The National Alliance of
Respiratory Therapy Regulatory Bodies

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

National Competency Framework for the Profession of Respiratory Therapy

(2016 – 2021)

Part I

National Standards for

for Entry-to-Practice

(including Evaluation Standards)

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Acknowledgements

The development of this National Competency Framework (NCF) is a result of contributions from many sources, in particular:

- The existing Competency Profile and Companion Document
- Related Canadian and international frameworks and sources, particularly CanMEDS
- A precursor project on respiratory therapist (RT) education, with contributions from 24 schools across Canada
- Results from a Trends Survey conducted at the onset of this project

The National Alliance of Respiratory Therapy Regulatory Bodies (NARTRB) acknowledges these substantial contributions, from individuals and organisations, with grateful thanks.

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Participants at National Validation Workshop on May 20, 2015

Participant Name		Province	Diagnostics	Critical Care	Neonatal/ Paediatric	Community/ Home Care	Anesthesia	Education	Supervisory	Administration	Research	Other
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Candice	**Keddie**	Alberta	X	X	X	X		X	X	X	X	X
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Irene	**Martinez**	Québec		X	X			X				
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Participant Name		Province	Diagnostics	Critical Care	Neonatal/ Paediatric	Community/ Home Care	Anesthesia	Education	Supervisory	Administration	Research	Other
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Andrew	**West**	Manitoba						X			X	
Jason	**Zurba**	British Columbia		X	X			X	X		X	

National Validation Survey Respondents

A remarkably high number of RTs from all aspects of this Canadian professional community answered a request to carefully scrutinize the provided competencies, answering detailed questions that took several hours to complete. There were a total of **2,875** responses, which is over **25%** of the **11,216** addressed population of RTs, **1,674** (approximately **58%**) **of the submissions** were complete. Even those who were unable to complete their survey have provided valuable data.

Project Team

The Alliance has been supported by a project team from CamProf Inc.:

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Kathryn Basham
Nigel Lloyd
Don Mayne
Chantal Rioux
Eva Schausberger
Frank Vandenburg

Glossary

Adult	One of the 3 *patient groups* identified in the NCF. *Adults* are those deemed capable of giving informed consent by virtue of their age. In most jurisdictions, this is the age of 18.
Areas of Practice	This NCF is intended to apply to all licenced RTs. RTs practice in both the public and private sectors in a wide range of areas of practice, which includes a variety of health care settings and all patient populations: acute care, emergency, intensive care, diagnostics (including sleep studies and pulmonary function), operating rooms, chronic care, community care, primary care, and home care. Some RTs work outside health care environments, in areas such as research, sales, education, and regulation.
Attitudes Domain	One of the three domains of *Bloom's Trajectory* (called 'affective' in Bloom's Taxonomy. See Appendix 1. A learner can progress through 5 levels in the *attitudes domain*: from alertness through to full commitment.
Attitudes (and Values)	The 14 *Attitudes and Values* (A1 to A14) expected of RTs are described at the beginning of the NCF. All practicing RTs are required to adhere to the same set of *attitudes* and values. The same attitudes are shared by all the competencies and therefore not repeated for each competency.
Bloom's Trajectory	*Bloom's Trajectory* is a modified version of Bloom's Taxonomy. It identifies the different *degrees of mastery* (proficiency) possible for each of the three domains of knowledge, skills and attitudes. See Appendix 1. This classification defines for all the career stages, exactly what level of proficiency is expected, and is of particular relevance for: 1. teachers, mentors and supervisors - implying what learning experiences will be required to enable the learner to achieve that *degree of mastery*, and 2. assessors - indicating what types of assessment will be appropriate.
Career Stage	Four distinct *career stages* have been identified: 1. *Entry to Practice*, 2. *Experienced Professional*, 3. *Senior Professional* and 4. *Expert*. The same competencies are required throughout the career stages; however, the degree of mastery of each element of competency will improve. The typical progression path from entry-to-practice to senior professional or expert is shown in the Progression Path section, which describes the increasing degree of mastery along Bloom's Trajectory for the three domains of knowledge, skill and attitude.
Clinical Competencies	There are ten Clinical Competencies (C1 to C10) which consist of 36 elements. Each describes the scope of practice for the RT.
Competency	A competency is made up of a number of elements that present a detailed description of the knowledge, skills and attitudes required for an occupation. Competencies are presented in three groups: Core Competencies, Clinical Competencies and Foundation Science competencies.

Competency Framework	The Competency Framework provides a coherent structure in which the competencies can be presented. It presents a detailed profile of the elements of competency at four significant career stages.
Competency-based	The same element of competency will often be required for more than one of the tasks performed by that occupation (for example, many tasks might require the element of competency to communicate in writing). The elements of competency avoid repetition, since they are not task-based.
Core Competencies	There are nine *Core Competencies* (B0 to B8) which consist of 41 elements. The core competencies are often shared with other health care professions. The core competencies described in this document are referenced to the Can MEDS Physician Competency Framework.
Degree of Mastery	The same competencies are used by an RT at different career stages. However the degree of mastery of the elements of competency is typically increasing in complexity as the RT progresses through the various career stages. Bloom's Trajectory is used as the measure of degree of mastery for each element of competency at each career stage. See Appendix 1.
Element of Competency	Each competency is made up of a number of elements. It is the elements that provide detail to define a specific competency. Each element of a competency has several components: performance criteria, range (clarification) statements, knowledge specification and the degrees of mastery expected at entry to each career stage.
Entry to Practice	Entry to practice is the initial career stage, at which an RT is registered as licensed to practice. Licensure requires proficiency in all elements of competency as defined in the NCF 2016, with the ability to operate independently and without supervision.
Experienced Professional	The Experienced Professional career stage requires a fluency of operation beyond entry to practice. Experienced professionals can do everything the new entrant can, but with a higher degree of mastery and an increased level of confidence. The timeframe of an RT progressing from entry to practice to experienced professional depends on experience, including hours worked, the complexity and variety of clinical situations, opportunities for on-the-job coaching and applied research opportunities. Typically, an RT who is exposed to the full scope of practice can be expected to progress from entry to practice to experienced professional with approximately 4,000 hours of practice.
Expert	Some RTs become experts by developing an expertise in a particular area of the profession. Experts are invited to share their expertise in an area of practice in public and professional forums. They often work with their regulatory bodies and promote the development and improvement of practice standards. They participate in research and sometimes publish textbooks. They develop new strategies, policies or techniques for the profession utilizing their expert clinical knowledge and experience. It requires both strong technical expertise and promoting the adoption of improved practices by the RT profession. Experts may also take on a Senior Professional role.
Foundation Science	There are eight Foundation Science competencies (S1 to S8) which consist of 52 elements in the body of scientific knowledge. Each element is required for

	successful practice as an RT. These primarily knowledge based competencies, are traditionally learned in the classroom setting, or from textbooks, and are assessed by way of written exams. The Foundation Science competencies underpin all of the other skills based competencies (particularly the Clinical Competencies). Because the Foundation Science competencies are knowledge-based, they consist primarily of the Knowledge section; they all share the same generic form, the same performance criteria and the same range statements.
Interpret	Interpret is to understand the meaning of information. It does not include formal medical diagnosis, which is performed by a licensed medical practitioner.
Knowledge	In science-based professions like RT, it is essential to have a grounding in the facts and theories underpinning the practices. There is a separate section of each element of competency that identifies any specific knowledge required for that particular element. In addition, the Foundation Science competencies set out the knowledge required at entry to practice.
Knowledge Domain	Knowledge is one of the three domains of Bloom's Trajectory (called 'cognitive' by Bloom's Taxonomy. A learner can progress through seven degrees of mastery in the knowledge domain, from awareness through to creating.
Neonatal	One of the 3 patient groups identified in the NCF. Neonates are those patients from birth to 28 days of age, corrected for premature birth. Neonates require a variety of special considerations such as those relating to their physical size and development, legal status, inability to communicate and make decisions. In some clinical competencies there are different degrees of mastery required for each patient group at the entry to practice career stage for the skills domain, reflecting the fact that students are unlikely to gain a vast amount of clinical experience with neonates.
Pediatric	One of the 3 patient groups identified in the NCF. Pediatric patients are those intermediate between neonates and adults, requiring a variety of special considerations such as those relating to their physical size and development, legal status, ability to communicate and make decisions. In some clinical competencies there are different degrees of mastery required for each patient group at the entry to practice career stage for the skills domain, reflecting the fact that students are less likely to gain a vast amount of clinical experience with pediatric patients.
Patient Groups	The NCF distinguishes three principal patient groups: neonatal, pediatric, and adult.
Patient-centred	The NCF has been consciously prepared to be patient-centred: putting the patient at the centre of the competency framework. When specifying the competencies, the Working Groups and reviewers have been asked "are there any other aspects that should be included from the patient's viewpoint?" The NCF is intended to lead the fundamental paradigm shift towards patient-centred health care.
Performance Criterion / Criteria	Statements providing additional details regarding the required level of performance (to be deemed a competent RT). *Performance Criteria* (often abbreviated to PCs) therefore indicate the knowledge and skills that need to

	be learned, demonstrated and assessed. Competence requires all *performance criteria* to be satisfied.
Primary Care	*Primary care* aims to assure better health for all by: 1. reducing exclusion and social disparities in health (universal coverage) 2. organizing health services around people's needs and expectations (service delivery reforms) 3. integrating health into all sectors (public policy reforms) 4. pursuing collaborative models of policy dialogue (leadership reforms) and 5. increasing stakeholder participation
Progression Path	RTs at all career stages have achieved their current set of competencies by a combination of formal and informal learning and experience. Every RT has had a unique learning path reflecting their different opportunities, learning preferences and other circumstances. The NCF distinguishes four significant career stages. All registered RTs start at Entry to Practice and can be expected to become Experienced Professionals after several years of RT practice. After that, further progression is much more individual and varied. Most RTs remain practicing the competencies, some develop additional competencies to become a team leader and Senior Professional, while others use research and further study to become an Expert in a particular area.
Range (clarification)	Range statements specify the variety of circumstances or scope that an element of competency is intended to cover. They provide a clarification of the wording used in the competency statement and its performance criteria as well as the context in which the competency takes place. Due to jurisdictional differences in scope of practice, for some competencies (e.g. C5, C10) the range identifies which competencies RTs in one jurisdiction may perform, while RTs in other jurisdictions are limited to assisting other members of the health care team with a particular competency.
RT	RT has been used throughout the NCF as the abbreviation for both Respiratory Therapy and Respiratory Therapist. RTs has been used as the abbreviation for Respiratory Therapists.
Senior Professional	Some RTs take on the additional responsibilities of a Senior Professional in their organization. This requires enhanced core competencies to lead a team of colleagues, implying a strong understanding of the organization's environment and the RT role, including the development and implementation of RT policies and strategies. It would normally include formal responsibility for a team and their actions. It does not necessarily require any enhanced clinical competencies above other Experienced Professionals. This career stage stretches from first level team leaders and supervisors up to senior managers with significant administrative duties. However, the degree of mastery shown in the NCF is that expected for entry to the Senior Professional career stage. Senior Professionals often also develop an Expert role.
Skill	A professional must be able to practice competently and safely; this is the whole reason for professional regulation. It is not enough for a professional to know all the facts and theories underpinning the practices, they must also be able to perform them to an acceptable degree of mastery. Skills are not only the physical actions and dexterity, but also the mental skills to perform

	the procedures and the underlying competencies. In general, the Foundation Science competencies concentrate on the knowledge and a limited set of generalized physical and mental skills required at entry to practice. The entry to practice skills will mostly be learned through simulation and clinical practicum placements.
Skills Domain	Skill is one of the three domains of Bloom's Trajectory (called 'psychomotor' by Bloom's Taxonomy. A learner can progress through seven levels in the skills domain, from A0 (awareness) through to A6 (creative proficiency), which is demonstrated by developing new techniques.

INTRODUCTION TO THE FRAMEWORK

Introduction

This National Competency Framework (NCF) contains a number of new components:

- the list of the attitudes and values expected of all respiratory therapists (RTs)--these are also reflected in the statements of competency;
- guidelines on the expectations at key stages of the RT's career, (not just at registration or entry to practice) – outlined in Part II;
- the competencies are each expressed with the knowledge they require;
- the degree of mastery expected at each career stage is shown precisely; and
- it is competency-based rather than task-based, and takes a patient-centred approach.

There are many stakeholders who will use the NCF, for a variety of purposes. It is a practical tool for use by educators and accreditation bodies for the design and maintenance of educational programs. It is used by regulators and examiners to build entry to practice assessment tools and continuing quality assurance programs. Professional RTs use the NCF throughout their career as they plan and review their professional development. Employers and managers rely on the NCF for performance appraisal, continuing education, promotion and recruitment. In addition, the public, other health care professionals, governments, Fairness Commissioners, equipment manufacturers, foreign trained professionals and other stakeholders may use the NCF to obtain guidance regarding the practice and competencies of RTs.

The intent is that the NCF be a 'living document' that will continue to evolve along with the profession, environment and technology. Over time, the NCF will be updated, relying on consultation with the profession.

Changes are welcomed and may result from:

- correction of errors;
- feedback from stakeholders;
- technical, organisational and regulatory change in the profession; and
- the recognition of new uses for the NCF.

We have based our structure on the CanMEDS Physician Competency Framework, used by the Royal College of Physicians and Surgeons since 1996, in order to maximize inter-operability. The CanMEDS Framework describes the *knowledge*, *skills* and *attitudes* that specialist physicians need, based on seven roles: Medical Expert, Communicator, Collaborator, Manager, Health Advocate, Scholar, and Professional. The NCF adds an additional role (B5 Critical thinking and reasoning skills), transforms Manager into B8 Accountability (appropriate to role in the health care team), and drops Scholar.

Uses of the National Competency Framework

This National Competency Framework (NCF) serves as the pan-Canadian reference on respiratory therapy competencies for practitioners, educators, employers, regulators, exam and accreditation agencies, and other stakeholders. The NCF summarizes the competencies relevant to RTs for entry to practice (Part I) and throughout their career (Part II). It identifies four career stages and supports career planning, development and progression.

New Entrants to the Profession (Part I)

The NCF clearly outlines the entry to practice requirements, to guide students in their personal learning journey and assist them in preparing for their licensing examinations.

Early Career Practitioners (Part II)

The NCF describes the competencies for Experienced Professionals and identifies the level of proficiency that distinguishes an experienced practitioner from a new entrant. This supports career development and recognition for early- to mid-career professionals.

Senior Professionals (Part II)

The NCF identifies a specific set of leadership and management competencies and supports career development and recognition of Senior Professionals of respiratory care teams.

Experts (Part II)

The NCF describes the competencies of an Expert in RT and identifies the level of proficiency that distinguishes an Expert from an Experienced Professional. This supports career development and recognition for mid- to late-career professionals.

Educators

The NCF sets out the pan-Canadian competencies required of new entrants to the profession. It serves as a reference for program coordinators, teaching staff and clinical educators to guide curriculum planning, teaching and assessment.

Employers

The NCF outlines practice requirements throughout an RT's career. This supports employers in hiring, career development, performance management and succession planning activities.

Program Accreditation Agency

Attainment of all entry-to-practice requirements is a critical requirement for RT education programs. The NCF outlines the pan-Canadian competencies required for new entrants to the profession.

Certification Exam Agency

The certification exam agency is responsible for developing a national credentialing exam that reflects the requirements for entry-to-practice. The NCF clearly outlines the entry-to-practice requirements and is the basis for the national credentialing exam.

Professional Associations

The NCF describes the competencies relevant to RTs throughout each stage of their career. As such, it serves as a reference for professional associations as they support and advocate for RTs. The NCF describes competencies for each career stage to support professional development initiatives.

Regulators

The NCF clearly outlines entry-to-practice requirements. It serves as a reference for regulators in stewarding the profession and protecting the public.

Other Stakeholders

The NCF outlines what is expected of RTs. It serves as a reference for patients, families, related health professionals, health care providers and the general public.

Career Stages

Entry to Practice (NCF Part I)

Entry to practice is the initial career stage, at which an RT is registered as licensed to practice. Licensure requires proficiency in all elements of competency as defined in the NCF 2016, with the ability to function independently without supervision.

Experienced Professional (NCF Part II)

The Experienced Professional career stage requires a fluency of operation beyond entry to practice. Experienced Professionals can perform everything the new entrant can, but with a higher degree of mastery and with an increased level of confidence. The timeframe of an RT progressing from entry to practice to Experienced Professional depends on experience, including hours worked, the complexity and variety of clinical situations, opportunities for on-the-job coaching and applied research opportunities. Typically, an RT who is exposed to the full scope of practice can be expected to progress from entry to practice to Experienced Professional with approximately 4,000 hours of practice.

Senior Professional (NCF Part II)

Some RTs take on the additional responsibilities of a Senior Professional in their organization. This requires enhanced core competencies to lead a team of colleagues, implying a strong understanding of the organization's environment and the RT role, including the development and implementation of RT policies and strategies. It would normally include formal responsibility for a team and their actions. It does not necessarily require any enhanced clinical competencies above other Experienced Professionals. This career stage progresses from first level team leaders and supervisors up to senior managers with significant administrative duties. However the degree of mastery shown in the NCF is that expected for entry to the Senior Professional career stage. Senior Professionals often also develop an Expert role.

Expert (NCF Part II)

Some RTs become Experts by developing an expertise in one area of the profession such as pediatrics. Experts are invited to share their expertise in an area of practice in public and professional forums. They often work with their regulatory bodies and promote the improvement of practice standards. They participate in research and sometimes publish textbooks. To develop new strategies, policies or techniques for the profession requires expert clinical knowledge and experience, but typically in a narrow range of expertise. It requires both strong technical expertise and promoting the adoption of improved practices by the RT profession. Experts may also take on a Senior Professional role.

How to Read the Detailed Performance and Knowledge Criteria

This NCF presents a detailed description of the competencies required for RTs entering practice and at other key points of their career. In addition, we have identified the Attitudes and Values that underpin the profession. To some extent, the practice (and therefore the competency) will depend on the circumstances surrounding the patient being cared for. Each competency is described using the following items:

Competency Statement

Each competency is defined using a short action statement describing what an RT must be able to perform to be considered competent at an entry-to-practice level. The verb used provides guidance as to the required level of performance. We have distinguished between three competency domains: Foundation Science, Core Competencies and Clinical Competencies.

Performance Criteria

The performance criteria section for each competency contains statements providing additional details on the required level of performance (necessary to be deemed proficient) and what is to be assessed. Competence requires all performance criteria to be met.

Range (clarification)

The range statements provide an explanation of words used in the performance criteria, or a clarification of the context for one or more performance criteria. Due to jurisdictional differences in scope of practice, for some competencies (for example, C5, C10) the range identifies the competencies RTs in one jurisdiction may perform, while RTs in other jurisdictions may assist other members of the health care team with the competency.

Knowledge

In many cases, especially for a science-based profession like RT, it is essential to have a grounding in facts and theories. There is a separate section for each competency that identifies any specific knowledge required for that particular competency. In addition, the Foundation Science competencies underpin all of the other competencies (particularly the Clinical Competencies). Because the Foundation Science competencies are knowledge-based, they consist primarily of the Knowledge section.

Degree of Mastery (Bloom's Trajectory) of Knowledge, Skills and Attitudes (KSA)

The same competencies are used by an RT at different career stages. However, the degree of mastery of the competencies is very different for someone at entry to practice compared to someone who is an experienced professional, or who has become an expert in a particular area. We have used Bloom's Trajectory as our measure of degree of mastery for each competency at each career stage – see Appendix 1. This identifies the degree of mastery for each of the three domains of knowledge, skills and attitudes. This classification makes it clear to the trainee or practicing RT exactly what proficiency is expected, and is of particular relevance for RT educators (identifying what learning experiences will be required) and assessors (indicating what types of assessment will be appropriate). Due to jurisdictional differences in availability of clinical training and/or scope of practice, some competencies have been defined at skill level 2 for neonatal and paediatric patient groups. This level 2 accepts the "below-competent" level of the new graduate and recommends that further on-the-job training or certification is required before the RT can be considered fully competent for these specific competencies.

Progression Path

The new RT Framework contains four career stages: the national standard for Entry to Practice is outlined in Part I; national guidelines for the Experienced Professional, the Senior Professional and the Expert are outlined in Part II. The same competencies are required throughout the career; however, the degree of mastery of each competency will improve. The typical progression path from entry-to-practice to senior professional or expert is shown in the Progression Path section, which describes the increasing degree of mastery along Bloom's Trajectory for the three domains of knowledge, skill and attitude.

The performance criteria identified are those for entry to practice. In a few cases, additional performance criteria are expected for the Experienced Professional or Expert, in which case these are also shown.

The career stage Senior Professional does not require an increase in clinical competencies and so does not follow the progression path for the clinical competencies (C) and foundation science (S). Senior Professionals require higher degrees of mastery in several of the Core Competencies (notably B1 Professional, B2 Communication, B6 Administration) and the additional Core Competency (B8 Accountability), which are not required for those practising their profession as RTs.

The career stage Expert is unlike all the other career stages. It does not require the expert degree of mastery for all the competencies. It is sufficient to be an expert in a single competency (although it is more common to be an expert in several competencies). However, a competent expert does require enhanced core competencies for B2 Communication and B5 Critical Thinking & Reasoning. These are therefore shown as Essential, while others are shown as Optional.

How to Interpret and Apply the Evaluation Standards

All the competencies described in this document are required for Entry to Practice. Yet, when comparing the skill level, frequency of performance and harm ratings for the various competencies there are clearly differences between them. Although all competencies are required for ETP some are clearly more important, or critical, than others.

Competency evaluation utilizes multiple points of evaluation during an academic program and multiple methods and environments are used to evaluate competency. Competencies with the highest importance/criticality should be evaluated at multiple points in multiple environments (i.e., didactic, OSCE/Simulation, clinical setting).

A standard methodology for the determination of importance or criticality of competencies does not currently exist in the literature. In this case, the criticality was determined using a methodology that utilized the data obtained during the development of the NCF, data which includes the ratings for skill, frequency and harm. Four (4) separate criteria were applied:

Criteria 1: Competencies that have a lower skill level (<3)

Criteria 2: Competencies with high harm, low frequency (harm >3, frequency <3)

Criteria 3: Competencies with low harm, low frequency (harm<3, frequency <3)

Criteria 4: Other considerations not identified by criteria

Additionally, the criteria of public interest, safety and reasonableness were applied when considering the minimum level required for evaluation of each competency.

The Role of Simulation in the Evaluation of Competency

The NARTRB referred to the February 2016 report from the Clinical Simulation Advisory Workgroup for recommendations on the "Appropriate Utilization of Clinical Simulation: Informing Implementation of the National Competency Profile".

Assessment is a continuum of both formative and summative assessment and the assessment of learning, and therefore competency attainment, should be conducted at numerous points in the educational process.

Summative Assessment in the clinical environment remains the gold standard. Yet, summative assessment in the simulated environment may be acceptable under exceptional circumstances:

- Limitations in clinical exposure
- IEHP or re entry assessment
- If simulation can offer a higher quality of assessment than is available clinically

Limitations to consider when using simulation for summative assessment include:

- Whether individuals conducting the assessment have the knowledge, skills, attitudes and abilities to appropriately conduct assessment within the simulated environment
- Adequacy of resources
- Recognizing that simulation is an approximation of reality
- Single point assessments may not be effective to adequately determine the attainment of competency

Applying the Evaluation Standards

The Evaluation Standards listed indicate the minimum level(s) at which each competency must be evaluated. Evaluation in the clinical environment, however, still remains the "gold standard". Evaluation at additional levels is encouraged (i.e., a competency evaluated via simulation can still be evaluated additionally in a clinical setting wherever possible).

Structure of the Framework

The NCF competencies are divided into:

- Ten Clinical Competencies (C1 to C10),
- Supported by nine Core Competencies (B0 to B8), and
- Underpinned by eight Foundation Science Competencies (S1 to S8).

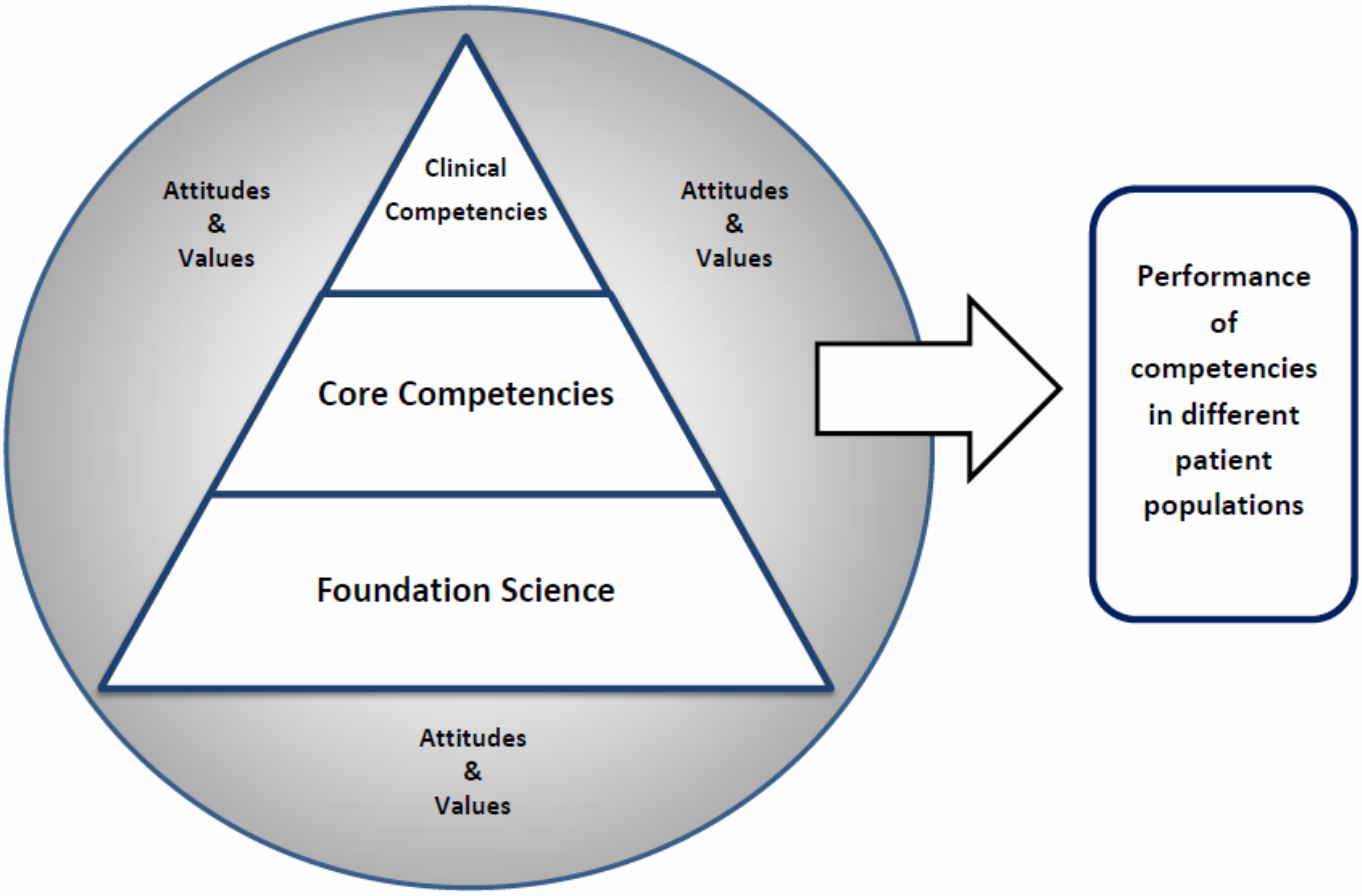
Each Competency contains several elements.

The degree of mastery for Core Competencies and Clinical Competencies is defined for:

- Knowledge
- Skills
- Attitudes & Values

and at four career stages:

- Entry to practice (outlined in Part I)
- Experienced Professional (outlined in Part II)
- Senior Professional (outlined in Part II)
- Expert (outlined in Part II)



Patient Populations	P1	Neonatal
	P2	Paediatric
	P3	Adult
Attitudes and Values	A1	Duty to patients
	A2	Duty to others
	A3	Perform within competence
	A4	Confidentiality
	A5	Participate in continuous professional development
	A6	Independence and impartiality
	A7	Honesty and integrity
	A8	Supervision of others
	A9	Comply with codes of conduct and practice
	A10	Professional liability insurance
	A11	Conflicts with moral or religious beliefs
	A12	Environment and sustainability
	A13	Obligation to report unsafe or inappropriate practices
	A14	Behaviour
Core Competencies	B0	Provide evidence-informed, patient-centred, respiratory care
	B1	Demonstrate professional behaviour
	B2	Communicate effectively
	B3	Collaborate in the interdisciplinary health care team
	B4	Optimize cardio-respiratory health and wellness of the community
	B5	Demonstrate critical thinking and reasoning skills
	B6	Perform administrative duties
	B7	Implement preventive measures to ensure health and safety
	B8	Demonstrate accountability appropriate to role in the health care team
Clinical Competencies	C1	Assess patient's cardio respiratory status
	C2	Optimize patient safety
	C3	Administer medication and substances
	C4	Manage airway
	C5	Perform anaesthesia assistance
	C6	Provide optimal ventilation assistance
	C7	Execute resuscitation
	C8	Administer cardio-pulmonary diagnostic tests
	C9	Perform adjunct therapies
	C10	Perform invasive vascular procedures
Foundation Science	S1	Apply knowledge of anatomy and physiology
	S2	Apply knowledge of chemistry and biochemistry
	S3	Apply knowledge of physics
	S4	Apply knowledge of pharmacological principles
	S5	Apply knowledge of microbiology
	S6	Apply knowledge of pulmonary pathophysiology
	S7	Apply knowledge of cardiovascular pathophysiology
	S8	Apply knowledge of other diseases and disorders

The degree of mastery at entry to practice is separately specified for each of the three patient groups for all the Clinical Competencies and a few of the Core Competencies, where appropriate.

Attitudes and Values of Respiratory Therapists

These attitudes and values are also incorporated within the detailed competency statements.

A1. Duty to patients

RTs owe a duty of care to patients and their families. They shall perform duties in a safe and competent manner, being guided at all times by their concern for the health and well-being of the patient. They must display a positive, helpful, and sensitive attitude to patients, recognizing that they may not have a good understanding of their illness or its treatment. RTs must always be aware that the result of their treatments will directly affect the outcome of patients. They need to communicate with clarity and sensitivity. They must respect and protect the legal rights of the patient, including the right to informed consent and refusal or withdrawal of treatment.

A2. Duty to others

RTs have a duty to their health care colleagues, employers, regulatory authorities, and the public. They must show proper care regarding expenditure of public money and must not compromise public health and safety.

A3. Perform within competence

RTs shall perform duties within their own level of competence and respect the level of authority assigned to them. Should the delivery of care extend beyond their level of competence, RTs must seek additional knowledge or assistance from another member of the health care team.

A4. Confidentiality

In accordance with relevant legislation, RTs must respect the confidentiality of individual patients' personal information and ensure information about an individual is not disclosed improperly or without the informed consent of the individual.

A5. Participate in continuous professional development

RTs have a responsibility to maintain competency in their field of practice and must participate in continuous professional development throughout their working lives. Practitioners will keep their knowledge in their field of practice up to date and will extend their competencies as the demand for new services develops.

A6. Independence and impartiality

RTs must carry out their professional tasks with respect for the rights and dignity of all individuals and without any form of discrimination because of age, ancestry, colour, citizenship, disability, family status, gender, marital status, place of origin, political beliefs, religion, sexual orientation, or source of income. They have the right to exercise personal judgment in the context of their responsibilities after taking into account all relevant circumstances, without any application of external influence. Advice and treatment should be given impartially and objectively, without pressure from external sources and without conflicts of interest.

A7. Honesty and integrity

RTs are required to act with honesty and integrity in their relationships with patients and others, including professional colleagues. They must not engage in any activity or behaviour that creates or

appears to create a conflict of interest or would be likely to bring their organization or the profession into disrepute or undermine public confidence in the profession.

A8. Supervision of others

RTs who supervise others are required to ensure that any member of their team to whom a task is delegated has the competency (attitudes, knowledge, and skills) necessary to undertake that task effectively and efficiently. They should always provide appropriate supervision and support. The responsibility for a delegated task remains with the delegator.

A9. Comply with codes of conduct and Standards of practice

RTs must comply with the provisions of relevant legislation and the provisions of codes of practice and standards relating to the professional services they provide.

A10. Professional liability insurance

RTs have a professional responsibility to carry professional liability insurance at a level sufficient to ensure the patient will be adequately compensated in the event of a justified claim arising from professional practice. RTs also should have some personal liability insurance to cover their legal and other expenses related to these claims or any claims alleging professional misconduct. While some organizations provide their employees with some level of liability insurance, it is the responsibility of the RTs to ensure that the level of coverage is adequate for the protection of the public and of their professional rights.

A11. Conflicts with moral or religious beliefs

In the event of conflicts with moral or religious beliefs arising from a request for the provision of RT services, members of the profession have an obligation to provide information on where that service can most conveniently be obtained from a professional colleague. After agreeing to provide a service, RTs are bound to set aside any personal, religious, political, philosophical, or other convictions.

A12. Environment and sustainability

RTs should be aware of environmental issues; their actions should not lead to needless waste of energy, time, or other resources.

A13. Obligation to report unsafe or inappropriate practices

RTs have a responsibility to report unsafe or inappropriate practices to the relevant authorities. They should use the official procedures in the first instance, but should escalate or use other channels if the circumstances require. This obligation overrides any contractual or employment limitations. Those in authority have a duty to investigate such allegations fairly and without discrimination or recrimination.

A14. Behaviour

RTs shall be accountable for their practice, and will act professionally at all times. They shall strive to be a role model for other members of the health care team by demonstrating responsibility, cooperation, accountability and competence in meeting the health care needs of the public. RTs shall advocate their role as leaders in the promotion of health and the delivery of quality respiratory care.

CORE COMPETENCIES

CORE COMPETENCY

B0 Provide evidence-informed, patient-centred, respiratory care

B0.1 Demonstrate empathy and respect towards the patient and family

B0.2 Establish partnerships with patients and families

B0.3 Plan respiratory care

B0.4 Apply evidence to practice

These elements of Competency apply to all the Clinical Competencies.

B0.1 Demonstrate empathy and respect towards the patient and family

Performance criteria

B0.1.1 Respect the rights, privacy and dignity of all individuals
B0.1.2 Consider and minimise 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

Range (clarification)

a. psychosocial stress factors include: beliefs, concerns, expectations and illness experience
b. forms of discrimination may include, but are not limited to: age, ancestry, colour, citizenship, disability, family status, gender, marital status, place of origin, political beliefs, religion, sexual orientation, or source of income

Knowledge

- attributes associated with a supportive and caring professional attitude and behaviour
- the causes and effects of patient psychosocial stress factors and their impacts
- the psychosocial implications of particular situations, such as palliative care and disease stigmas
- human rights (as a basis for understanding patient rights, discrimination, etc.)
- provincial or national legislation pertaining to patient rights (for example: Charter of Rights and Freedoms, Provincial Human Rights Codes, privacy legislation)

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Clinical		

B0.2 Establish partnerships with patients and families

Performance criteria

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

Range (clarification)

a. relevant information originates from assessment, chart review, other care providers, patient and family

Knowledge

- relevant legal aspects of the relationship between the health care worker and the patient/family
- appropriate techniques and conditions for establishing and maintaining relationships (for example, empathy, emotional intelligence, etc.)
- communication principles

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Clinical		

B0.3 Plan respiratory care

Performance criteria

B0.3.1 Synthesize relevant information
B0.3.2 Considering patient goals and expectations, identify opportunities to improve patient outcomes
B0.3.3 Develop respiratory care plans, taking into account patient goals and expectations
B0.3.4 Implement respiratory care plans
B0.3.5 Monitor and evaluate patient outcomes resulting from implementation of respiratory care plans

Range (clarification)

a. respiratory care plan includes intervention, procedures, medication
b. patient goals and expectations: includes end of life

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K5	S4	A2
Evaluation Standard	Clinical		

B0.4 Apply evidence to practice

Performance criteria

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

Range (clarification)

a. examples may include: standards of practice, clinical practice guidelines, protocol, policies and literature reviews

Knowledge

- relevant legal aspects of the relationship between the health care worker and the patient/family

• appropriate techniques and conditions for establishing and maintaining relationships (for example, empathy, emotional intelligence, etc.)

• communication principles

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A2
Evaluation Standard	Clinical		

CORE COMPETENCY

B1 Demonstrate professional behaviour

B1.1 Exhibit professional behaviour

B1.2 Adhere to the scope of practice

B1.3 Adhere to professional clinical, legal, and ethical guidelines/regulations

B1.4 Adhere to institutional/organizational policies and procedures

B1.5 Participate in professional development

B1.6 Participate in quality improvement processes

These elements of Competency apply to all the Clinical Competencies.

B1.1 Exhibit professional behaviour

Performance criteria

B1.1.1 Use professional language
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

Range (clarification)

a. professional behaviour with patients, their families, members of the health care team, the general public

Knowledge

- conflicts of interest, conflict resolution

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S4	A2
Evaluation Standard	Clinical		

B1.2 Adhere to the scope of practice

Performance criteria

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

Range (clarification)

a. the appropriate people/persons: the patient, the patient's representative, health care professionals, interprofessional, colleagues, employer
b. scope of practice: employment, personal, legislative

Knowledge

- the relevant domains of practice (nationally) and sources of relevant provincial information
- the standards of practice per applicable regulatory body
- professional responsibilities and accountabilities as it pertains to the profession
- relevant professional responsibilities and capabilities of related professions

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A3
Evaluation Standard	Clinical		

B1.3 Adhere to professional clinical, legal and ethical guidelines/regulations

Performance criteria

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

Knowledge

- professional guidelines/regulations: clinical, legal and ethical
- relevant legislation

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A3
Evaluation Standard	Clinical		

B1.4 Adhere to institutional/organizational policies and procedures

Performance criteria

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
B1.4.4 Report unsafe or inappropriate practices to the relevant authorities
B1.4.5 Be aware of relevant environmental issues and avoid needless waste of resources

Range (clarification)

a. institutional/organizational: employer, department, agency
b. resources: personnel, energy, time, finance, equipment, material and other physical resources

Knowledge

- departmental, institutional/organizational and regulatory policies and procedures

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A3
Evaluation Standard	Clinical		

B1.5 Participate in professional development

Performance criteria

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

Range (clarification)

a. opportunities: informal (both outside work and at work), formal programs (education and training), assessment, gaining a qualification

Knowledge

- the role and importance of professional development
- opportunities for continuing training and development

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Didactic		

B1.6 Participate in quality improvement processes

Performance criteria

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

Range (clarification)

a. quality improvement process: reflective practice, surveys, organizational procedures, informal feedback

Knowledge

- the organization's performance evaluation process
- the elements essential for an effective job performance appraisal

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A2
Evaluation Standard	Didactic		

CORE COMPETENCY

B2 Communicate effectively

B2.1 Demonstrate effective verbal and non-verbal communication skills

B2.2 Communicate effectively through documentation

B2.3 Use information communication technologies

B2.4 Manage conflict and difficult behaviour

These elements of Competency apply to all the Clinical Competencies.

B2.1 Demonstrate effective verbal and non-verbal communication skills

Performance criteria

B2.1.1 Show respect and empathy and communicate in a manner that is respectful of individual diversity

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

B2.1.3 Employ active listening techniques to understand the needs of others

B2.1.4 Convey information on investigations and treatments with the level of clarity appropriate to each patient's health literacy to allow for mutual understanding and informed consent

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

Range (clarification)

a. communicate with patients, their families, members of the health care team, the general public
b. interview techniques: for example, structured interview questionnaire, open-ended questions, paraphrasing, summarizing, focusing, using silence, non-verbal encouragement
c. transition points: care transitions where clients experience a change in team membership or location
d. communication styles: for example, direct and indirect
e. various situations: ordinary, crisis, stressful

Knowledge

- terms and abbreviations used in RT
- moral and legal requirements related to patient diversity
- structured interview techniques (including patient-centred and clinician-centred steps)

- communication styles and methods to adapt
- communication techniques, channels and devices

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Clinical		

B2.2 Communicate effectively through documentation

Performance criteria

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 outside the health record

B2.2.4 Document and provide rationale for deviations from established processes or guidelines

Range (clarification)

a. communicate with patients, their families, members of the health care team, the general public
b. documentation: written, recorded or drawn and stored on paper, digitally or a recording device
c. appropriate and safe communication techniques: includes timely delivery and techniques ensuring patient privacy and confidentiality

Knowledge

- documentation standards
- jurisdictional requirements for documentation
- types of documentation and messages

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Clinical		

B2.3 Use information communication technologies

Performance criteria

B2.3.1 Use information communication technologies appropriately and effectively to provide safe care to patients

Knowledge

- the benefits, limitations and professional care responsibilities—including the confidentiality risks—of using information communication technologies (for example, electronic medical records, computerized professional order entries, telephone, fax, email) including, but not limited to, organizational policies related to use of personal devices, communication services, security protocols and social media

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S4	A2
Evaluation Standard	Clinical		

B2.4 Manage conflict and difficult behaviour

Performance criteria

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

Range (clarification)

a. conflict and difficult behaviour: with patients, families, the health care team, the general public

Knowledge

- conflict management principles and techniques, adult learning principles, providing effective feedback, critical conversations theory
- employer practice and policy, Standards of Practice, Code of Ethics and other relevant guidelines

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A2
Evaluation Standard	Simulation		

CORE COMPETENCY

B3 Collaborate in the interprofessional health care team

B3.1 Collaborate in professional consultation in an interprofessional health care team

B3.2 Apply therapeutic and diagnostic procedures based on research data, methods and results

These elements of Competency apply to all the Clinical Competencies.

B3.1 Collaborate in professional consultation in an interprofessional health care team

Performance criteria

B3.1.1 Negotiate overlapping of responsibilities to support a collaborative approach to patient care

Range (clarification)

a. collaborate with: patient, patient's representatives and families, physicians, other colleagues in the health care professions, community partners, and health system stakeholders

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Clinical		

B3.2 Apply therapeutic and diagnostic procedures based on research data, methods and results

Performance criteria

B3.2.1 Discuss pertinent data

B3.2.2 Review published research and select relevant data

Range (clarification)

a. examples may include: case study presentations, research projects

Knowledge

- research methods

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Didactic		

CORE COMPETENCY

B4 Optimize cardio-respiratory health and wellness of the community

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B4.1 Provide cardio-respiratory health education

B4.2 Participate in addressing cardio-respiratory health needs of the community

These elements of Competency apply to all the Clinical Competencies.

B4.1 Provide cardio-respiratory health education

Performance criteria

B4.1.1 Provide education to support development of self-management skills

B4.1.2 Engage in activities that would enable people to increase control over their cardio-respiratory health

Range (clarification)

a. provide education to, and engage in, activities with patients/clients, family members, community, advocates, caregivers, colleagues and health care professionals

Knowledge

- educational methods for enhancing comprehension, retention and assessment of self-management skills
- determinants of cardio-respiratory health
- methods for promoting a healthy cardio-respiratory lifestyle
- benefits of cardio-respiratory health
- smoking/vapour cessation methods

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A2
Evaluation Standard	Clinical		

B4.2 Participate in addressing cardio-respiratory health needs of the community

Performance criteria

B4.2.1 Provide RT services in a community setting

B4.2.2 Provide outreach services to the community

Range (clarification)

a. community setting: primary care clinics, self-management clinics

b. outreach services may include: telemedicine, pulmonary rehab, smoking cessation, sleep hygiene

Knowledge

- purpose, strategies, and goals of community health programs

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Simulation		

For the Expert career stage, possible supplemental certifications include: Certified asthma educator, Certified COPD educator, Certified respiratory educator and Certified tobacco educator.

CORE COMPETENCY

B5 Demonstrate critical thinking and reasoning skills

B5.1 Analyze the data pertinent to the clinical situation in order to make a decision

B5.2 Prioritize clinical activities according to the analysis of the situation

B5.3 Manage problems

These elements of Competency apply to all the Clinical Competencies.

B5.1 Analyze the data pertinent to the clinical situation in order to make a decision

Performance criteria

B5.1.1 Collect data
B5.1.2 Distinguish and compare the elements of the situation
B5.1.3 Review hypotheses and reflect on the validity of arguments, statements and data

Range (clarification)

a. this also applies to equipment

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S4	A3
Evaluation Standard	Clinical		

B5.2 Prioritize clinical activities according to the analysis of the situation

Performance criteria

B5.2.1 Establish a work plan
B5.2.2 Manage time and resource constraints
B5.2.3 Demonstrate prioritization and task planning skills
B5.2.4 React properly to unforeseen situations

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A3
Evaluation Standard	Clinical		

B5.3 Manage problems

Performance criteria

B5.3.1 Identify the problem
B5.3.2 Demonstrate problem-solving skills
B5.3.3 Apply appropriate safety measures
B5.3.4 Adjust reasoning to task requirements
B5.3.5 Assess the outcome of a decision to guide future actions

Range (clarification)

a. applies to clinical issues, system issues that directly impact the care and safety of the patient, and equipment-related problems

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A3
Evaluation Standard	Clinical		

CORE COMPETENCY

B6 Perform administrative duties

B6.1 Use relevant computer and electronic data applications

B6.2 Participate in institutional or professional meetings

B6.3 Demonstrate responsible use of resources to minimize costs

B6.4 Complete administrative reports

B6.5 Perform assessments other than those related to patients

B6.6 Assess peer/student competence and performance

B6.7 Facilitate student and new staff orientation

These elements of Competency apply to all the Clinical Competencies.

B6.1 Use relevant computer and electronic data applications

Performance criteria

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

Range (clarification)

a. computer systems: desktop and laptop personal computers, tablets, smart phones and other communication devices
b. standard applications software: computer operating system, intranet, internet browser, word processing, spreadsheet and analysis programs, messaging
c. data management systems: biomedical request, computerized protocol, electronic payroll, workload measurement system, Management Information Systems in Canadian Health Service Organizations (MIS Standards)

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A2
Evaluation Standard	Clinical		

B6.2 Participate in institutional or professional meetings

Performance criteria

B6.2.1 Know the goals sought by committees operating at various levels: institutional, provincial and national

B6.2.2 Participate in a meeting or on a committee

Range (clarification)

a. institutional or professional meetings: professional body, professional association, committee meetings

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K2	S3	A1
Evaluation Standard	Didactic		

B6.3 Demonstrate responsible use of resources to minimize costs

Performance criteria

B6.3.1 Understand the impact of your practice on the cost of care

B6.3.2 Reduce waste

Range (clarification)

a. waste of resources: time waiting, defects/mistakes, unnecessary movement and transportation, over-production, over-processing, expired/damaged inventory

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Didactic		

B6.4 Complete administrative reports

Performance criteria

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

Range (clarification)

a. administrative reports: broken equipment reports, requisitions, discharge summaries, incident reports, workload measurement reports

b. health and safety reports includes: hazards, incident and accident reports

Knowledge

- role of reporting
- format and application for reporting

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K2	S1	A2
Evaluation Standard	Didactic		

B6.5 Perform assessments other than those related to patients

Performance criteria

B6.5.1 Assess the health care working environment

Range (clarification)

a. examples may include: environment, risk management, resources, demographic data, personnel
b. assessments may include: workplace health and safety, risk management, incident / accident reporting

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	n/a	n/a	n/a
Evaluation Standard	Simulation		

B6.6 Assess peer/student competence and performance

Performance criteria

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)

Range (clarification)

a. appropriate assessment guide: for example, guide from a teaching institution, guide provided by the employer

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A3
Evaluation Standard	Didactic		

B6.7 Facilitate student and new staff orientation

Performance criteria

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

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A2
Evaluation Standard	Didactic		

CORE COMPETENCY

B7 Implement preventive measures to ensure health and safety

B7.1 Analyze the risk posed by a clinical situation

B7.2 Apply infection prevention and control precautions

B7.3 Manage biohazardous materials

B7.4 Handle dangerous substances and materials

B7.5 Adhere to Canadian Standards Association (CSA) standards for medical equipment

B7.6 Handle medical gases/liquids safely

B7.7 Exercise the role of an RT in the event of an institutional disaster and mass casualty

B7.8 Use respiratory care equipment and supplies safely

B7.9 Apply the principles of the Occupational Safety, Health and Wellness (OSH&W) program

B7.10 Manage stress

These elements of Competency apply to all the Clinical Competencies.

B7.1 Analyze the risk posed by a clinical situation

Performance criteria

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

Range (clarification)

a. examples may include: patient, patient care providers, family members, visitors

Knowledge

- Understanding of measures to mitigate risk

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Clinical		

B7.2 Apply infection prevention and control precautions

Performance criteria

B7.2.1 Use proper technique for hand hygiene
B7.2.2 Perform a point of care risk assessment
B7.2.3 Apply infection prevention and control and personal protective equipment (PPE) procedures for various types of precautions
B7.2.4 Clean and disinfect equipment

Range (clarification)

a. various types of precautions including, but not limited to: contact, droplet, airborne

Knowledge

- the levels of precaution and personal protective equipment required in relation to the type of care being provided for various types of micro-organisms
- the selection and effective use of equipment to prevent infection, including the function and use of bacteria filters and negative pressure rooms
- the purpose and indications for culture and sensitivity testing in respiratory care
- the methods used to clean and disinfect equipment and the issues related to each method

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A2
Evaluation Standard	Clinical		

B7.3 Manage biohazardous materials

Performance criteria

B7.3.1 Handle and safely dispose biohazardous materials

Knowledge

- common types of biohazardous materials
- safe management and handling of biohazardous materials, including storage and elimination

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S4	A2
Evaluation Standard	Clinical		

B7.4 Handle dangerous substances and materials

Performance criteria

B7.4.1 Handle dangerous substances and materials in a safe manner

Range (clarification)

a. in a safe manner: as outlined in Workplace Hazard Information and Material System 2015, (WHMIS 2015)

Knowledge

- categories of hazardous/dangerous substances and materials
- handling and manipulation of hazardous/dangerous substances and materials with respect to Workplace Hazardous Materials Information System (WHMIS 2015) and Occupational Safety Health and Wellness
- initial procedure for injuries occurring in the workplace

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S4	A2
Evaluation Standard	Clinical		

B7.5 Adhere to Canadian Standards Association (CSA) standards for medical equipment

Performance criteria

B7.5.1 Utilize medical equipment in accordance with CSA norms and safety standards

Knowledge

- the role and responsibilities of the CSA with respect to medical equipment and patient safety
- general electrical safety guidelines

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S4	A2
Evaluation Standard	Didactic		

B7.6 Handle medical gases/liquids safely

Performance criteria

B7.6.1 Utilize and store medical gases and liquids in a safe manner

Range (clarification)

a. in a safe manner: according to Transport Canada regulations

Knowledge

- sizes and formats of medical gases/liquids containers and their respective content
- Transport Canada regulations and procedures for handling and storing medical gases/liquids

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S4	A2
Evaluation Standard	Clinical		

B7.7 Exercise the role of RT in the event of an institutional disaster and mass casualty

Performance criteria

B7.7.1 Apply the procedures according to the institutional disaster and mass casualty plan

Knowledge

- institutional codes
- the role of the RT

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A2
Evaluation Standard	Didactic		

B7.8 Use respiratory care equipment and supplies safely

Performance criteria

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

Knowledge

- the indications, contra-indications, advantages and complications of respiratory care equipment
- the safety standards related to respiratory care equipment
- formats of delivery for medical gases, including the safety features

- the care and maintenance program for equipment utilized in respiratory care, including calibration procedures and operational checks

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S3	S3	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

B7.9 Apply the principles of the Occupational Safety, Health and Wellness (OSH&W) program

Performance criteria

B7.9.1 Apply preventive measures to maximise health and safety

Range (clarification)

a. preventive measures including, but not limited to: lifts and transfers of patients, ergonomics, vaccination, violence in the workplace

Knowledge

- OSH&W measures

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A2
Evaluation Standard	Clinical		

B7.10 Manage stress

Performance criteria

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

Range (clarification)

a. stressful situations: at work, at home, physical and psychological circumstances that might impair judgement, performance and decision-making
b. others: patients, families, health care professionals, interprofessional team, colleagues, employer

Knowledge

- major stress factors commonly encountered
- the impact of stress associated with the demands of professional practice
- strategies for stress management

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K4	S3	A2
Evaluation Standard	Didactic		

CORE COMPETENCY

B8 Demonstrate accountability appropriate to role in the health care team

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B8.1 Engage in projects and professional initiatives

B8.2 Facilitate change

B8.3 Support and develop the team

These elements of Competency apply to all the Clinical Competencies.

B8.1 Engage in projects and professional initiatives

Performance criteria

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

Knowledge

- standard resource and project planning principles and techniques

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K2	S2	A2
Evaluation Standard	Didactic		

B8.2 Facilitate change

Performance criteria

B8.2.1 Identify opportunities for change
B8.2.2 Understand drivers of and obstacles to change
B8.2.3 Apply change management principles and techniques
B8.2.4 Monitor and evaluate the change process

Range (clarification)

a. change: examples may include: change of practice, change of protocols, change of organizational culture

Knowledge

- change management principles, techniques, drivers and obstacles
- organizational and professional values

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K2	S2	A2
Evaluation Standard	Didactic		

B8.3 Support and develop the team

Performance criteria

B8.3.1 Motivate team members
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
B8.3.4 Build mutual trust by being fair, reliable, consistent and credible

Career Stage	Entry to practice		
Degree of Mastery	Knowledge	Skill	Attitude
	K3	S3	A3
Evaluation Standard	Simulation		

CLINICAL COMPETENCIES

CLINICAL COMPETENCY

C1 Assess patient's cardio respiratory status

C1.1 Collect pertinent information

C1.2 Analyze the collected information

C1.3 Interpret the collected data

C1.1 Collect pertinent information

Performance criteria

C1.1.1 Obtain a comprehensive patient history
C1.1.2 Observe the clinical manifestations
C1.1.3 Utilize invasive and non-invasive monitoring
C1.1.4 Take note of pertinent diagnostic tests

Range (clarification)

a. non-invasive monitors - examples may include: transcutaneous O_2 and CO_2, end-tidal CO_2, pulse oximetry, ventilatory parameters, blood pressure
b. invasive monitoring – examples may include: hemodynamics, ventilatory parameters
c. comprehensive patient history – examples may include: patient charts, co-morbidities, patient and family interview, shift reports
d. relevant diagnostic results - examples may include: diagnostic imaging, laboratory, pulmonary function, sleep studies, ECG, walking oximetry test

Knowledge

- the differences between objective and subjective data and between signs and symptoms
- normal and abnormal findings related to head to toe inspection, palpation, percussion (if applicable) and auscultation (examples: respiratory pattern and rate, digital clubbing, level of consciousness, cyanosis)
- appropriate sites used to assess pulse and blood pressure
- normal and abnormal values related to pulse and blood pressure
- non-invasive blood pressure measurement using both manual and automatic techniques
- the technical and clinical characteristics of a normal and abnormal chest radiograph
- correct position of an artificial airway device on a chest radiograph
- the abnormalities in a chest radiograph in common diseases/disorders
- pulmonary imaging techniques (examples: computed tomography, magnetic resonance imaging and angiography, ultrasound)
- normal and abnormal findings measures obtained from non-invasive monitoring
- the appropriate application sites for non-invasive monitoring
- the applications, indications and contraindications of each intervention, procedure or medication given to the patient
- the complications of the interventions, procedures or medication and their corrective action

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S4	S4	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

C1.2 Analyze the collected information

Performance criteria

C1.2.1 Compare obtained information with normal values

Knowledge

- normal values

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S4	S4	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

C1.3 Interpret the collected data

Performance criteria

C1.3.1 Establish a relationship between the data and the patient's clinical status

C1.3.2 Assess the accuracy and quality of the data

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	S4	S4	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

CLINICAL COMPETENCY

C2 Optimize Patient Safety

C2.1 Contribute to a culture of patient safety

C2.2 Manage patient safety risks

C2.3 Respond to and report patient safety incidents

C2.1 Contribute to a culture of patient safety

Performance criteria

C2.1.1 Apply evidence-informed practice
C2.1.2 Maintain and enhance quality of practice through ongoing learning
C2.1.3 Refer to guidelines for optimal practice in the administration of care

Knowledge

- recognized terminology associated with the area of patient safety
- terminology that optimizes patient safety and difference between policies, guidelines, and protocols
- fundamental elements of patient safety

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S4	S4	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

C2.2 Manage patient safety risks

Performance criteria

C2.2.1 Identify situations or environments involving risks to patient safety
C2.2.2 Recognize the factors that can affect RT performance and impact the patient
C2.2.3 Implement solutions to these patient safety issues
C2.2.4 Assess the effectiveness of these solutions and make corrections as needed
C2.2.5 Where indicated, use technology to optimize practice

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	S4	S4	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

C2.3 Respond to and report patient safety incidents

Performance criteria

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

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S3	S3	S3	A3
Evaluation Standard	Adult	Simulation			
	Paed	Simulation			
	Neo	Simulation			

CLINICAL COMPETENCY

C3 Administer medication and substances

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

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C3.1 Determine appropriateness and safety of medication and substances

Performance criteria

C3.1.1 Verify that the medication order or prescription is complete or that the patient meets inclusion criteria for use of protocol

C3.1.2 Assess appropriateness of the prescribed medication for the patient

C3.1.3 Verify patient has no known allergy or previous adverse response to the medication

Range (clarification)

a. examples may include: bronchodilators, benzodiazepines, narcotics, prostacyclins, antibiotics
b. substance - examples may include: blood, plasma crystalloid substance
c. protocol - includes algorithm and pathway
d. routes of enteral and parenteral administration- examples may include: substances by inhalation, instillation, orally, transdermal, topical, injection and infusion

Knowledge

- elements of a valid prescription or medical order
- indications and contraindications of medications and substances
- adverse responses to medications and substances
- the available formats and methods of administration

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S4	S4	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

C3.2 Prepare medications and substances for administration

Performance criteria

C3.2.1 Perform dosage calculations
C3.2.2 Safely prepare medication following monograph and workplace hazard best practice guidelines
C3.2.3 Ensure proper labeling and handling of prepared medications and substances according to best practice standards

Range (clarification)

a. administration of: substances by inhalation, instillation, orally, topical, transdermal, injection and infusion
b. monograph: information provided by the drug manufacturer to the health care team
c. Workplace Hazardous Materials Information System 2015, (WHMIS 2015)

Knowledge

- dosages and concentrations of medications and substances
- independent double check

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S4	S4	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

C3.3 Administer medications and substances

Performance criteria

C3.3.1 Verify the right client, right medication or substance, right reason, right dose, right frequency, right route, right site, right time and right documentation
C3.3.2 Administer substance using the appropriate format, method of administration and proper technique
C3.3.3 If client or legal guardian administers medication or substance, assess that medication is administered correctly
C3.3.4 Perform appropriate documentation of medication or substance administration

Range (clarification)

a. administration of: substances by inhalation, instillation, orally, transdermal, injection, infusion
b. includes administration of medical gases and surfactants
c. medical gases do not apply to inhaled anaesthetic agents, because these are covered under the Anaesthesia Competency
d. according to provincial and territorial scope of practice, “surfactants” may be either “administered” or the RT may “assist” with administration

Knowledge

- indications, contraindications and complications
- technique and dosages for surfactant administration
- recommended applications and administration procedure for each medical gas
- delivery systems for various medical gases (for example, oxygen, nitric oxide, heliox)

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S4	S4	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

C3.4 Evaluate response to medication or substance administration

Performance criteria

C3.4.1 Assess the patient's response

C3.4.2 Adjust medication or substance dose or rate according to order or protocol

Range (clarification)

a. protocol: includes algorithm and pathway

Knowledge

- responses to medications: desired effects, side effects, allergic responses

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S4	S4	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

CLINICAL COMPETENCY

C4 Manage airway

C4.1 Manage artificial airway devices

C4.2 Ensure patency of the airway

C4.1 Manage artificial airway devices

Performance criteria

C4.1.1 Select the appropriate artificial airway device
C4.1.2 Optimize patient position
C4.1.3 Insert the artificial airway device correctly
C4.1.4 Maintain artificial airway devices
C4.1.5 Remove artificial airway device at the appropriate time
C4.1.6 Assist with inserting an artificial airway device using specialized and complementary techniques, if necessary
C4.1.7 Assist with airway device change if necessary, while maintaining patent airway and adequate ventilation
C4.1.8 Perform surgical airway care, including tracheostomy care
C4.1.9 Apply a speaking valve *(not applicable to neonate)*

Range (clarification)

a. examples may include: endotracheal tube, tracheostomy tube, laryngeal mask, oropharyngeal and nasopharyngeal airway, laryngectomy
b. context for application of speaking valves: clinical setting, at home

Knowledge

- procedures and techniques for inserting artificial airway devices in various clinical situations, including changing the airway
- techniques and equipment (laryngoscope, video laryngoscope, bougie or any equipment used when inserting an artificial airway device)
- indicators of proper tube placement
- possible complications and corrective actions to take with airway management
- indicators for the need to change or remove an artificial airway device
- procedures and techniques for removing an artificial airways device
- situations and corrective actions related to difficult airway situations
- tracheostomy procedure
- technique for tracheostomy care
- procedures for tracheotomy weaning and corking
- procedures for laryngectomy and laryngectomy weaning
- methods used to allow patients with a tracheotomy to communicate

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S3	S3	S4	A3
C4.1.8	K2	S2			A2
Evaluation Standard	Adult	Clinical			
	Paed	Simulation			
	Neo	Simulation			

C4.2 Ensure patency of the airway

Performance criteria

C4.2.1 Optimize broncho-pulmonary hygiene
C4.2.2 Perform lung volume recruitment techniques
C4.2.3 Provide humidity therapy
C4.2.4 Assist with bronchoscopy procedures *(not applicable to neonate)*

Range (clarification)

a. with or without an artificial airway

Knowledge

- techniques used in selected suction therapy (nasopharyngeal, oropharyngeal, endotracheal)
- methods used to obtain sputum samples
- positions used to facilitate broncho-pulmonary hygiene
- directed cough, assisted cough, percussion and postural drainage technique
- mechanical or pneumatic devices (for example: PEP devices, Cough Assist, Intrapulmonary Percussive Ventilation (IPV))
- physiological techniques (for example, breath stacking)
- pneumatic techniques (for example, IPPB, modified resuscitator device)
- the physiological importance of humidity and the significance of a humidity deficit in the respiratory tract
- the physiological effects of heated or non-heated humidification
- sample collection
- purpose of various drugs commonly used during a bronchoscopy
- methods of obtaining and preparing samples during a bronchoscopy
- modifications required for an intubated patient

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S2	S3	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Simulation			
	Neo	Simulation			

CLINICAL COMPETENCY

C5 Perform anaesthesia assistance

C5.1 Assist with anaesthesia

C5.2 Manage homeostasis of a patient during anaesthesia

C5.3 Manage the patient during sedation

C5.1 Assist with anaesthesia

Performance criteria

C5.1.1 Assess patient general status (American Society of Anesthesiologists (ASA) status) and verify urgency of procedure
C5.1.2 Evaluate patient airway prior to induction
C5.1.3 Assist in positioning patient for surgery
C5.1.4 Monitor patient during anaesthesia
C5.1.5 Prepare the patient for emergence
C5.1.6 Assist the anaesthesiologist during emergence

Range (clarification)

a. in the operating room or satellite areas (examples may include: radiology suite, birthing center)
b. anaesthesia includes regional, general, induction, maintenance and emergence

Knowledge

- differences between general and regional anaesthesia procedures, including clinical indications and contraindications
- complications associated with general and regional anaesthesia procedures and corrective actions
- pre-anaesthetic preparation
- changes to anaesthesia management for patients with specific considerations (for example, heart disease, pregnancy, full stomach and day surgery cases)
- differences between various surgical positions and influence on anaesthetic techniques
- positions for the different surgeries
- precautions per specific location and environment when anaesthetic procedure is performed outside of operating room, as well as with staff untrained in anaesthetic considerations
- elements of emergence from anaesthesia, including potential complications and corrective action
- drugs and dosages for medication used during emergence

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	S2	S2	S3	A3
Evaluation Standard	Adult	Clinical			
	Paed	Simulation			
	Neo	Simulation			

C5.2 Manage homeostasis of a patient during anaesthesia

Performance criteria

C5.2.1 Adjust fluid and blood administration in anaesthetized patients per surgical requirement

C5.2.2 Apply appropriate devices to maintain thermal regulation

Range (clarification)

a. according to provincial and territorial scope of practice, "manage homeostasis" may mean "to assist with" in some jurisdictions

Knowledge

- physiological monitoring of patients during anaesthesia according to Canadian Anaesthesiologist Society (CAS) guidelines
- physiological response to anaesthesia or surgical stimulation
- changes to anaesthesia management for patients with specific considerations (for example, heart disease, pregnancy and day surgery cases)
- drug dosages to provide a steady state of anaesthesia
- fluid requirements according to the type of surgery
- types of fluid/blood replacement
- clinical indications and complications associated with blood products
- blood product administration procedure, including cross match and compatibility testing
- complications from anaesthesia and their treatment (for example, hypovolemia, anaphylaxis, malignant hyperthermia, transfusion reaction)

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	S2	S3	S3	A3
Evaluation Standard	Adult	Simulation			
	Paed	Didactic			
	Neo	Didactic			

C5.3 Manage the patient during sedation

Performance criteria

C5.3.1 Assess patient's general status
C5.3.2 Evaluate patient's airway prior to sedation
C5.3.3 Assist during sedation or perform analgesic sedation

Range (clarification)

a. according to provincial and territorial scope of practice, "manage the patient" may mean "to assist with" in some jurisdictions

Knowledge

- analgesic sedation anaesthesia, including its specific applications and potential complications
- anaesthetic drugs commonly utilized in analgesic sedation and their dosages

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S2	S2	S3	A3
Evaluation Standard	Adult	Simulation			
	Paed	Didactic			
	Neo	Didactic			

CLINICAL COMPETENCY

C6 Provide optimal ventilation assistance

C6.1 Perform manual ventilation

C6.2 Provide optimal invasive and non-invasive mechanical ventilation support

C6.3 Perform non-invasive lung volume recruitment techniques

C6.1 Perform manual ventilation

Performance criteria

C6.1.1 Select the appropriate mask and/or artificial airway device
C6.1.2 Utilize proper technique for manual ventilation
C6.1.3 Verify effective ventilation
C6.1.4 Perform manual ventilation in a manner appropriate to the clinical situation

Range (clarification)

a. resuscitator – examples may include: self-inflating, flow-inflating, T-piece resuscitator
b. manual ventilation - examples may include: via mask, via artificial airway device using a resuscitator

Knowledge

- factors affecting the delivered oxygen concentration and lung volume when ventilating a patient with a manual resuscitator
- techniques for manual ventilation using a mask or an artificial airway device using a manual resuscitator
- application of manual ventilation using a self-inflating manual resuscitator versus that of a flow-inflating manual resuscitator, T-piece resuscitator

<table>
<tr><td>Career Stage</td><td colspan="5">Entry to practice</td></tr>
<tr><td rowspan="2">Degree of Mastery</td><td rowspan="2">Knowledge</td><td colspan="3">Skill</td><td rowspan="2">Attitude</td></tr>
<tr><td>Neo</td><td>Paed</td><td>Adult</td></tr>
<tr><td></td><td>K5</td><td>S3</td><td>S3</td><td>S4</td><td>A3</td></tr>
<tr><td>Evaluation Standard</td><td>Adult</td><td colspan="4">Clinical</td></tr>
<tr><td></td><td>Paed</td><td colspan="4">Clinical</td></tr>
<tr><td></td><td>Neo</td><td colspan="4">Clinical</td></tr>
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C6.2 Provide optimal invasive and non-invasive mechanical ventilation support

Performance criteria

C6.2.1 Initiate Positive Pressure Ventilation (PPV)
C6.2.2 Maintain PPV
C6.2.3 Wean from PPV
C6.2.4 Monitor and interpret ventilator waveforms and pulmonary mechanics

Range (clarification)

a. applies to non-invasive mechanical ventilation (NIPPV), invasive mechanical ventilation
b. applies to all patient groups
c. conventional modes of ventilation - examples include: volume-control ventilation (VCV), pressure-control ventilation (PCV), pressure support ventilation (PSV), synchronized intermittent mandatory ventilation (SIMV), volume support (VS), pressure regulated volume controlled ventilation (PRVC), airway pressure release ventilation (APRV), CPAP, bi-level ventilation
d. functional characteristics of ventilator waveforms and pulmonary mechanics – examples include: auto-peep, air trapping, lower and upper inflection points, auto triggering, patient triggering, plateau pressure, static and dynamic compliance, resistance, expiratory pause, occlusion pressure

C6.2.5 Initiate and maintain alternative modes of mechanical ventilation

Range (clarification)

a. examples include: high frequency oscillatory ventilation (HFOV), Jet ventilation, neurally-adjusted ventilatory assist (NAVA), proportional assist ventilation (PAV)

Knowledge

- how PPV affects patient physiology
- PPV set-up and strategies as they apply to treatment of respiratory patho-physiologies
- conventional modes of PPV
- the control schemes of a mechanical ventilator
- the fundamental elements associated with spontaneous breathing and positive pressure breaths, the initiation and termination of a positive pressure breath
- methods used to measure flow, pressure and volume in a PPV device
- set parameters of the different modes of ventilation
- how changes in patient conditions (for example, compliance and resistance) affect ventilation when using distinct modes of PPV
- the concept of compressible volume loss in a circuit and the implication in ventilation
- the indicators to predict success for weaning and discontinuation from PPV
- the functional characteristics of the lungs and airways that can be determined from specific waveforms and pulmonary mechanics
- methods utilized to evaluate pulmonary mechanics

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	S3	S3	S4	A3
C6.2.5	K2	S1			A2
Evaluation Standard (6.2.1 – 6.2.4)	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			
Evaluation Standard (6.2.5)	Adult	Clinical			
	Paed	Simulation			
	Neo	Simulation			

C6.3 Perform non-invasive lung volume recruitment techniques

Performance criteria

C6.3.1 Determine goals and strategies for lung volume recruitment manoeuvres

C6.3.2 Perform lung volume recruitment on patients using the chosen technique

Knowledge

- indications, contraindications and complications
- incentive spirometry technique
- physiological techniques- examples may include: breath stacking
- pneumatic techniques – examples may include: IPPB, positive expiratory pressure

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	n/a	S3	S3	A2
Evaluation Standard	Adult	Clinical			
	Paed	Didactic			
	Neo	n/a			

CLINICAL COMPETENCY

C7 Execute Resuscitation

C7.1 Perform distinction, assessment and rapid intervention as per resuscitation guidelines

C7.2 Perform basic life support (BLS) protocols according to the current standards of the Heart and Stroke Foundation of Canada

C7.3 Perform adult advanced life support (ACLS) protocols according to the current standards of the Heart and Stroke Foundation of Canada

C7.4 Perform paediatric advanced life support (PALS) protocols according to the current standards of the Heart and Stroke Foundation of Canada

C7.5 Perform neonatal resuscitation program (NRP) protocols according to the current standards of the Canadian Paediatric Society

Note: There are no performance criteria or knowledge statements for this competency, as it is all covered within the above certifications.

C7.1 Perform distinction, assessment and rapid intervention as per resuscitation guidelines

Range (clarification)

a. examples may include: ATLS, STABLE, ACORN, PALS/APLS, BLS, ACLS, and NRP
b. "distinction" refers to comparing and contrasting resuscitation guidelines including indications for their use.

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	S4	S4	S4	A2
Evaluation Standard	Adult	Didactic			
	Paed	Didactic			
	Neo	Didactic			

C7.2 Perform basic life support (BLS) protocols according to the current standards of the Heart and Stroke Foundation of Canada

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	S4	S4	S4	A2
Evaluation Standard	Adult	Simulation			
	Paed	Simulation			
	Neo	n/a			

C7.3 Perform adult advanced life support (ACLS) protocols according to the current standards of the Heart and Stroke Foundation of Canada

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	n/a	n/a	S3	A2
Evaluation Standard	Adult	Simulation			
	Paed	n/a			
	Neo	n/a			

C7.4 Perform paediatric advanced life support (PALS) protocols according to the current standards of the Heart and Stroke Foundation of Canada

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	n/a	S3	n/a	A2
Evaluation Standard	Adult	n/a			
	Paed	Simulation			
	Neo	n/a			

C7.5 Perform neonatal resuscitation program (NRP) protocols according to the current standards of the Canadian Paediatric Society

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S3	n/a	n/a	A2
Evaluation Standard	Adult	n/a			
	Paed	n/a			
	Neo	Simulation			

CLINICAL COMPETENCY

C8 Administer cardio-pulmonary diagnostic tests

C8.1 Perform and interpret electrocardiograms

C8.2 Perform and interpret pulmonary function testing

C8.3 Perform diagnostic tests for sleep related breathing disorders

---

C8.1 Perform and interpret electrocardiograms

Performance criteria

C8.1.1 Perform an electrocardiogram
C8.1.2 Assess the validity and quality of the results and recognize any artifact(s)
C8.1.3 Interpret results

Range (clarification)

a. examples may include: ECG: 3-Lead, 5-Lead, 12-Lead, Holter monitoring, cardiac stress tests

Knowledge

- see S7: cardiovascular pathophysiology

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K5	S3	S3	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Didactic			
	Neo	Didactic			

C8.2 Perform and interpret pulmonary function testing

Performance criteria

C8.2.1 Perform pulmonary function testing
C8.2.2 Assess the validity and quality of the results
C8.2.3 Interpret the results

Range (clarification)

a. examples may include: lung volume testing flow transducer, impulse oscillation system

Knowledge

- See S6: pulmonary pathophysiology

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	n/a	S3	S4	A3
Evaluation Standard	Adult	Clinical			
	Paed	Didactic			
	Neo	n/a			

C8.3 Perform diagnostic tests for sleep related breathing disorders

Performance criteria

C8.3.1 Prepare the patient for appropriate monitoring
C8.3.2 Assess the validity and quality of the results
C8.3.3 Interpret the results

Range (clarification)

a. multichannel (level 3 and level 4 testing based on the Canadian Thoracic Society Guidelines) performed with portable monitoring) – examples may include: overnight oximetry , portable monitoring
b. Note: this competency does not include polysomnography as additional certification is required

Knowledge

- parameters recorded during monitoring and their significance

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K3	S2	S3	S3	A2
Evaluation Standard	Adult	Clinical			
	Paed	Didactic			
	Neo	Didactic			

CLINICAL COMPETENCY

C9 Perform Adjunct Therapies

C9.1 Insert oesophageal or gastric tubes

C9.2 Assist in thoracic suction or drainage therapy

C9.3 Provide thermal regulation

C9.4 Manage transport of a patient

C9.1 Insert oesophageal or gastric tubes

Performance criteria

C9.1.1 Perform the insertion of an oesophageal tube in a patient and ensure safe positioning
C9.1.2 Perform gastric suction/drainage in patients
C9.1.3 Remove the oesophageal tube from patients

Knowledge

- indications, contraindications and complications
- the physiological effects of gastric suction/drainage
- indicators of proper tube positioning

<table>
<tr><td>Career Stage</td><td colspan="4">Entry to practice</td></tr>
<tr><td rowspan="2">Degree of Mastery</td><td rowspan="2">Knowledge</td><td colspan="3">Skill</td><td rowspan="2">Attitude</td></tr>
<tr><td>Neo</td><td>Paed</td><td>Adult</td></tr>
<tr><td></td><td>K2</td><td>S2</td><td>S2</td><td>S3</td><td>A2</td></tr>
<tr><td rowspan="3">Evaluation Standard</td><td>Adult</td><td colspan="4">Simulation</td></tr>
<tr><td>Paed</td><td colspan="4">Didactic</td></tr>
<tr><td>Neo</td><td colspan="4">Didactic</td></tr>
</table>

C9.2 Assist in thoracic suction or drainage therapy

Performance criteria

C9.2.1 Prepare the patient for thoracic suction or drainage
C9.2.2 Assist in the insertion of a chest tube or drain
C9.2.3 Maintain thoracic suction or drainage in patients

Knowledge

- indications, contraindications and complications
- thoracic suction/drainage equipment
- physiological effects associated with thoracic suction and drainage
- thoracentesis techniques and urgent needle decompression technique
- chest tube/drain insertion technique
- procedure for inserting a chest drain

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	n/a	S3	S3	A2
Evaluation Standard	Adult	Simulation			
	Paed	Didactic			
	Neo	Didactic			

C9.3 Provide thermal regulation

Performance criteria

C9.3.1 Use various methods to regulate body temperature

Range (clarification)

a. this applies to all practice settings other than anesthesia

Knowledge

- the benefits and drawbacks of various thermoregulation devices: for example, incubators, warming tables, heated humidifiers

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S3	S3	S3	A2
Evaluation Standard	Adult	Clinical			
	Paed	Clinical			
	Neo	Clinical			

C9.4 Manage transport of a patient

Performance criteria

C9.4.1 Prepare a patient for transport
C9.4.2 Monitor and maintain patient throughout transport
C9.4.3 Ensure safe delivery/handover of the patient post-transport

Range (clarification)

a. examples may include: ventilated, non-ventilated, internal, external

Knowledge

- necessary precautions and contingency plans required when transporting a patient

<table>
<tr><td>Career Stage</td><td colspan="5">Entry to practice</td></tr>
<tr><td rowspan="2">Degree of Mastery</td><td rowspan="2">Knowledge</td><td colspan="3">Skill</td><td rowspan="2">Attitude</td></tr>
<tr><td>Neo</td><td>Paed</td><td>Adult</td></tr>
<tr><td>K4</td><td>S3</td><td>S3</td><td>S3</td><td>A3</td></tr>
<tr><td rowspan="3">Evaluation Standard</td><td>Adult</td><td colspan="4">Clinical</td></tr>
<tr><td>Paed</td><td colspan="4">Simulation</td></tr>
<tr><td>Neo</td><td colspan="4">Simulation</td></tr>
</table>

CLINICAL COMPETENCY

C10 Perform invasive vascular procedures

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

C10.1 Manage vascular access through invasive procedures

Performance criteria

C10.1.1 Explain the procedure to the patient
C10.1.2 Select and use appropriate equipment in relation to the clinical situation
C10.1.3 Perform the procedure appropriately

Range (clarification)

a. according to provincial and territorial scope of practice, "manage" may include "inserting, withdrawing, repositioning"
b. examples may include: intravenous, intra-osseous, umbilical venous catheter

Knowledge

- sites, procedures and techniques for vascular access
- complications
- equipment or technique to facilitate the procedure

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K3	S1	S1	S3	A2
Evaluation Standard	Adult	Clinical			
	Paed	Didactic			
	Neo	Didactic			

C10.2 Manage arterial lines

Performance criteria

C10.2.1 Explain the procedure to the patient
C10.2.2 Select and use appropriate equipment in relation to the clinical situation
C10.2.3 Perform the procedure appropriately

Range (clarification)

a. includes umbilical artery lines

Knowledge

- the sites, procedure and positioning for insertion of arterial lines or arterial puncture
- complications
- the equipment or technique to facilitate the procedure

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	n/a	S2	S4	A2
Evaluation Standard	Adult	Simulation			
	Paed	Didactic			
	Neo	Didactic			

C10.3 Perform an arterial, venous or capillary puncture

Performance criteria

C10.3.1 Select and use the appropriate equipment and prepare site
C10.3.2 Perform the procedure appropriately

Range (clarification)

a. arterial puncture – required
b. venous and capillary puncture – optional
c. according to provincial and territorial scope of practice, "perform the procedure" may mean "to assist with" in some jurisdictions

Knowledge

- the methods and sites for obtaining a blood sample from capillary, venous, arterial puncture
- complications
- the equipment or technique to facilitate the procedure

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	S2	S2	S3	A3
Evaluation Standard	Adult	Clinical			
	Paed	Didactic			
	Neo	Didactic			

C10.4 Assist with vascular access through central lines/pulmonary artery catheter

Performance criteria

C10.4.1 Prepare the patient for central line/ pulmonary artery (PA) line insertion
C10.4.2 Select and prepare the appropriate equipment and sterile field
C10.4.3 Manage equipment to ensure proper function
C10.4.4 Assist with performance, as required

Knowledge

- conscious sedation anaesthesia, including its specific applications
- sites and techniques for central line cannulation and pulmonary artery catheterization
- complications
- the equipment or technique to facilitate the procedure
- the normal values and calculations related to central venous and pulmonary artery catheters
- ventilatory effect on the various pulmonary hemodynamic pressures
- different hemodynamic pressure waveforms

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K4	n/a	S2	S3	A2
Evaluation Standard	Adult	Simulation			
	Paed	Didactic			
	Neo	Didactic			

C10.5 Collect samples using an indwelling catheter

Performance criteria

C10.5.1 Prepare the patient
C10.5.2 Select and use the appropriate equipment
C10.5.3 Perform the procedure appropriately

Range

a. examples may include: indwelling catheter: arterial, pulmonary artery, central venous, umbilical

Knowledge

- methods for obtaining samples from indwelling catheters, including zeroing and levelling of the transducer
- complications with sampling from indwelling catheters, and treatment of complications
- methods used for transporting blood samples
- quality control for blood gas analysis
- procedure used to perform sample analysis
- handling samples

Career Stage	Entry to practice				
Degree of Mastery	Knowledge	Skill			Attitude
		Neo	Paed	Adult	
	K3	S2	S2	S3	A2
Evaluation Standard	Adult	Simulation			
	Paed	Didactic			
	Neo	Didactic			

FOUNDATION SCIENCE

FOUNDATION SCIENCE

S1 Apply knowledge of anatomy and physiology

S1.1 Apply the appropriate scientific knowledge relating to the organization and function of the human body

S1.2 Apply the appropriate scientific knowledge relating to the stages of prenatal development

S1.3 Apply the appropriate scientific knowledge relating to skin, bones and muscles

S1.4 Apply the appropriate scientific knowledge relating to the nervous system: its regulation and integration of the physiological processes

S1.5 Apply the appropriate scientific knowledge relating to homeostasis and the role of each contributing system

S1.6 Apply the appropriate scientific knowledge relating to the urinary system

S1.7 Apply the appropriate scientific knowledge relating to fluid equilibrium, electrolytes and acid-base balance

S1.8 Apply the appropriate scientific knowledge relating to the endocrine system

S1.9 Apply the appropriate scientific knowledge relating to the pulmonary system

S1.10 Apply the appropriate scientific knowledge relating to pulmonary ventilation

S1.11 Apply the appropriate scientific knowledge relating to the neurological control of breathing and respiratory compensation

S1.12 Apply the appropriate scientific knowledge relating to the functional physiology of blood

S1.13 Apply appropriate scientific knowledge relating to gas exchanges

S1.14 Apply the appropriate scientific knowledge relating to the functional physiology of the cardiovascular system

S1.15 Apply appropriate scientific knowledge relating to the electrophysiology of the heart

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S1.1 Apply the appropriate scientific knowledge relating to the organization and function of the human body

Knowledge

- chemical processes needed for the function of human physiology
- the cellular mechanism as a fundamental and essential unit
- the functions of the principal human tissues

S1.2 Apply the appropriate scientific knowledge relating to the stages of prenatal development

Knowledge

- the stages of pregnancy and delivery
- the events of embryonic and fetal development
- the newborn's adaptation to extra-uterine life

S1.3 Apply the appropriate scientific knowledge relating to skin, bones and muscles

Knowledge

- the integumentary system
- the structure and function of the bones
- the structure and function of the muscles
- the changes and consequences of aging on the bones and muscles

S1.4 Apply the appropriate scientific knowledge relating to the nervous system: its regulation and integration of the physiological processes

Knowledge

- the structure and physiology of the nervous tissue
- the function of the central nervous system
- the function of the peripheral nervous system and the reflex activity
- the function of the autonomic nervous system
- the changes and consequences of aging on the nervous system

S1.5 Apply the appropriate scientific knowledge relating to homeostasis and the role of each contributing system

Knowledge

- the composition and characteristics of venous and arterial blood
- the functions of the lymphatic system
- the functions of the immune system
- the overall function of digestive system
- the metabolism and function of the liver
- the thermoregulatory mechanism with emphasis on the newborn

S1.6 Apply the appropriate scientific knowledge relating to the urinary system

Knowledge

- the anatomy of the kidney
- the mechanism of urine formation
- the functions of the urinary system in relation to the maintenance of homeostasis

S1.7 Apply the appropriate scientific knowledge relating to fluid equilibrium, electrolytes and acid-base balance

Knowledge

- the regulation of water balance
- the regulation of electrolytes: sodium, potassium, calcium, magnesium and anions
- acid-base balance: chemical buffer systems, respiratory regulation and renal mechanisms

S1.8 Apply the appropriate scientific knowledge relating to the endocrine system

Knowledge

- the major endocrine organs
- the functional role of the major endocrine organs: pituitary, thyroid, parathyroid, adrenal, pineal and thymus glands

S1.9 Apply the appropriate scientific knowledge relating to the pulmonary system

Knowledge

- each component of the pulmonary system
- the relationship between the pulmonary system and the other systems
- the changes to the pulmonary system throughout the course of life

S1.10 Apply the appropriate scientific knowledge relating to pulmonary ventilation

Knowledge

- the principles of physics in relation to pulmonary ventilation
- the functionality of inhalation and exhalation during one breath cycle
- the function of external respiration
- lung volumes and lung capacities

S1.11 Apply the appropriate scientific knowledge relating to the neurological control of breathing and respiratory compensation

Knowledge

- the regulation of breathing
- the types of respiratory patterns
- the reflect actions triggered by blood and pulmonary receptors
- other factors which influence respiratory frequency and amplitude
- the various mechanisms known to contribute to respiratory compensation

S1.12 Apply the appropriate scientific knowledge relating to the functional physiology of blood

Knowledge

- the biochemical profile of venous and arterial blood
- the composition of plasma and its components
- the mechanism of blood coagulation
- the principle of blood transfusion, cell saving and restoration of blood volume
- the flow and function of the pulmonary circulation and the systemic circulation

S1.13 Apply appropriate scientific knowledge relating to gas exchanges

Knowledge

- the composition of atmospheric gases, alveolar gases and blood gases
- gas exchange between blood, the lungs and the tissues
- how gases are transported in the blood
- anatomical and physiological factors known to affect gas exchange

S1.14 Apply the appropriate scientific knowledge relating to the functional physiology of the cardiovascular system

Knowledge

- the anatomy and function of the heart as an integral part of the cardiovascular system
- the electromechanical physiology pertaining to each functional phase of a cardiac cycle
- the physiology of blood circulation during one complete cardiac cycle
- the changes and consequences of aging on the cardiovascular system

S1.15 Apply appropriate scientific knowledge relating to the electrophysiology of the heart

Knowledge

- the neuro-chemical control of the cardiovascular system
- the intrinsic conduction system and the extrinsic innervation of the heart
- graphic recording of electrical changes on an electrocardiogram during various heart activities

FOUNDATION SCIENCE

S2 Apply knowledge of chemistry and biochemistry

S2.1 Apply the appropriate scientific knowledge relating to chemical terms and concepts as they pertain to Respiratory Therapy

S2.2 Apply the appropriate scientific knowledge relating to biochemical terms and concepts as they pertain to Respiratory Therapy

---

S2.1 Apply the appropriate scientific knowledge relating to chemical terms and concepts as they pertain to Respiratory Therapy

Knowledge

- 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
- pH, acid and base
- cathode, anode, electrode, voltage, current and resistance

S2.2 Apply the appropriate scientific knowledge relating to biochemical terms and concepts as they pertain to Respiratory Therapy

Knowledge

- 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

FOUNDATION SCIENCE

S3 Apply knowledge of physics

S3.1 Apply the appropriate scientific knowledge relating to the behaviour of gases

S3.2 Apply the appropriate scientific knowledge relating to the states of matter and change of state

S3.3 Apply the appropriate scientific knowledge relating to surface tension

S3.4 Apply the appropriate scientific knowledge relating to gas diffusion

S3.5 Apply the appropriate scientific knowledge relating to fluid dynamics and gas mixing/entrainment

S3.6 Apply the appropriate scientific knowledge relating to the behaviour of aerosols

S3.7 Apply the appropriate scientific knowledge relating to other physical principles

---

S3.1 Apply the appropriate scientific knowledge relating to the behaviour of gases

Knowledge

- potential and kinetic energy
- Avogadro's law
- Boyle's, Charles', Gay-Lussac's laws
- Combined and Ideal Gas laws
- pressure: units of measure and conversion factors
- volume: units of measure and conversion factors

S3.2 Apply appropriate scientific knowledge relating to the states of matter and change of state

Knowledge

- 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 vaporisation (fusion)
- humidity, absolute humidity, relative humidity and humidity deficit
- condensation and dew point

- STPD, ATPS and BTPS

S3.3 Apply the appropriate scientific knowledge relating to surface tension

Knowledge

- Laplace's law
- capillary action
- cohesion and adhesion

S3.4 Apply the appropriate scientific knowledge relating to gas diffusion

Knowledge

- atmospheric composition and its gases
- Dalton's law of partial pressures
- Graham's law
- Henry's law
- solubility co-efficient
- Fick's law of diffusion

S3.5 Apply the appropriate scientific knowledge relating to fluid dynamics and gas mixing/entrainment

Knowledge

- Poiseuille's law
- Reynold's number
- laminar and turbulent Flow
- Bernoulli principle
- Venturi effect
- Coanda effect

S3.6 Apply the appropriate scientific knowledge relating to the behaviour of aerosols

Knowledge

- Stoke's law of sedimentation
- stability and particle size
- gravitational forces
- inertial impaction
- penetration
- retention
- deposition
- clearance

S3.7 Apply the appropriate scientific knowledge relating to other physical principles

Knowledge

- Beer's law and light absorption
- Doppler effect
- Hooke's law, elasticity and compliance

FOUNDATION SCIENCE

S4 Apply knowledge of pharmacological principles

S4.1 Apply the appropriate scientific knowledge relating to the application of medications

S4.2 Apply the appropriate scientific knowledge relating to the pharmacologic response of adrenergic and cholinergic drugs

S4.3 Apply the appropriate scientific knowledge relating to each class of medications

S4.4 Describe the characteristics of specific classes of cardiovascular medications

S4.5 Apply the appropriate scientific knowledge relating to drugs utilized in anaesthesia

S4.6 Apply the appropriate scientific knowledge relating to inhalational anaesthetic agents

---

S4.1 Apply the appropriate scientific knowledge relating to the application of medications

Knowledge

- 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

S4.2 Apply the appropriate scientific knowledge relating to the pharmacologic response of adrenergic and cholinergic drugs

Knowledge

- 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

S4.3 Apply the appropriate scientific knowledge relating to each class of medications

Range (clarification)

a. the indications, mechanism of action, routes of administration, side effects

Knowledge

- sympathomimetic and para sympathomimetic bronchodilators
- xanthine bronchodilators
- mucolytic agents
- anti-inflammatories
- anti-asthmatic medications
- anti-histamine drugs
- antibiotic, anti-viral and anti-fungal drugs
- diuretics

S4.4 Describe the characteristics of specific classes of cardiovascular medications

Range (clarification)

a. indications, mechanism of action, routes of administration, side effects

Knowledge

- cardiotonic agents
- antianginal agents
- diuretic agents
- antiarrhythmic agents
- antihypertensive agents
- antithrombotic and thrombolytic agents

S4.5 Apply the appropriate scientific knowledge relating to drugs utilized in anaesthesia

Range (clarification)

a. indications, mechanism of action, routes of administration, side effects

Knowledge

- general principles 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

S4.6 Apply the appropriate scientific knowledge relating to inhalational anaesthetic agents

Range (clarification)

a. pharmacokinetics, pharmacodynamics

Knowledge

- inhalational anaesthetic agents
- diffusion hypoxia, solubility, second gas effect, compartments of anaesthesia, balanced anaesthesia and interaction with CO2 absorbents
- characteristics of inhalational anaesthetic agents
- factors which alter the effects of inhaled anaesthetic agents
- effects of inhalational agents on pulmonary ventilation
- effects of inhalational agents on the cardiovascular system

FOUNDATION SCIENCE

S5 Apply knowledge of microbiology

S5.1 Apply the appropriate scientific knowledge relating to the mechanisms of infectious diseases

S5.2 Apply the appropriate scientific knowledge relating to agents of infectious diseases

---

S5.1 Apply appropriate scientific knowledge relating to mechanism of infectious diseases

Knowledge

- host, infectious disease, colonization, microflora, virulence, pathogen and saprophyte
- concept of 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

S5.2 Apply the appropriate scientific knowledge relating to agents of infectious diseases

Knowledge

- 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

FOUNDATION SCIENCE

S6 Apply knowledge of pulmonary pathophysiology

S6.1 Apply the appropriate scientific knowledge relating to the pathophysiology of diseases and disorders of the pulmonary system

S6.2 Apply appropriate scientific knowledge relating to obstructive processes of the lung

S6.3 Apply the appropriate scientific knowledge relating to obstructive airway disorders

S6.4 Apply the appropriate scientific knowledge relating to the restrictive processes of the respiratory system

S6.5 Apply the appropriate scientific knowledge relating to extra-pulmonary disorders

S6.6 Apply the appropriate scientific knowledge relating to the intra-pulmonary disorders

---

S6.1 Apply the appropriate scientific knowledge relating to the pathophysiology of diseases and disorders of the pulmonary system

Knowledge

- respiratory (oxygenation) failure in acute and chronic states
- ventilatory (hypercapnic) failure in acute and chronic states

S6.2 Apply appropriate scientific knowledge relating to obstructive processes of the lung

Knowledge

- 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

S6.3 Apply the appropriate scientific knowledge relating to obstructive airway disorders

Knowledge

- the following disorders:
    - asthma
    - bronchiectasis

- bronchiolitis
- bronchogenic neoplasm
- broncho-pulmonary dysplasia (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

- the basic principles of sleep studies and screening
  - the stages of sleep and sleep study screening
  - sleep related disorders
  - the three categories of Sleep Apnea Syndrome (SAS)
  - the signs, symptoms and diagnostic procedures for the evaluation of SAS

S6.4 Apply the appropriate scientific knowledge relating to the restrictive processes of the respiratory system

Knowledge

- the restrictive processes of the respiratory system in terms of origin: extra-pulmonary versus intra-pulmonary
- the effects of restrictive processes on pulmonary function:
  - decreased compliance
  - decreased lung volumes
  - diffusion impairment
  - airway re-modeling
  - gas exchange abnormalities
  - pulmonary hypertension

S6.5 Apply the appropriate scientific knowledge relating to extra-pulmonary disorders

Knowledge

- broncho-pleural fistula
- pleural effusion

- pneumothorax
- thoracic cage disorders
- traumatic chest wall injuries

S6.6 Apply the appropriate scientific knowledge relating to the intra-pulmonary disorders

Knowledge

- acute respiratory distress syndrome (ARDS)
- atelectasis
- collagen disorders
- diaphragmatic hernia
- hyaline membrane disease / respiratory distress syndrome (RDS)
- 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)

FOUNDATION SCIENCE

S7 Apply knowledge of cardiovascular pathophysiology

S7.1 Apply the appropriate scientific knowledge relating to coronary atherosclerotic heart disease

S7.2 Apply the appropriate scientific knowledge relating to valvular heart disorders

S7.3 Apply the appropriate scientific knowledge relating to inflammatory heart disorders

S7.4 Apply the appropriate scientific knowledge relating to peripheral vascular disorders

S7.5 Apply the appropriate scientific knowledge relating to congenital heart defects

S7.6 Apply the appropriate scientific knowledge relating to types of shock

S7.7 Apply the appropriate scientific knowledge relating to cardiovascular abnormalities

S7.1 Apply the appropriate scientific knowledge relating to coronary atherosclerotic heart disease

Knowledge

- coronary atherosclerotic disease

S7.2 Apply the appropriate scientific knowledge relating to valvular heart disorders

Knowledge

- tricuspid stenosis, incompetence, regurgitation
- mitral stenosis, incompetence, regurgitation
- aortic stenosis, incompetence, regurgitation
- pulmonary stenosis, incompetence, regurgitation

S7.3 Apply the appropriate scientific knowledge relating to inflammatory heart disorders

Knowledge

- pericarditis
- endocarditis
- myocarditis
- cardiomyopathies: dilated; hypertrophic; restrictive

S7.4 Apply the appropriate scientific knowledge relating to peripheral vascular disorders

Knowledge

- arterial
    - arteriosclerosis
    - arterial thrombosis and embolism
    - aneurysm

    - aortic dissection
    - arterioplastic disease (Raynaud's)
    - pulmonary embolism
- venous
    - thrombophlebitis
    - deep venous thrombosis
    - varicose veins

S7.5 Apply the appropriate scientific knowledge relating to congenital heart defects

Knowledge

- 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

S7.6 Apply the appropriate scientific knowledge relating to types of shock

Knowledge

- anaphylactic
- cardiogenic
- distributive
- hypovolemic
- neurogenic
- septic

S7.7 Apply the appropriate scientific knowledge relating to cardiovascular abnormalities

Knowledge

- hypertension
- myocardial infarction
- congestive heart failure
- rheumatic heart disease
- dissemination intravascular coagulation

FOUNDATION SCIENCE

S8 Apply knowledge of other diseases and disorders

S8.1 Apply the appropriate scientific knowledge relating to disorders of the central nervous system

S8.2 Apply the appropriate scientific knowledge relating to the disorders of the peripheral nervous system

S8.3 Apply the appropriate scientific knowledge relating to renal failure

S8.4 Apply the appropriate scientific knowledge relating to specific metabolic disorders

S8.5 Apply the appropriate scientific knowledge relating to particular conditions that impair human physiology

S8.6 Apply the appropriate scientific knowledge relating to systemic infections

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S8.1 Apply the appropriate scientific knowledge relating to disorders of the central nervous system

Knowledge

- 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

S8.2 Apply the appropriate scientific knowledge relating to the disorders of the peripheral nervous system

Knowledge

- amyotrophic lateral sclerosis (ALS)
- diaphragmatic paralysis
- Guillian Barre syndrome
- muscular dystrophy

- myasthenia gravis
- multiple sclerosis
- post-polio syndrome
- spinal muscular atrophy disorders

S8.3 Apply the appropriate scientific knowledge relating to renal failure

Knowledge

- acute renal failure
- chronic renal failure

S8.4 Apply the appropriate scientific knowledge relating to specific metabolic disorders

Knowledge

- diabetes
- nephritis

S8 .5 Apply the appropriate scientific knowledge relating to particular conditions that impair human physiology

Knowledge

- 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

S8 .6 Apply the appropriate scientific knowledge relating to systemic infections

Knowledge

- influenza (flu)
- H1N1 flu virus
- HIV/AIDS
- pneumonia (pneumococcal)
- poliomyelitis
- tuberculosis
- SARS
- blastomycosis
- ebola
- other current or relevant diseases

Appendix 1 - Bloom's Trajectory

Examples of the Use of Bloom's Trajectory - Learning to drive a car

Stage of Learning	Knowledge Mastery	Skills Mastery
Before you start, you know that you want to learn, and that you have not yet done it all, nor do you know the theory.	'conscious incompetence' (K0)	'conscious incompetence' (S0)
Before your first practical lesson you learn the theory, rules and basic sequences, either from a handbook or from the instructor.	'remembering' (K1)	'readiness' (S1), leading to 'understanding' (K2)
Your first practical lesson is driving around a marked track. You very slowly and carefully carry out each move in accordance with the sequence you have learned by heart. You consciously adjust the throttle, depress the brake pedal, etc. Initially you do this when driving in a straight line, then you practice as you negotiate bends. You maneuver for parallel parking and changing lanes.		'attempting' (S2)
After sufficient practice you achieve some mastery/fluency and are allowed onto a public road with other traffic. You are encountering new situations and have to think how to respond and then do it. But you still concentrate on every move you make.	'applying' (K3)	'basic proficiency' (S3)
Considerable and varied practice so that your movements achieve greater mastery / fluency. You no longer have to concentrate to the exclusion of everything else, maneuvering the car is no longer a series of separate actions but has become a single process. You achieve acceptable performance levels.		'expert proficiency' (S4)
With further practice your movements become so natural that you no longer think about them consciously.		'unconscious competence'/ 'adaptable proficiency' (S5).

There is a similar trajectory for most learning. For some competencies, certain stages appear to be omitted. For example some people have learned their interpersonal skills unconsciously without being taught, without any theory, and so neither 'remembering' (K1) nor 'understanding' (K2). Whereas many others have had to be explicitly taught these skills at college or in the work-place. But with sufficient practice, most will progress to 'adaptable proficiency' (S5)

Bloom's Trajectory

Knowledge Domain

	Name	Level descriptors
K0	Awareness	'Conscious incompetence'
K1	Remembering	'Know what'. Recall data or information; quote rules, definitions, laws
K2	Understanding	'Know why'. Understand the meaning, translate, interpolate, and interpret instructions and problems. State a problem in one's own words.
K3	Applying	Know how to use a concept in a new situation or unprompted use of an abstraction. Apply what was learned in the classroom into novel situations in the work place. Put a theory into practical effect; demonstrate, solve a problem, manage an activity.
K4	Analyzing	Know how to examine information in order to understand, explain or predict. Separate material or concepts into component parts so that its organisational structure may be understood. Distinguish between facts and inferences. Interpret elements, organizational principles, structure, construction, internal relationships. Determine quality, reliability of individual components.
K5	Evaluating	Know how to weigh up ideas and make a judgement. Make judgments about the value of ideas or materials. Assess effectiveness of whole concepts, in relation to values, outputs, efficacy, and viability. Exercise critical thinking. Conduct strategic comparison and review; make judgements relating to external criteria.
K6	Creating	Know how to bring information together in order that something can be decided or acted upon. Build a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure. Create new patterns/concepts, structures, systems, models, approaches, ideas.

Skills Domain (including mental skills as well as physical dexterity)

	Level Name	Level descriptors
S0	Awareness	'Conscious incompetence'
S1	Readiness	Know and be ready to act upon a sequence of steps in a process. Recognize one's abilities and limitations (health & safety).
S2	Attempting	Imitation: Observe and pattern behaviour after someone else, following instructions and practising. Performance may be of lower quality. Guided Response: Learn a complex skill (early stages) including imitation and trial and error. Adequacy of performance is achieved by practising.
S3	Basic proficiency	Learned responses have become habitual and the movements can be performed with some confidence, precision and proficiency. A few minor errors are apparent. Conscious competence.
S4	Full proficiency	Skilful performance involves complex patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. Coordinate and integrate a series of actions, achieving harmony and internal consistency. This category includes performing without hesitation and automatic performance.
S5	Adaptable proficiency	'Unconscious competence'. A high level performance becomes natural, without needing to think much about it. Skills are well developed and the individual can modify movement patterns to fit special requirements. Respond effectively to unexpected experiences. For example: Modify instruction to meet the needs of the learners. Use equipment to perform a task it was not originally intended to do (equipment is not damaged and there is no danger in performing the new task).
S6	Creative proficiency	Create new routines to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills. Develop new techniques and/or procedures.

Attitudes (and Values) Domain

	Level Name	Level descriptors
A0	Alertness	Awareness, willingness to hear, selected attention.
A1	Complying	Active participation on the part of the learner. Attends and reacts to a particular phenomenon. Attitudes are adopted without consideration or modification, and may be imposed upon the learner by those in authority. Learning outcomes may emphasise compliance in responding, willingness to respond, or satisfaction in responding (motivation).
A2	Valuing	Attaches values and expresses personal opinions. Decides the worth and relevance of ideas and experiences, but as independent instances, not fully integrated. Accepts/adopts a particular stance or demonstrates attitudes which (while remaining constant), are not consistent with each other.
A3	Relating	Considers ethical issues at an abstract, conceptual level. Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating a coherent value system. The emphasis is on comparing, relating, and synthesizing attitudes and values so that they are consistent.
A4	Commitment	Commits to a value system that shapes behaviour. The behaviour is pervasive, consistent, predictable, and most importantly, characteristic of the learner. Learner can act as a role model. Instructional objectives concern the student's general patterns of adjustment (personal, social, emotional).