and control and personal protective equipment (PPE) procedures for various types of precautions B7.1.1 Recognize a situation posing a risk B7.1.2 Assess the components' potential for harm and their probability B7.1.3 Identify the causes and effects and how to mitigate them B7.1.4 Identify any alternative strategies that could avoid the risk B7.1.5 Plan and implement preventive measures	**F2 Manage patient safety risks** F2.1 Implement current infection prevention and control measures F2.2 Assess the potential for harm F2.3 Determine measures to be taken based on assessed risks F2.4 Seek assistance with novel or unfamiliar situations and equipment F2.5 Select the best available equipment for the required intervention
C2.3 Respond to and report patient safety incidents C2.3.1 Manage immediate risks for patients and others affected C2.3.2 Disclose the occurrence of a patient safety incident. This may include the patient, supervisor, employer, relevant authorities to the patient and/or their families in keeping with relevant legislation C2.3.3 Take part in timely event analysis, reflective practice and planning to prevent recurrence	**F3 Respond to patient safety incidents** F3.1 Manage immediate risks for patients and others affected F3.2 Disclose the occurrence of a patient safety incident F3.3 Take part in timely event analysis, reflective practice, and planning to prevent recurrence

For domains G-I, the third column refers to the relevant section of the Examination and Education document.

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE	2024 Education Resource
C1.1 Collect pertinent information C1.2 Analyze the collected information C1.3 Interpret the collected data	G1.1 Collect pertinent information G1.2 Analyze and interpret data collected	10 Clinical Assessment
C8.1 Perform and interpret electrocardiograms C8.2 Perform and interpret pulmonary function testing C8.3 Perform diagnostic tests for sleep related breathing disorders	G2.1 Perform pulmonary function testing G2.2 Perform electrocardiogram and cardiac stress testing G2.3 Perform tests for sleep related breathing disorders G2.4 Perform other point of care testing G2.5 Analyze and interpret results from cardiopulmonary tests	11 Cardiopulmonary Diagnostics
B0.3 Plan respiratory care	**G3 Create and implement care plan**	12 Care Planning
C3.1 Determine appropriateness and safety of medication and substances C3.2 Prepare medication and substances for administration C3.3 Administer medication and substances C3.4 Evaluate response to medication and substance administration	H1.1 Ensure appropriateness and safety of medication or other substances H1.2 Prepare medications or other substances following monograph and workplace hazard best practice guidelines H1.3 Administer medications or other substances using various routes and techniques	14 Administer Medications and other Substances

[1]Note that some 2016 competencies and performance criteria have been omitted in this table as they were (i) incorporated into the 2024 clarifications, (ii) reclassified as "tasks" rather than competencies, or (iii) did not apply to entry-to-practice.

Appendix D. Comparison mapping: NCF 2016 – NCF 2024[1]

For domains G-I, the third column refers to the relevant section of the Examination and Education document.

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE	2024 Education Resource
	H1.4 Evaluate response to medication or substance administration	
C4.1 Manage artificial airway devices C4.2 Ensure patency of the airway C6.1 Perform manual ventilation C9.4 Manage transport of a patient	H2.1 Assess patency of the airway H2.2 Manage artificial airway devices H2.3 Perform manual ventilation H2.4 Perform humidity therapy H2.5 Perform bronchopulmonary hygiene H2.6 Assist with bronchoscopy procedures	15 Manage Airway
C6.2 Provide optimal invasive and non-invasive mechanical ventilation support C6.3 Perform non-invasive lung volume recruitment techniques	H3.1 Optimize invasive and non-invasive mechanical ventilation support H3.2 Perform lung volume recruitment manoeuvres	16 Optimize Ventilation
C7.1 Perform distinction, assessment and rapid intervention as per resuscitation guidelines C7.2 Perform basic life support (BLS) protocols C7.3 Perform adult advanced life support (ACLS) protocols C7.4 Perform pediatric advanced life support (PALS) protocols C7.5 Perform neonatal resuscitation program (NRP) protocols	H4.1 Distinguish, assess, and rapidly intervene as per resuscitation guidelines H4.2 Perform basic life support H4.3 Perform adult advanced life support H4.4 Perform pediatric life support H4.5 Perform neonatal resuscitation	17 Resuscitation
C10.1 Manage vascular access through invasive procedures C10.2 Manage arterial lines C10.3 Perform an arterial, venous, or capillary puncture C10.4 Assist with vascular access through central lines/pulmonary artery catheter C10.5 Collect samples using indwelling catheter	H5.1 Select sites and procedures appropriate to the clinical situation H5.2 Manage vascular access H5.3 Manage arterial lines H5.4 Perform arterial punctures H5.5 Collect samples using an indwelling catheter H5.6 Assist with vascular access through central lines/pulmonary artery catheter	18 Vascular Access
C9.1 Insert esophageal or gastric tubes C9.2 Assist in thoracic suction or drainage therapy C9.3 Provide thermal regulation	H6.1 Provide thermal regulation H6.2 Assist with gastric and thoracic suc-tion and drainage techniques	19 Thermal Regulation, 20 Gastric and Thoracic Suction and Drainage
C5.1 Assist with anaesthesia C5.2 Manage homeostasis of a patient during anaesthesia C5.3 Manage the patient during sedation	H7.1 Maintain homeostasis of a patient during anaesthesia and sedation H7.2 Manage the patient during anaesthesia and sedation	21 Anaesthesia Assistance and Procedural Sedation
B4.1 Provide cardio-respiratory health education	I1.1 Promote cardio-respiratory health and illness prevention	13 Prevention, Health Promotion, Education

[1]Note that some 2016 competencies and performance criteria have been omitted in this table as they were (i) incorporated into the 2024 clarifications, (ii) reclassified as "tasks" rather than competencies, or (iii) did not apply to entry-to-practice.

Appendix D. Comparison mapping: NCF 2016 – NCF 2024[1]

For domains G-I, the third column refers to the relevant section of the Examination and Education document.

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE	2024 Education Resource
	I1.2 Consider relevant determinants of health and readiness to learn I1.3 Raise awareness in the care team to support the cardio-respiratory health of others I1.4 Provide education to support development of self-management skills I1.5 Consult on the use of cardio-respiratory equipment	
B4.2 Participate in addressing cardio-respiratory health needs of the community	I2.1 Explore approaches for issues in need of advocacy I2.2 Participate in advocacy activities that promote cardio-respiratory health and illness prevention I2.3 Collaborate with the care team to address the needs of patients who are vulnerable or marginalized I2.4 Support patients in system navigation	13 Prevention, Health Promotion, Education

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