

# ***Exam Blueprint and Specialty Competencies***

## **Introduction – Blueprint for the Rehabilitation Nursing Certification Exam**

The primary function of the blueprint for the CNA Rehabilitation Nursing Certification Exam is to describe how the exam is to be developed. Specifically, this blueprint provides explicit instructions and guidelines on how the competencies are to be expressed within the exam in order for accurate decisions to be made on the candidates' competence in rehabilitation nursing.

The blueprint has two major components: (1) the content area to be measured and (2) the explicit guidelines on how this content is to be measured. The content area consists of the list of competencies (i.e., the competencies expected of fully competent practising rehabilitation nurses with at least two years of experience), and the guidelines are expressed as structural and contextual variables. The blueprint also includes a summary chart that summarizes the exam guidelines.

### **Description of Domain**

The CNA Rehabilitation Nursing Exam is a criterion-referenced exam.<sup>1</sup> A fundamental component of a criterion-referenced approach to testing is the comprehensive description of the content area being measured. In the case of the Rehabilitation Nursing Certification Exam, the content consists of the competencies of a fully competent practising rehabilitation nurse with at least two years of experience.

This section describes the competencies, how they have been grouped and how they are to be sampled for creating an exam.

### **Developing the List of Competencies**

The rehabilitation nurses who participated in the development of the competencies included regional representation of highly experienced rehabilitation nurses from across Canada.

<sup>1</sup> Criterion-referenced exam: An exam that measures a candidate's command of a specified content or skills domain or list of instructional objectives. Scores are interpreted in comparison to a predetermined performance standard or as a mastery of defined domain (e.g., percentage correct and mastery scores), independently of the results obtained by other candidates (Brown, 1983).

A working group of rehabilitation nurses in the Central region developed a preliminary set of competencies using a 14-category classification scheme, which is commonly used to organize rehabilitation nursing knowledge. The competencies were then reviewed by a working group of experienced rehabilitation nurses in the Western region and then another working group in the Eastern region. The final list of competencies was approved by the Rehabilitation Nursing Certification Exam Committee.

### **Assumptions**

The goal of rehabilitation nursing is to assist the client to attain and to maintain optimum health as it is defined by the client. In developing the list of competencies for rehabilitation nurses, the following assumptions were made:

### **Client**

- The client is in constant interaction with her or his internal and external environments, influenced by past experiences, the present situation and future possibilities.
- The client of a rehabilitation nurse may be an individual, a family, a group or a community.
- The client is viewed as a whole person, more than, yet different from, the sum of interacting physical, biological, psychological, social, cultural, developmental, environmental and spiritual dimensions of a total life experience.
- The client has the right to make choices about her or his life.
- The client has the right to respect as an individual.
- The client has the right to advocacy.
- The client has the right to privacy and confidentiality.
- The client has the right to universal, accountable, accessible, available, affordable, appropriate and competent health care.
- The client has the right and responsibility to make informed decisions about his or her health and has the responsibility for the outcomes of these decisions.
- The client has the responsibility to attain and to maintain optimum health as defined by the client.

### **Environment**

- The rehabilitation nurse works both independently and in collaboration with the client and other health-care providers.
- The rehabilitation nurse promotes efficient, effective and appropriate health-care programs and services for clients in a variety of settings, including acute care, rehabilitation, continuing care, long-term care, alternative housing options, the client's own home and the community.
- The rehabilitation nurse practises in a variety of settings that may require environmental modifications to enhance the abilities of the client receiving care and services.

### **Rehabilitation Nurse**

- The rehabilitation nurse is a registered nurse who works with clients across the lifespan.
- The rehabilitation nurse works in partnership with the client and those individuals whom the client identifies to be significant to the client's care to incorporate the client's wishes, needs and experiences into the plan of care.
- The rehabilitation nurse applies a specialized and expanding body of knowledge of rehabilitation to the practice of nursing.
- The rehabilitation nurse pursues professional growth and development and maintains competence through continuing education, on-going experience in the field of rehabilitation nursing, identifying potential research topics, initiating or participating in nursing research and incorporating research findings into nursing practice.
- The rehabilitation nurse shares knowledge related to nursing care and practice with others.
- The rehabilitation nurse bases practice on a code of ethics and respects provincial or territorial and national standards of practice for clinicians, educators, researchers and administrators.
- The rehabilitation nurse considers the ethical and legal issues relevant to the care of the client.
- The rehabilitation nurse provides leadership and supervision to formal and informal caregivers.

- The rehabilitation nurse uses a variety of media to raise awareness with the client about the importance of healthy lifestyles.
- The rehabilitation nurse facilitates self-care management of chronic illness in the client.
- The rehabilitation nurse establishes a therapeutic relationship with the client.
- The rehabilitation nurse incorporates information on the effects of pre-existing health conditions into practice.
- The rehabilitation nurse supports effective use of the health system by advocating for clients.
- The rehabilitation nurse advocates for a publicly funded health-care system.
- The rehabilitation nurse ensures that clients have access to information and the services of their choosing.
- The rehabilitation nurse advocates for health policy changes (i.e., allocation, access and availability of health-care resources).

### **Health**

- Health includes biological, psychological, social, cultural, developmental, environmental and spiritual well-being. Health is a resource for living and is not merely the absence of disease.
- Health exists within the framework of chronic illness, disability, frailty and aging.
- Health is the extent to which an individual, group or community is able to realize aspirations and to function in his, her or their environment.
- Health is a personal concept and is viewed within the context of the client's personal, cultural and ethnic value system.
- Health behaviour may be directed toward promotion, prevention, maintenance, rehabilitation and restoration, or palliation.

### **Competency Categories**

The competencies are classified under a 14-category scheme. Some of the competencies lend themselves to one or more of the categories; therefore, these 14 categories should be viewed simply as an organizing framework. Also, it should be recognized that the competency statements vary in scope, with some representing global behaviours and others more discrete and specific nursing behaviours.

### **Percentage of Competencies in Each Group**

The following table presents the number and the percentage of competencies in each category.

**Table 1: Percentage of Competencies in Each Group**

Category	Number of competencies	Percentage of the total number of competencies
General Concepts, Foundations and Principles of Rehabilitation Nursing across the Continuum of Care	6	4%
Functional Health Patterns: Mobility, Sexuality, Sleep and Rest Patterns	17	12%
Functional Health Patterns: Sensory, Pain	11	8%
Functional Health Patterns: Communication, Cognitive Impairment	12	8%
Functional Health Patterns: Nutrition, Elimination, Skin Integrity	23	16%
Functional Health Patterns: Cardiopulmonary, Deconditioning	11	8%
Psychosocial Health Patterns	9	6%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Stroke	12	8%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Traumatic or Acquired Brain Injury	9	6%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Musculoskeletal Impairment and the Care of a Client with an Amputation	10	7%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Burns	7	5%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with a Spinal Cord Injury	12	8%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Cancer	4	3%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Other Neurological Disorders with Co-existing Psychiatric and Mental Health Conditions	2	1%

## Competency Sampling

Using the grouping and the guideline that the Rehabilitation Nursing Certification Exam will consist of approximately 180 questions, the categories have been given the following weights in the total examination.

**Table 2: Competency Sampling**

Categories	Approximate weights in the total examination
General Concepts, Foundations and Principles of Rehabilitation Nursing across the Continuum of Care	1-8%
Functional Health Patterns: Mobility, Sexuality, Sleep and Rest Patterns	10-15%
Functional Health Patterns: Sensory, Pain	5-10%
Functional Health Patterns: Communication, Cognitive Impairment	5-10%
Functional Health Patterns: Nutrition, Elimination, Skin Integrity	10-20%
Functional Health Patterns: Cardiopulmonary, Deconditioning	5-10%
Psychosocial Health Patterns	5-10%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Stroke	5-10%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Traumatic or Acquired Brain Injury	5-10%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Musculoskeletal Impairment and the Care of a Client with an Amputation	5-10%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Burns	2-8%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with a Spinal Cord Injury	5-10%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Cancer	1-5%
Nursing Management of Selected Rehabilitation Populations: The Care of a Client with other Neurological Disorders with Co-existing Psychiatric and Mental Health Conditions	1-3%

## Technical Specifications

In addition to the specifications related to the competencies, other variables are considered during the development of the Rehabilitation Nursing Certification Exam. This section presents the guidelines for two types of variables: structural and contextual.

**Structural Variables:** Structural variables include those characteristics that determine the general appearance and design of the exam. They define the length of the exam, the format and presentation of the exam questions (e.g., multiple-choice) and special functions of exam questions (e.g., independent questions).

**Contextual Variables:** Contextual variables specify the nursing contexts in which the exam questions will be set (e.g., client culture, client health situation or health-care environment).

### Structural Variables

**Exam Length:** The exam consists of approximately 180 multiple-choice questions.

**Question Presentation:** The multiple-choice questions are presented in one of two formats: case-based or independent. Case-based questions are a set of approximately four questions associated with a brief health-care scenario (i.e., a description of the client's health-care situation). Independent questions stand alone. In the Rehabilitation Nursing Certification Exam, 70 to 80 per cent of the questions are presented as independent questions and 20 to 30 per cent are presented within cases.

**Taxonomy for Questions:** To ensure that competencies are measured at different levels of cognitive ability, each question on the Rehabilitation Nursing Certification Exam is aimed at one of three levels: knowledge/comprehension, application or critical thinking.<sup>2</sup>

#### 1. Knowledge/Comprehension

This level combines the ability to recall previously learned material and to understand its meaning. It includes such mental abilities as knowing and understanding definitions, facts and principles and interpreting data (e.g., knowing the effects of certain drugs or interpreting data appearing on a client's record).

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<sup>2</sup> These levels are adapted from the taxonomy of cognitive abilities developed in Bloom, 1956.

**2. Application**

This level refers to the ability to apply knowledge and learning to new or practical situations. It includes applying rules, methods, principles and theories while providing care to patients (e.g., applying nursing principles to the care of clients).

**3. Critical Thinking**

The third level of the taxonomy deals with higher-level thinking processes. It includes the abilities to judge the relevance of data, to deal with abstraction and to solve problems (e.g., identifying priorities of care or evaluating the effectiveness of interventions). The rehabilitation nurse with at least two years of experience should be able to identify cause-and-effect relationships, distinguish between relevant and irrelevant data, formulate valid conclusions and make judgments about the needs of clients.

The following table presents the distribution of questions for each level of cognitive ability.

**Table 3: Distribution of Questions for Each Level of Cognitive Ability**

Cognitive Ability Level	Percentage of questions on the Rehabilitation Nursing Exam
Knowledge/Comprehension	25-35%
Application	35-45%
Critical Thinking	25-35%

**Contextual Variables**

**Client Age and Gender:** Two of the contextual variables specified for the Rehabilitation Nursing Certification Exam are the age and gender of the clients. Providing specifications for the use of these variables ensures that the clients described in the exam represent the demographic characteristics of the population encountered by rehabilitation nurses. There will be an equal representation of male and female clients across the age categories. The age characteristics, listed in table 4 as percentage ranges, serve as guidelines for test development.

**Table 4: Specification for Client Age**

Age Group	Percentage of questions on the Rehabilitation Nursing Exam
Birth to 15 yrs	5-10%
16-34 years	15-25%
35-64 years	35-45%
65+ years	30-40%

**Client Culture:** Questions are included that represent awareness, sensitivity and respect for different cultural values, beliefs and practices, without introducing stereotypes.

**Client Health Situation:** In the development of the Rehabilitation Nursing Certification Exam, the client is viewed holistically.

**Health-Care Environment:** It is recognized that rehabilitation nursing is practised in a variety of settings. The health-care environment is specified only where it is required for clarity or in order to provide guidance to the candidate.

### **Conclusions**

The blueprint for the Rehabilitation Nursing Certification Exam is the product of a collaborative effort between CNA, ASI and a number of rehabilitation nurses across Canada. Their work has resulted in a compilation of the competencies required of practising rehabilitation nurses and has helped determine how those competencies will be measured on the Rehabilitation Nursing Certification Exam. A summary of these guidelines can be found in the summary chart: Rehabilitation Nursing Certification Development Guidelines.

Rehabilitation nursing practice will continue to evolve. As this occurs, the blueprint may require revision so that it accurately reflects current practices. CNA will ensure that such revision takes place in a timely manner and will communicate any changes in updated editions of this document.

# Summary Chart

## Rehabilitation Nursing Certification Exam Development Guidelines

Structural Variables		
Exam Length and Format	Approximately 165 objective questions (e.g., multiple choice)	
Question Presentation	70-80% of independent questions 20-30% of case-based questions	
Cognitive Ability Levels of Questions	Knowledge/Comprehension	25-35% of questions
	Application	35-45% of questions
	Critical Thinking	25-35% of questions
Competency Categories	General Concepts, Foundations and Principles of Rehabilitation Nursing across the Continuum of Care 1-8% of questions	
	Functional Health Patterns:	
	Mobility, Sexuality, Sleep and Rest Patterns	10-15% of questions
	Sensory, Pain	5-10% of questions
	Communication, Cognitive Impairment	5-10% of questions
	Nutrition, Elimination, Skin Integrity	10-20% of questions
	Cardiopulmonary, Deconditioning	5-10% of questions
	Psychosocial Health Patterns	5-10% of questions
	Nursing Management of Selected Rehabilitation Populations:	
	The Care of a Client with Stroke	5-10% of questions
	The Care of a Client with Traumatic or Acquired Brain Injury	5-10% of questions
	The Care of a Client Musculoskeletal Impairment and the Care of a Client with an Amputation	5-10% of questions
	The Care of a Client with Burns	2-8% of questions
	The Care of a Client with a Spinal Cord Injury	5-10% of questions
	The Care of a Client with Cancer	1-5% of questions
	The Care of a Client with Other Neurological Disorders and with Co-existing Psychiatric and Mental Health Conditions	1-3% of questions
Contextual Variables		
Client Age and Gender	Birth to 15 yrs	5-10% of questions
	16-34 years	15-25 % of questions
	35-64 years	35-45 % of questions
	65+ years	30-40% of questions
	Equal representation of male and female clients across the age categories.	
Client Culture	Questions are included that measure awareness, sensitivity and respect for different cultural values, beliefs and practices, without introducing stereotypes.	
Client Health Situation	In the development of the Rehabilitation Nursing Certification Exam, the client is viewed holistically.	
Health-Care Environment	It is recognized that rehabilitation nursing is practised in a variety of settings. The health-care environment is specified only where it is required for clarity or in order to provide guidance to the candidate.	

# ***The Rehabilitation Nursing Certification Exam List of Competencies***

## **General Concepts, Foundations and Principles of Rehabilitation Nursing across the Continuum of Care**

The rehabilitation nurse:

- 1.1 understands the multidimensional role of the rehabilitation nurse: provider of care (e.g., caregiver, direct and indirect delivery of care), leader and collaborator (e.g., clients, families, community providers, interdisciplinary team, support staff), educator and coach (e.g., wellness and prevention, self-care and advocacy skills), client advocate (e.g., promoting the accessibility of rehabilitation services to all clients; community education; awareness of advocating rehabilitation services at local, provincial and national levels) and co-ordinator of care (e.g., delegation, integration of knowledge of team information into comprehensive continuum of care).
- 1.2 understands the goals of rehabilitation nursing (e.g., maximum functional ability, optimal health, adaptation to an altered lifestyle).

## **Discharge and Transition Planning**

The rehabilitation nurse:

- 1.3 assesses readiness for discharge and transition (e.g., client and family goals, self-care knowledge and skills, caregiver knowledge and skills, level of function, social and family support, finances, home environment, community resources, transportation, legal issues).
- 1.4 selects rehabilitation nursing interventions to facilitate discharge and transition:
  - 1.4a plans discharge and transition with team, client and family throughout the client's rehabilitation (e.g., team meeting, family conference, linking with community partners);
  - 1.4b educates client and family about skills for self-management of care (e.g., self-medication, activities of daily living, home safety, understanding of disability, medications, memory aids); and
  - 1.4c facilitates re-integration of the client into the community (e.g., attendant care, co-ordinating supplies, vocational services, recreational services, environmental adaptations, transportation).

## Functional Health Patterns: Mobility, Sexuality and Sleep and Rest Patterns

### Mobility

The rehabilitation nurse:

- 2.1 assesses mobility, considering:
  - 2.1a pre-existing and current status (e.g., level of function, environmental barriers, medical comorbidities, medication regime, lifestyle);
  - 2.1b physical indicators (e.g., endurance, muscle strength, tone, balance and coordination, gait, weight bearing, range of motion, method of ambulation, spasticity, rigidity, tremours, reflexes, weight, pain); and
  - 2.1c psychosocial indicators (e.g., motivation, expectations, depression, grief, self-esteem, body image) and cognitive indicators (e.g., judgment, attention, initiation, developmental level, degree of impulsiveness, proprioception, memory, level of consciousness, level of orientation).
- 2.2 selects rehabilitation nursing interventions to enhance and maintain mobility:
  - 2.2a promotes the appropriate use of assistive devices (e.g., walkers, cane, crutches, scooters, splints);
  - 2.2b ensures safe transfer techniques (e.g., moving between wheelchair and bed, toilet, bath and bench, body mechanics, positioning);
  - 2.2c provides opportunities for the client to achieve optimum mobility (e.g., pain management, management of spasticity, positioning, range of motion, building endurance, fall prevention); and
  - 2.2d provides education on a safe and accessible environment (e.g., assistive devices, access to bathroom, lighting, adapted devices, availability of assistance, side effects of medications, transportation, environmental barriers, outside community barriers, physical activities).

### Sexuality

The rehabilitation nurse:

- 2.3 assesses sexuality, considering:
  - 2.3a pre-existing and current status (e.g., sexual function, medical comorbidities, medication regimes, values and beliefs, developmental stage, use of contraception measures, history of abuse, understanding of the effects of the health issues on sexual functioning and the reproductive system, readiness and comfort level in discussing sexuality);

- 2.3b physical indicators (e.g., pain, motor and sensory impairment, changes to bowel and bladder functions, mobility and range of motion, changes to fertility, autonomic dysreflexia); and
  - 2.3c psychosocial indicators (e.g., adjustment to the disability, impact of the disability on the individual, partner and family system, relationship issues, family and role adjustment, risk of abuse) and cognitive indicators (e.g., impulsiveness, disinhibition, memory, developmental stages, maturation level).
- 2.4 selects rehabilitation nursing interventions to enhance and support sexual function:
- 2.4a educates the client to adopt healthy sexual practices to meet his or her needs (e.g., positioning, maximizing function, peer pressure, sexually transmitted diseases, dysreflexia, communication of needs, assistive devices and methods, contraception, bladder and bowel considerations);
  - 2.4b discusses changes in sexual function with the client (e.g. managing sexual behaviour, social-sexual skills, body image, partnership issues or concerns, building and maintaining relationships, reproductive technologies); and
  - 2.4c creates opportunities for the client and partner to access counselling related to perception of changes to sexuality (e.g., self-image, role changes, referral: Plissit model).

## **Sleep and Rest Patterns**

The rehabilitation nurse:

- 2.5 assesses sleep and rest patterns, considering:
- 2.5a pre-existing and current status (e.g., medication use, caffeine intake, sleep routines and strategies, pain, mental health conditions, sleep apnea, lifestyle changes, level of stress, nightmares, fear, anxiety, coping); and
  - 2.5b physical indicators (e.g., 24-hour sleep record, fatigue and drowsiness, mobility, pain, spasticity, developmental stage, environment, restlessness); diagnostic tests (e.g., sleep studies, pulse oximetry) and cognitive indicators (e.g., level of consciousness (LOC), delirium, orientation, irritability).
- 2.6 selects the rehabilitation nursing interventions to optimize rest and sleep:
- 2.6a establishes a plan with the client to help optimize sleep and wake patterns (e.g., temperature, noise, light, interruptions, positioning, sedatives, alternative strategies, pain control, visualization); and
  - 2.6b educates client and family about sleep and rest routines based on previous patterns and current status (e.g., rehabilitation schedule, sleep record, oxygen use, medication use).

## Functional Health Patterns: Sensory and Pain

### Sensory

The rehabilitation nurse:

- 3.1 assesses sensory and perceptual patterns (e.g., hearing, vision, touch, proprioception), considering:
  - 3.1a pre-existing and current status (e.g., diabetes, neurological impairments, trauma, cataracts, glaucoma, use of assistive devices, effect on quality of life issues, medication use, pain);
  - 3.1b physical indicators (e.g., auditory changes, visual changes, ptosis, pupil reflex, changes to sensation, smell and taste, tinnitus, vertigo, balance); and
  - 3.1c cognitive indicators (e.g., orientation and ability to follow commands and conversation, judgment, delirium, dementia, agnosia, hallucinations) and psychosocial indicators (e.g., frustration, social isolation, fear, anxiety).
- 3.2 selects nursing interventions to maintain and promote sensory and perceptual function:
  - 3.2a adapts the environment to accommodate sensory and perceptual deficits (e.g., retraining, placing items within visual field, use of colour coding, minimizing exposure to extreme temperatures, observing and controlling sources of pain, repetitive routine, fall and injury prevention);
  - 3.2b facilitates the use of assistive devices (e.g., magnifying glass, eye patch, hearing aids, glasses); and
  - 3.2c facilitates the use of communication techniques or tools (e.g., reducing background noise, speaking slowly, speaking clearly and directly, alternative methods, pain scales).

### Pain

The rehabilitation nurse:

- 3.3 assesses level of pain, considering:
  - 3.3a pre-existing and current status (e.g., medical comorbidities and complications, pain history, use of pain scales, level of pain control, lifestyle, coping strategies, impact of pain on functioning, types of pain, substance abuse, medication, alternative therapy);
  - 3.3b physical indicators (e.g., fatigue, guarding, verbal and non-verbal report, non-use of affected area, presence of infection, sleep disturbance, changes in libido); and
  - 3.3c psychosocial indicators (e.g., depression, anxiety, social isolation, irritability, apathy) and cognitive indicators (e.g., delirium, dementia, agitation, impaired concentration, attention, level of sedation).

- 3.4 selects appropriate rehabilitation nursing interventions to manage pain:
  - 3.4a educates the client on strategies to manage pain (e.g., pharmacological approach, non-pharmacological approach, alternative therapies); and
  - 3.4b identifies factors that trigger and alleviate pain (e.g., level of activity, intensity of activity, stress, medication schedule).

## Functional Health Patterns: Communication and Cognitive Impairment

### Communication

The rehabilitation nurse:

- 4.1 assesses ability to communicate, considering:
  - 4.1a pre-existing and current status (e.g., congenital disorders, stroke, brain injury, aphasia, apraxia, stuttering, language barriers, cognitive status, mental health conditions, hearing deficits, use of assistive devices, speech quality, non-verbal communication behaviours, visual impairments);
  - 4.1b physical indicators (e.g., central nervous system impairment, tracheostomy, restlessness, fatigue); and
  - 4.1c psychosocial indicators (e.g., depression, frustration, altered self-esteem, altered body image, social isolation) and cognitive indicators (e.g., comprehension, logical conversation, attention span, memory).
- 4.2 selects rehabilitation nursing interventions to optimize communication:
  - 4.2a develops strategies to facilitate effective communication (e.g., active listening, minimizing distractions, speaking clearly, using repetition, cueing, non-verbal strategies, cultural needs, assistive devices, call bells); and
  - 4.2b educates the client and family about effective use of communication devices, tools and strategies based on current and potential abilities.

## **Cognitive Impairment**

The rehabilitation nurse:

- 4.3 assesses level of cognition, considering:
  - 4.3a pre-existing and current status (e.g., medical comorbidities and complications, specific neurological impairment, pain, lifestyle, coping strategies, unacceptable behaviours, cultural or spiritual values and beliefs, diagnosis of dementia, delirium or depression, medication use, sensory deprivation, sleep deprivation);
  - 4.3b physical indicators (e.g., restlessness, fatigue, aggression, agitation, wandering, disruptive vocalization, pacing);
  - 4.3c psychosocial indicators (e.g., disinhibition, depression, anxiety, social isolation, irritability, apathy); and
  - 4.3d cognitive indicators (e.g., confusion, orientation, perseveration, confabulation, memory impairment, level of alertness).
- 4.4 selects appropriate rehabilitation nursing interventions to promote optimum cognitive function:
  - 4.4a educates the client and family on the causes of altered cognitive functioning;
  - 4.4b identifies behavioural triggers and management strategies with the client, family, and inter-professional team; and
  - 4.4c implements appropriate strategies to maximize positive behavioural outcomes (e.g., medication, errorless learning, memory books, environmental setups).

## **Functional Health Patterns: Nutrition, Elimination, Skin Integrity**

### **Nutrition**

The rehabilitation nurse:

- 5.1 assesses nutritional and swallowing status, considering:
  - 5.1a pre-existing and current status (e.g., medical comorbidities, cognitive status, swallowing ability, diet, understanding of nutrition, developmental stage, cultural or religious beliefs, preferences, depression, medication regime, food intolerance, allergies, appetite, access to healthy food, history of eating disorders);

- 5.1b physical indicators (e.g., height and weight, skin turgor, hair texture, facial asymmetry, drooling, oral mucosa sensation, reflexive swallowing, cough during and after swallowing, voice quality, dentition and chewing ability, elevated temperature, posture, fatigue, feeding tubes, halitosis, pneumonia, movement, dexterity and co-ordination, level of activity, consistency of stools, presence of bowel sounds, nausea and vomiting, reflux) and laboratory values and diagnostic tests (e.g., electrolytes, albumin, barium swallow, video fluoroscopy, CBC, chest x-ray); and
  - 5.1c psychosocial indicators (e.g., financial status, stress, fear of choking, self-esteem, body image) and cognitive indicators (e.g., level of consciousness, impulsiveness, judgment, motivation, distractability).
- 5.2 selects rehabilitation nursing interventions to promote and maintain optimal nutrition:
- 5.2a promotes conducive environment (e.g., supervision, minimal distractions, tray placement, adaptive equipment, head control, body positioning, dentures, oral hygiene, pain management, toileting, dietary preferences);
  - 5.2b educates client and family about safe feeding practices (e.g., diet consistency, temperature, cueing, sweeping, choking interventions); and
  - 5.2c educates client and family about appropriate nutritional requirements (e.g., tube feeding, supplements, special diet, daily nutritional requirements, monitoring intake).

## **Elimination**

The rehabilitation nurse:

- 5.3 assesses bladder function, considering:
- 5.3a pre-existing and current status: (e.g., neurological impairment, sensorimotor impairment, decreased bladder capacity, bladder spasms, medical comorbidities, past surgeries, pattern of elimination, quantity and quality of fluid intake, methods of promoting continence, impact on activities of daily living and instrumental activities of daily living, history of infection, medication regime);
  - 5.3b physical indicators (e.g., effectiveness of bladder emptying, physical abnormalities, use of assistive devices, sensory deficits, environmental barriers, constipation, dysreflexia, mobility, fatigue, apraxia); and
  - 5.3c psychosocial indicators (e.g., motivation, expectations, impact of incontinence on self concept) and cognitive indicators (e.g., level of consciousness, cognitive status and ability to learn, orientation, memory, judgment).

- 5.4 selects the rehabilitation nursing interventions to maintain and improve bladder function and promote continence:
  - 5.4a educates the client on urinary health and bladder management techniques and strategies (e.g., Kegel exercises, catheterization, Credé techniques, voiding routine, appropriate fluid intake); and
  - 5.4b implements strategies to promote urinary health and decrease the risk of urinary complications (e.g., recognizing manifestations of infection, routine voiding, hydration, perineal hygiene).
- 5.5 assesses bowel function, considering:
  - 5.5a pre-existing and current status (e.g., neurological impairment, sensorimotor impairment, peristalsis, gastrocolic reflex, medical comorbidities, pattern of elimination, awareness of need to defecate, dietary habits, fluid intake, methods of promoting continence, activities of daily living and instrumental activities of daily living, medication regimens, cultural beliefs and values);
  - 5.5b physical indicators (e.g., incontinence, nutritional intake, bowel sounds, distension, tenderness, absence of stool, fecal impaction, internal or external sphincter tone, hemorrhoids, assistive devices, environmental barriers, mobility, apraxia, sensory deficits, activity level, pain, medication use, autonomic dysreflexia, ostomy); and
  - 5.5c psychosocial indicators (e.g., motivation, expectations, impact of incontinence, privacy and dignity, self esteem) and cognitive indicators (e.g., level of consciousness, cognitive status, ability to learn, orientation, memory, judgment, developmental stage).
- 5.6 selects the rehabilitation nursing interventions to enhance and maintain bowel function and promote continence:
  - 5.6a educates the client on bowel management techniques and strategies (e.g., rectal stimulation, disimpaction, proper positioning, hydration, diet, bowel routine, perineal hygiene); and
  - 5.6b implements strategies to promote bowel health and decrease the risk of bowel complications (e.g., recognizing manifestations of constipation and impaction, establishing a bowel routine, hydration, perineal hygiene).

## Skin Integrity

The rehabilitation nurse:

- 5.7 assesses skin integrity, considering:
  - 5.7a pre-existing and current status (e.g., ulcers, wounds, skin condition, stomas, lifestyle, medical comorbidities, presence of orthosis or prosthetic devices, impaired sensation, age, nutritional status, medication regime);
  - 5.7b physical indicators (e.g., immobility, spasticity, sensory perceptual changes, neuropathies, impaired circulation, bladder and bowel incontinence, weight, infections, pressure shearing and friction, moisture) and laboratory values (e.g., serum albumin levels, hemoglobin, WBC); and
  - 5.7c psychosocial indicators (e.g., motivation, judgment, depression, adherence) and cognitive indicators (e.g., orientation, agitation, memory, learning, knowledge of wound prevention or treatment).
- 5.8 selects the appropriate nursing interventions to enhance and maintain skin integrity:
  - 5.8a identifies with the client risk factors related to altered health or functional status (e.g., impaired sensation, altered circulation patterns, immobility, prosthetic or orthotic, edema);
  - 5.8b maintains and improves tissue tolerance (e.g., limiting exposure to moisture, lifting, turning and transfer techniques, positioning and cushioning, equipment use, activity and mobility);
  - 5.8c prevents complications from alteration in skin integrity (e.g., product selection, identification of infection, pressure relief and reduction); and
  - 5.8d educates client and family about promotion of skin health and prevention of skin breakdown (e.g., medication, environment factors, self-examination, nutrition).

## Functional Health Patterns: Cardiopulmonary, Deconditioning

### Cardiopulmonary

The rehabilitation nurse:

- 6.1 assesses cardiopulmonary function, considering:
  - 6.1a pre-existing and current status (e.g., medical comorbidities, neuropathies, fatigue, energy tolerance, cough, risk factors, medications, oxygenation, fluid intake, tracheostomy, allergies, pacemaker);

- 6.1b physical indicators (e.g., pallor, presence of and ability to clear secretions, clubbing, restlessness, alterations in cardiac functions, orthostatic hypotension, hypertension, changes in respiratory patterns, hypercapnia, hypoxemia, fatigue, edema, angina) and laboratory values and diagnostic tests (e.g., chest X-ray, CT scan, blood gases, EKG, pulse oximetry, pulmonary function tests, CBC, vital signs, electrolytes, cholesterol, cardiac enzyme, stress tests, ultrasound, Holter monitor); and
  - 6.1c psychosocial indicators (e.g., fear, anxiety, depression, denial, social isolation) and cognitive indicators (e.g., confusion, agitation, memory, judgment).
- 6.2 selects appropriate rehabilitation nursing interventions to promote and maintain optimal cardiopulmonary function:
- 6.2a promotes symptom management (e.g., maximizing ventilation, maximizing circulation, mobilization, positioning, suctioning, chest, physio, breathing techniques, oxygenation); and
  - 6.2b educates on lifestyle considerations (e.g., exercise, diet, smoking cessation, energy demands, environmental irritants, medication regimes, emergency plan, stress management, sexuality, social support, positive feedback).

## Deconditioning

The rehabilitation nurse:

- 6.3 assesses level of physical status, considering:
- 6.3a current status (e.g., medical comorbidities and complications, tolerance to activity, age, history of the most recent hospitalization);
  - 6.3b physical indicators (e.g., significant changes in weight, vital signs, wound healing, contractures, loss of muscle mass, pressure ulcers, decreased renal function, dysphagia, infection, impaired body system function, fatigue, oxygen consumption); and
  - 6.3c psychosocial indicators (e.g., depression, anxiety, fear, dependence, social isolation) and cognitive indicators (e.g., delirium, dementia, level of alertness, impaired concentration, attention).
- 6.4 selects appropriate rehabilitation nursing interventions to promote gradual reconditioning:
- 6.4a implements strategies to help the client understand the potential risk factors of deconditioning (e.g., personal or cultural beliefs and values, frequent hospitalizations, medication abuse, sensory deficits, stress, grief, inadequate support system, depression);
  - 6.4b develops a plan with the client to maximize physical functioning (e.g., gradual increase in activity level, adequate nutritional intake); and
  - 6.4c develops a plan with the client to maximize psychological well-being (e.g., support client in regaining control).

## Psychosocial Health Patterns

The rehabilitation nurse:

- 7.1 assesses psychosocial adjustment and adaptation in the rehabilitation client, considering:
  - 7.1a pre-existing and current status (e.g., cultural or spiritual beliefs about health and illness, appraisal of stressors, coping skills, family's perspective on roles, function and economic impact of changing health status, level of function, client and family perception of disability, vocation, recreational activities, support systems, comorbidities, substance abuse);
  - 7.1b physical indicators (e.g., endurance, strength, use of assistive devices); and
  - 7.1c psychosocial indicators (e.g., motivation, unresolved loss or grief, stress, emotional fatigue, anger, denial, self-perception, hopelessness, ability to mobilize internal and external resources, social support) and cognitive indicators (e.g., motivation, delirium, dementia, problem-solving skills, openness to change, ability to learn, ability to direct own care).
- 7.2 selects interventions to promote psychosocial adaptation and adjustment in the rehabilitation of the client:
  - 7.2a identifies strategies to facilitate collaborative goal setting with client and family based on the client's strengths and abilities;
  - 7.2b creates opportunities for client and family to discuss the disability, its meaning, and future direction (e.g., support groups, grief counselling, advance care planning); and
  - 7.2c educates client and family about strategies to promote healthy coping behaviours (e.g., acute vs chronic vs progressive).
- 7.3 assesses family structure and dynamics, considering pre-existing and current status (e.g., medical events, family composition, finances, lifestyle practices, health beliefs and values, death, births, divorce, relocation, communication, cultural or spiritual values and beliefs, conflict resolution abilities, coping, caregiver burden, physical environment, family resources, abuse).
- 7.4 selects rehabilitation nursing interventions to promote family health:
  - 7.4a facilitates communication among family members, the client and the health team (e.g., role changes, mobilizing family resources);
  - 7.4b facilitates adaptation to living with a family member with a disability (e.g., role changes, caregiver burden, finances, expectations, coping strategies, relaxation techniques, grief); and
  - 7.4c educates client and family about changes in health status and the implications for future health-care needs.

## **Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Stroke**

The rehabilitation nurse:

- 8.1 understands the potential risk factors of stroke (e.g., age, hypertension, arteriovenous malformation, obesity, smoking, history, diabetes, elevated cholesterol, substance abuse, gender, race).
- 8.2 understands the anatomy and function of the cerebral vascular system related to stroke (e.g., extracranial and intracranial cerebral arteries).
- 8.3 understands the pathophysiology of stroke: ischemic, hemorrhagic.
- 8.4 interprets laboratory values (e.g., INR, cholesterol, electrolytes).
- 8.5 recognizes the clinical manifestations of a stroke (e.g., motor or sensory changes, changes in mental status, speech or language changes, visual disturbances, headache, respiratory changes, hypertension).
- 8.6 recognizes general residual deficits of a client who has experienced a stroke (e.g., tone, seizures, sensory motor problems, fatigue, cognitive deficits, sexual dysfunction, decreased self-esteem, organic or situational depression, incontinence, dysphagia).
- 8.7 recognizes the residual deficits of a client who has experienced a left hemispheric stroke (e.g., right hemiplegia, impaired analytical thinking, right homonymous hemianopsia, inability to do mathematical computations or interpret symbols, behavioural changes, cautiousness, fluent aphasia, global aphasia, apraxia, dysarthria, anarthria, impaired writing skills).
- 8.8 recognizes the residual deficits of a client who has experienced a right hemispheric stroke (e.g., left hemiplegia, left homonymous hemianopsia, problems with depth perception and spatial relationship, reduced insight, somatognosia, unilateral neglect, behavioural changes, impulsiveness, social inappropriateness, difficulty in finding locations).
- 8.9 recognizes the residual deficits of a client who has experienced a brain stem stroke (e.g., dysarthria, dysphagia, locked-in syndrome, hyperthermia, pupillary changes).
- 8.10 selects the rehabilitation nursing interventions to manage the care and education of a client with a stroke to optimize function:
  - 8.10a manages unilateral neglect and hemiparesis (e.g., cues to encourage the use of the neglected side, positioning, Bobath method, management of the paralysed limb, skin integrity, preventing contractures, mobility, injury prevention, preventing complications, subluxation);

- 8.10b utilizes strategies to minimize risk of aspiration (e.g., sitting position, thickened fluids); and
- 8.10c utilizes strategies to improve cognitive function (e.g., behaviour management, memory books, structured environment, cueing, impulse control, communication).

### **Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Traumatic or Acquired Brain Injury**

The rehabilitation nurse:

- 9.1 understands the potential causes of traumatic or acquired brain injuries (e.g., motor vehicle injuries [MVI], lifestyle-related injuries, substance abuse, falls, failed suicide attempt, seizure, violence).
- 9.2 understands the anatomy and function of the brain related to traumatic or acquired brain injuries (e.g., lobes, limbic system, cerebellum, cranial nerves).
- 9.3 understands the pathophysiology related to traumatic or acquired brain injuries (e.g., diffuse axonal injuries, hypoxic injury, focal cortical contusion, concussion, deep hemorrhage, deep or focal hypoxic injury, extracerebral hematoma, coma, increased intracranial pressure, hydrocephalus, seizure).
- 9.4 understands the characteristics of mild, moderate and severe brain injuries.
- 9.5 interprets the results of standardized tools related to brain injuries (e.g., Glasgow Coma Scale, Rancho Los Amigos Scale, Functional Independence Measure [FIM]).
- 9.6 recognizes the clinical manifestations related to traumatic or acquired brain injuries (e.g., manifestations of increasing intracranial pressure, changes in affect and behaviour, executive function, paresis, impairment of motor skills, aphasia, neglect, spatial, anomia, changes in level of consciousness, pain, fluctuation in temperature, bowel and bladder incontinence, sleep-wake disturbance, blood glucose, disuse syndrome, cognitive changes).
- 9.7 recognizes the potential residual deficits related to traumatic or acquired brain injuries (e.g., confusion, sensory-motor problems, seizure, communication, mobility, sexuality, cranial nerve deficits, behaviour problems, depression, elimination, impaired respiratory function, metabolic changes).
- 9.8 selects the rehabilitation nursing interventions to manage the care and education of a client with a brain injury:
  - 9.8a provides suitable environment (e.g., routine, consistency of care, minimizing of distractions, safety); and
  - 9.8b implements a cognitive or behaviour management plan (e.g., cueing, limit setting, redirection, de-escalation, strategies to enhance memory, strategies to enhance problem solving).

## **Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Musculoskeletal Impairment and the Care of a Client with an Amputation**

### **The Client with Musculoskeletal Impairment**

The rehabilitation nurse:

- 10.1 understands the etiology of musculoskeletal impairment (e.g., arthritis, joint replacement, trauma).
- 10.2 understands the anatomy of the musculoskeletal system.
- 10.3 understands the pathophysiology of musculoskeletal impairment (e.g., juvenile arthritis, rheumatoid arthritis, osteoarthritis, osteoporosis).
- 10.4 understands the clinical manifestations of musculoskeletal impairment (e.g., joint stiffness, joint deformities, soft tissue swelling, pain, fatigue).
- 10.5 interprets lab results related to musculoskeletal impairment (e.g., CBC, erythrocyte sedimentation rate).
- 10.6 selects the rehabilitation nursing interventions to manage the care and education of a client with musculoskeletal impairment: provides support for self-management (e.g., exercise, heat-cold application, weight loss, medications, alternative therapies, hip precaution, fall prevention).

### **The Client with an Amputation**

The rehabilitation nurse:

- 10.7 understands the factors associated with amputation (e.g., diabetic neuropathy and angiopathy, peripheral vascular disease, infection, thrombosis, trauma, tumour, congenital).
- 10.8 understands the implication of the level of amputation on the care of the client (e.g., energy requirements, nutritional needs, impact of multiple comorbidities).
- 10.9 selects rehabilitation nursing interventions to optimize the function of the client with an amputation:
  - 10.9a manages postop complications (e.g., pressure ulcers, infection, embolism, phantom limb pain, wound healing); and
  - 10.9b facilitates the adaptation of the client to the use of a prosthetic device (e.g., applies bandaging technique specific to residual limb, keeps affected joint in extension, wearing schedule, prosthetic care, skin integrity, pain management, limb care, body image, don and doff prosthetic limb, mobility).

### **Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Burns**

The rehabilitation nurse:

- 11.1 understands the anatomy of the skin related to burns.
- 11.2 understands the pathophysiology of burns and healing depending upon the classification (e.g., first degree, second degree, third degree, fourth degree; minor, moderate, major).
- 11.3 understands potential complications associated with burns (e.g., scarring, pain, contractures, decreased mobility, altered sensation, pruritus).
- 11.4 recognizes the residual deficits as a result of burns (e.g., vascular, pulmonary, hematological, immune, pain related to exposed nerve endings, scars, contractures, heterotrophic ossification, altered sensation, depression, altered self-concept, infection).
- 11.5 selects the rehabilitation nursing interventions to support optimizing function and education for a burn client:
  - 11.5a promotes wound healing (e.g., nutritional support, prevention of infection, wound care protocols, relieving pain and discomfort);
  - 11.5b minimizes scarring and contractures (e.g., use of pressure garments, use of splints, range of motion); and
  - 11.5c provides support for altered body image (e.g., support groups, counselling).

### **Nursing Management of Selected Rehabilitation Populations: The Care of a Client with a Spinal Cord Injury**

The rehabilitation nurse:

- 12.1 understands the anatomy and function of the central and peripheral nervous systems and spinal structures.
- 12.2 understands the different types of spinal cord injuries (e.g., traumatic and non-traumatic).
- 12.3 understands the pathophysiology of the spinal cord injury, including:
  - 12.3a level of spinal cord injury (e.g., upper and lower motor neuron injury, paraplegia, quadriplegia, tetraplegia);
  - 12.3b degree of neurological injury (e.g., complete or incomplete injury);

- 12.3c neurological syndromes (e.g., anterior cord syndrome, central cord syndrome, Brown-Séquard's syndrome, posterior cord syndrome, conus medullaris, cauda equina syndrome, sacral sparing); and
  - 12.4d spinal shock.
- 12.4 interprets the results of the American Spinal Injury Association (ASIA) Impairment Scale.
- 12.5 recognizes the potential residual deficits associated with a spinal cord injury in the following categories:
- 12.5a neurological and cardiovascular systems (e.g., autonomic dysreflexia, loss or decrease of sensation, voluntary motor function below level of injury, loss of normal reflex activity, loss of thermoregulation, vasodilation, bradycardia, orthostatic hypotension); and
  - 12.5b respiratory system (e.g., impairment of the respiratory muscles).
- 12.6 selects the rehabilitation nursing interventions in the care and education of a client with a spinal cord injury:
- 12.6a manages changes of autonomic function (e.g., autonomic dysreflexia, thermoregulation);
  - 12.6b manages changes to neurologic function (e.g., spastic and flaccid bladder or bowel, changes to circulation and respiration, mechanical ventilation or tracheostomy, spasticity); and
  - 12.6c supports adaptation to sexual function through education and counselling (e.g., erection enhancement, reproductive technologies, vaginal lubrication).

### **Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Cancer**

The rehabilitation nurse:

- 13.1 understands the symptoms experienced or side effects of treatment (e.g., pain, nausea, fatigue, weakness, sexual dysfunction, loss of range of motion, increased fracture risk, alopecia, cachexia, depression, lymphedema, cardiomyopathy, complex wound management).
- 13.2 understands the pathophysiology of cancer (e.g., benign vs malignant, hyperplegia, metastasis, staging, tumour nodes).
- 13.3 selects the rehabilitation nursing interventions to support optimizing function and education for a client with cancer:
  - 13.3a utilizes strategies to minimize pain and support symptom management (e.g., medications, alternative therapies, odour control, recurrent acute symptom management); and
  - 13.3b provides support for altered body image (e.g., weight loss, hair loss, loss of body part).

## **Nursing Management of Selected Rehabilitation Populations: The Care of a Client with Other Neurological Disorders and the Care of a Client with Psychiatric and Mental Health Conditions**

### **The Client with Other Neurological Disorders**

The rehabilitation nurse:

- 14.1 understands the pathophysiology of other neurological disorders (e.g., Parkinson's disease, multiple sclerosis, amyotrophic lateral sclerosis [ALS], acquired immune deficiency syndrome [HIV, AIDS], Guillain-Barré syndrome, dementia, spina bifida, cerebral palsy, muscular dystrophy).

### **The Client with Psychiatric and Mental Health Conditions**

The rehabilitation nurse:

- 14.2 understands the management of psychiatric and mental health conditions and their impact on the rehabilitation process (e.g., affective disorders, depression, schizophrenia, personality disorders, attention deficit disorders).