

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

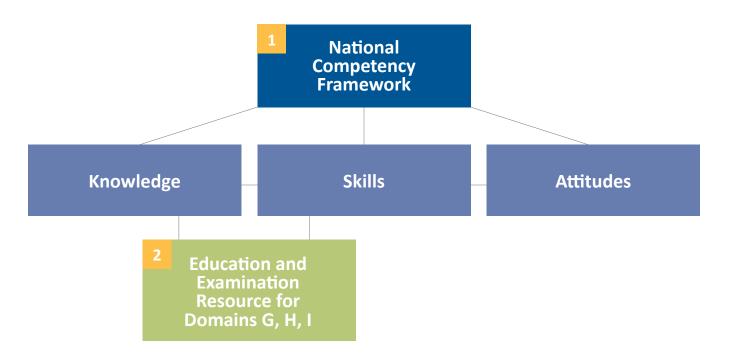
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# INTRODUCTION

#### **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 <u>not exclude</u> 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



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

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

1	APPLY SCIENTIFIC KNOWLEDGE OF ANATOMY AND PHYSIOLOGY		
1.8	Endocrine system	<ul> <li>major endocrine organs</li> <li>functional role of the major endocrine organs: pituitary, thyroid, parathyroid, adrenal, pineal and thymus glands</li> </ul>	
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	regulation of breathing	
	of breathing and respiratory	types of respiratory patterns	
	compensation	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	anatomy and function of the heart as an integral part of the cardiovascular system	
	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	neurochemical control of the cardiovascular system	
	the heart	intrinsic conduction system and the extrinsic innervation of the heart	
		graphic recording of electrical changes on an electrocardiogram during various heart activities	

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		

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	melting point and boiling point	
	change of state	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	
5.5	Surface tension	capillary action	
		cohesion and adhesion	
3.4	Gas diffusion	atmospheric composition and its gases	
5.4		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	Poiseuille's law	
5.5	mixing/entrainment	Reynold's number	
		laminar and turbulent flow	
		Bernoulli's principle	
		Venturi effect	
		Coanda effect	

3	APPLY SCIENTIFIC KNOWLEDGE OF ANATOMY AND PHYSIOLOGY				
3.6	Behaviour of aerosols	<ul> <li>Stoke's law of sedimentation</li> <li>stability and particle size</li> <li>gravitational forces</li> <li>inertial impaction</li> <li>penetration</li> <li>retention</li> <li>deposition</li> <li>clearance</li> </ul>			
	Other physical principles	<ul> <li>Beer's law and light absorption</li> <li>Doppler effect</li> </ul>			
		Hooke's law, elasticity and compliance			
4					
4		OWLEDGE OF PHARMACOLOGICAL PRINCIPLES			
4.1	Application of medications	<ul> <li>basic sources of medications</li> <li>classification system of medications: chemical, experimental, generic official and trade</li> <li>characteristics of the following formulations: oral, injectable, aerosol, micronized powder, suppository, sublingual transdermal and topical</li> <li>advantages and disadvantages of the following routes of administration: enteral, parenteral, topical, and inhalational</li> </ul>			
4.2	Pharmacologic response of adrenergic and cholinergic drugs	<ul> <li>drug classification based on the autonomic nervous system (ANS) divisions</li> <li>location and action of adrenergic receptors</li> <li>adrenergic and anti-adrenergic drug action</li> <li>location and action of cholinergic receptors</li> <li>cholinergic and anti-cholinergic drug action</li> </ul>			
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			

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

5	APPLY SCIENTIFIC KNOWLEDGE OF MICROBIOLOGY		
5.2	Agents of infectious diseases	<ul> <li>structural characteristics and mechanisms of reproduction for viruses, bacteria, rickettsia, chlamydia, fungi, and parasites</li> <li>modes of transmission</li> <li>mechanism of infectious diseases using incidence, portal of entry, source of infection, symptomatology, disease source, site of infection, agent, and host characteristics</li> </ul>	
6	APPLY SCIENTIFIC KNO	OWLEDGE 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	<ul> <li>factors that produce obstruction such as: dynamic compression, loss of radial traction (tethering), inflammation, foreign bodies, secretions, hypertrophy, and spasm</li> <li>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</li> <li>the characteristics of airway obstruction, including: change in lung volumes/flows and gas exchange abnormalities</li> <li>upper and lower airway obstructions</li> </ul>	
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	<ul> <li>restrictive processes of the respiratory system in terms of origin: extrapulmonary versus intrapulmonary</li> <li>effects of restrictive processes on pulmonary function: decreased compliance / decreased lung volumes / diffusion impairment / airway remodeling / gas exchange abnormalities / pulmonary hypertension</li> </ul>	
6.5	Extrapulmonary disorders	<ul> <li>bronchopleural fistula</li> <li>pleural effusion</li> <li>pneumothorax</li> <li>thoracic cage disorders</li> <li>traumatic chest wall injuries</li> </ul>	

6	APPLY SCIENTIFIC KNOWLEDGE OF PULMONARY PATHOPHYSIOLOGY		
6.6	Intrapulmonary	acute respiratory distress syndrome (ARDS)	
	disorders	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	<ul> <li>tricuspid stenosis, incompetence, regurgitation</li> <li>mitral stenosis, incompetence, regurgitation</li> </ul>	
		aortic stenosis, incompetence, regurgitation	
		pulmonary stenosis, incompetence, regurgitation	
7.3	Inflammatory heart	pericarditis	
	disorders	endocarditis	
		myocarditis	
		cardiomyopathies: dilated, hypertrophic, restrictive	
7.4	Peripheral vascular disorders	<ul> <li>arterial: arteriosclerosis / arterial thrombosis and embolism / aneurysm / aortic dissection / arterioplastic disease (Raynaud's) / pulmonary embolism</li> <li>venous: thrombophlebitis / deep venous thrombosis / varicose veins</li> </ul>	

7	APPLY SCIENTIFIC KNOWLEDGE OF CARDIOVASCULAR PATHOPHYSIOLOGY		
7.5	Congenital heart	atrial septal defect	
	defects	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	hypertension	
	abnormalities	myocardial infarction	
		congestive heart failure	
		rheumatic heart disease	
		dissemination intravascular coagulation	
8	APPLY SCIENTIFIC KNC	OWLEDGE OF OTHER DISEASES AND DISORDERS	
8.1	Disorders of the	central apnea syndromes	
	central nervous system	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	

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



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	
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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)

	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
Asses	ss the accuracy and quality of all data
Asses	ss 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)

#### **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

Use:
impulse oscillometry
Iung 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)

## **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	

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	

## **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



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

Know	ledge

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

#### **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

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)	

#### **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)

## **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:
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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

Use:	
	incubator
	warming table or blanket
	blood and fluid warmer
	heated humidifier
	cooling blanket

#### 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

21. Andestnesia Assistance and Procedular 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 As	ssessment of the American Society of Anaesthesiologists	
Specific considerations cases, chronic pain	s for patients with, for example, heart disease, pregnancy, full stomach and day surgery	
Surgical positions (inclu	uding their impact on anaesthetic techniques)	
Precautions and guide	lines for administration of anaesthesia and sedation	
Phases of anaesthesia:		
induction		
maintenance		
emergence (may	include post-anaesthetic recovery)	

## **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

ent characteristics, identity factors and their intersectionality impacting clinical assessment, testing, care ning 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

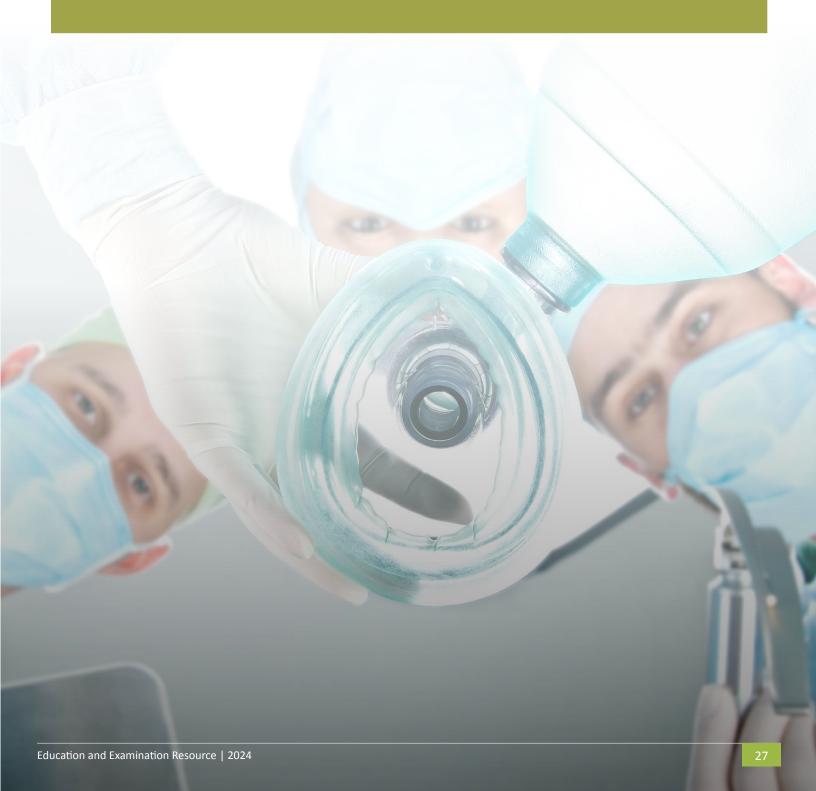
Modify approaches to communicate and establish a therapeutic relationship

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

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

## 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 <b>less</b>	Taxonomy	Cognitive	Affective	Psychomotor
prescriptive and only identifies ranges of proficiency for	1	Understanding	Receiving	Perception
entry-to-practice competence	2	Comprehension	Responding	Set
from the perspective of full and	3	Application	Valuing	Guided
partial competence for each	4	Analysis	Organizing	Mechanism
patient group.	5	Synthesis	Internalizing	Complex overt
This allows <b>more autonomy for</b> educators to develop multi-modal	6	Evaluation	n/a	Adaptation
learning and assessment activities	7	n/a	n/a	Origination
over the course of a program. It				
also serves as an intuitive quick reference for regulators, employers, and learners.	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

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 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

Peds

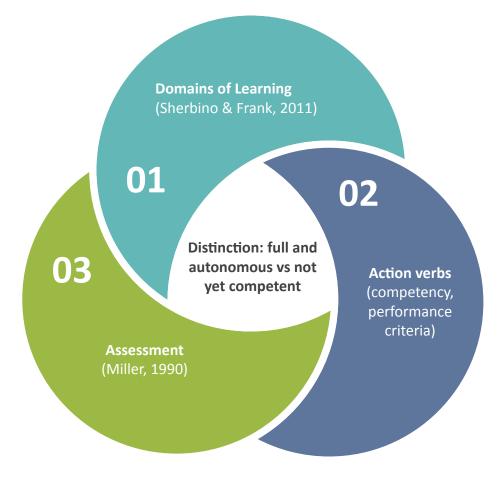


Neo

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.



**O1** (Range of) Domains of Learning taxonomy describe the individual cognitive, affective, and psychomotor demands and requirements for entry-to-practice.

**O2** 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.

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
<b>B0.4 Apply evidence to practice</b> 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 bene- fits 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
<b>B5 Use critical thinking, problem-solving, and reasoning skills</b> 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	<b>A2 Use critical thinking, problem-solving, and reasoning skills</b> 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
<b>B1.6 Participate in quality improvement processes</b> 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
<ul> <li>B1 Exhibit professional behaviour</li> <li>B1.1.2 Behave in a professional manner in accordance with the standards of the profession</li> <li>B1.1.3 Wear professional attire in accordance with clinical requirements in all situations</li> <li>B1.1.4 Provide advice and treatment impartially and objectively, without pressure from external sources and being aware of conflicts of interest</li> <li>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</li> </ul>	<b>B1 Exhibit professional behaviour</b> 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

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
<ul> <li>B1.2 Adhere to the scope of practice</li> <li>B1.2.1 Identify actions that would be outside the scope of practice</li> <li>B1.2.2 Advise the appropriate people of any potential needs outside the scope of practice</li> <li>B1.2.3 Identify and refer to appropriate persons who can provide the out-of-scope requirements</li> <li>B1.3 Adhere to professional clinical, legal, and ethical guidelines / regulations</li> <li>B1.3.1 Understand relevant guidelines / regulations</li> <li>B1.3.2 Apply the guidelines / regulations</li> <li>B1.3.3 Take action to prevent relevant guidelines / regulations</li> <li>being ignored</li> <li>B1.4.1 Remain current with relevant institutional/organizational policies and procedures</li> <li>B1.4.2 Adhere to all applicable policies and procedures are adhered to by all</li> <li>B1.4.5 Be aware of relevant environmental issues and avoid needless waste of resources</li> <li>B1.4.4 Report unsafe or inappropriate practices to the relevant authorities</li> </ul>	<b>B2 Act in accordance with professional responsibilities</b> 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
<ul> <li>B7.10 Manage stress</li> <li>B7.10.1 Recognize and anticipate stressful situations</li> <li>B7.10.2 Identify effective resources and strategies available for managing stress</li> <li>B7.10.3 Apply strategies for reducing and managing stress</li> <li>B7.10.4 Help others to reduce and manage stress and avoid conflict</li> </ul>	<b>B3 Maintain personal health and well-being</b> 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
<b>B1.5 Participate in professional development</b> 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	<b>B4 Demonstrate a commitment to continuous learning</b> 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
<b>B2.1 Demonstrate effective verbal and non-verbal</b> <b>communication skills</b> 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

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
<ul> <li>B2.1.3 Employ active listening techniques to understand the needs of others</li> <li>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</li> <li>B2.1.5 Use a variety of communication tools and techniques to enhance and assess understanding on the part of patients and their families</li> <li>B2.1.6 Use appropriate communication techniques to provide accurate and timely transfer of information at all transition points</li> <li>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</li> <li>B2.1.1 Show respect and empathy and communicate in a manner that is respectful of individual diversity</li> </ul>	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
<ul> <li>B2.2 Communicate effectively through documentation</li> <li>B2.2.1 Provide appropriately detailed, legible, and clear entries to the patient health record, following every intervention with the patient</li> <li>B2.2.2 Clearly, legibly and accurately document patient care orders and prescriptions</li> <li>B2.2.3 Use appropriate and safe communication techniques in requests, reports and in correspondence out-side the health record</li> <li>B2.3 Use information communication technologies</li> <li>B2.3.1 Use information communication technologies appropriately and effectively to provide safe care to patients</li> <li>B6.1 Use relevant computer and electronic data applications</li> <li>B6.1.1 Use relevant computer systems and standard applications software effectively</li> <li>B6.1.2 Understand the importance of data collection and analysis in the health care setting</li> <li>B6.1.3 Record and access data in a data management system</li> <li>B6.4.1 Recognize the role of reporting in the health care setting</li> <li>B6.4.2 Assemble the required information</li> <li>B6.4.3 Complete and submit administrative reports accurately and on time</li> <li>B6.4.4 Review administrative reports and compare with previous reports to identify trends and exceptions, and provide feedback</li> <li>B6.4.5 Complete and submit health and safety reports</li> </ul>	<b>C2 Communicate effectively through documentation</b> C2.1 Document pertinent information in the health record accord- ing 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

<sup>&</sup>lt;sup>1</sup>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.

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
<b>B0.1 Demonstrate empathy and respect towards the patient and</b> <b>family</b> 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
<b>B0.2 Establish partnerships with patients and families</b> 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
<ul> <li>B3.1 Collaborate in professional consultation in an interprofessional health care team</li> <li>B8.3.4 Build mutual trust by being fair, reliable, consistent and credible</li> <li>B8.3.2 Give team members support when they need it, especially during periods of setback and change</li> <li>B8.3.3 Encourage members to express their ideas, opinions and concerns</li> <li>B3.1.1 Negotiate overlapping of responsibilities to support a collaborative approach to patient care</li> <li>B2.4 Manage conflict and difficult behaviour</li> <li>B2.4.1 Understand conflict and difficult behaviour exhibited</li> <li>B2.4.2 Identify who needs to be involved in resolving the conflict</li> <li>B2.4.4 Resolve conflict</li> </ul>	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
<ul> <li>B6.3 Demonstrate responsible use of resources to minimize costs</li> <li>B6.3.1 Understand the impact of your practice on the cost of care</li> <li>B5.2 Prioritize clinical activities according to the analysis of the situation</li> <li>B5.2.2 Manage time and resource constraints</li> <li>B5.2.3 Demonstrate prioritization and task planning skills</li> <li>B6.3.2 Reduce waste</li> </ul>	<b>E1 Use resources responsibly and efficiently</b> 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

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

2016 NCF ENTRY-TO-PRACTICE PROFILE	2024 NCF ENTRY-TO-PRACTICE
<ul> <li>B7.2 Apply infection prevention and control precautions</li> <li>B7.2.1 Use proper technique for hand hygiene</li> <li>B7.2.3 Apply infection prevention and control and personal protective equipment (PPE) procedures for various types of precautions</li> <li>B7.1.1 Recognize a situation posing a risk</li> <li>B7.1.2 Assess the components' potential for harm and their probability</li> <li>B7.1.3 Identify the causes and effects and how to mitigate them</li> <li>B7.1.4 Identify any alternative strategies that could avoid the risk</li> <li>B7.1.5 Plan and implement preventive measures</li> </ul>	<ul> <li>F2 Manage patient safety risks</li> <li>F2.1 Implement current infection prevention and control measures</li> <li>F2.2 Assess the potential for harm</li> <li>F2.3 Determine measures to be taken based on assessed risks</li> <li>F2.4 Seek assistance with novel or unfamiliar situations and equipment</li> <li>F2.5 Select the best available equipment for the required intervention</li> </ul>
<b>C2.3 Respond to and report patient safety incidents</b> 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	<b>F3 Respond to patient safety incidents</b> 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	<ul> <li>G2.1 Perform pulmonary function testing</li> <li>G2.2 Perform electrocardiogram and cardiac stress testing</li> <li>G2.3 Perform tests for sleep related breathing disorders</li> <li>G2.4 Perform other point of care testing</li> <li>G2.5 Analyze and interpret results from cardiopulmonary tests</li> </ul>	11 Cardiopulmonary Diagnostics
B0.3 Plan respiratory care	G3 Create and implement care plan	12 Care Planning
<ul> <li>C3.1 Determine appropriateness and safety of medication and substances</li> <li>C3.2 Prepare medication and substances for administration</li> <li>C3.3 Administer medication and substances</li> <li>C3.4 Evaluate response to medication and substance administration</li> </ul>	<ul> <li>H1.1 Ensure appropriateness and safety of medication or other substances</li> <li>H1.2 Prepare medications or other substances following monograph and workplace hazard best practice guidelines</li> <li>H1.3 Administer medications or other substances using various routes and techniques</li> </ul>	14 Administer Medications and other Substances

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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	<ul> <li>H2.1 Assess patency of the airway</li> <li>H2.2 Manage artificial airway devices</li> <li>H2.3 Perform manual ventilation</li> <li>H2.4 Perform humidity therapy</li> <li>H2.5 Perform bronchopulmonary hygiene</li> <li>H2.6 Assist with bronchoscopy procedures</li> </ul>	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
<ul> <li>C7.1 Perform distinction, assessment and rapid intervention as per resuscitation guidelines</li> <li>C7.2 Perform basic life support (BLS) protocols</li> <li>C7.3 Perform adult advanced life support (ACLS) protocols</li> <li>C7.4 Perform pediatric advanced life support (PALS) protocols</li> <li>C7.5 Perform neonatal resuscitation program (NRP) protocols</li> </ul>	<ul> <li>H4.1 Distinguish, assess, and rapidly intervene as per resuscitation guidelines</li> <li>H4.2 Perform basic life support</li> <li>H4.3 Perform adult advanced life support</li> <li>H4.4 Perform pediatric life support</li> <li>H4.5 Perform neonatal resuscitation</li> </ul>	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	<ul> <li>H5.1 Select sites and procedures appropriate to the clinical situation</li> <li>H5.2 Manage vascular access</li> <li>H5.3 Manage arterial lines</li> <li>H5.4 Perform arterial punctures</li> <li>H5.5 Collect samples using an indwelling catheter</li> <li>H5.6 Assist with vascular access through central lines/pulmonary artery catheter</li> </ul>	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

<sup>&</sup>lt;sup>1</sup>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.

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

<sup>&</sup>lt;sup>1</sup>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.



The National Alliance of Respiratory Therapy Regulatory Bodies

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

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