

Exam Blueprint and Specialty Competencies

Introduction – Blueprint for the Occupational Health Nursing Certification Exam

The primary function of the Blueprint for the CNA Occupational Health 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 occupational health 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 occupational health nurses), 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 Occupational Health Nursing Certification Exam is a criterion-referenced exam.¹ 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 Occupational Health Nursing Certification Exam, the content consists of the competencies of a fully competent practising occupational health nurse.

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

A working group of six highly experienced occupational health nurses from various regions in Canada revised and updated the current list of competencies during a five-day meeting. These competencies were reviewed by a group of seven occupational health nurses in Eastern Canada and a subsequent group of six occupational health nurses from Western Canada. The existing framework of the competencies was maintained, representing the four domains of occupational health nursing. The final list of competencies was approved by the Occupational Health Nursing Certification Exam Committee.

¹ 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).

Assumptions

In developing the list of competencies for occupational health nurses, the following assumptions were made, based on current standards for occupational health nursing practice.

- Occupational health nurses are registered nurses who practise under their jurisdictional registering body respecting ethics, privacy and confidentiality.
- The occupational health nurse is a specialist who practises independently and interdependently in the workplace demonstrating responsibility, accountability and leadership, and providing direction.
- The occupational health nurse's practice is based on knowledge gained primarily from nursing, medicine, ergonomics, epidemiology, environmental sciences, occupational health and safety, social/behavioural sciences, as well as from management, administration and educational concepts and practices, and legal/regulatory requirements.
- The occupational health nurse functions in an impartial role balancing the needs of the employee and employer to have a positive impact on environment, health and safety in the workplace.
- The occupational health nurse practises in a holistic manner and understands that individuals are unique.
- The occupational health nurse's scope of practice includes the promotion of environmental health, safety and wellness, prevention of illness and injury, care and rehabilitation of employees, enhancement of employee and organizational health, business management and administration, and support of a healthy workplace.
- The occupational health nurse consults and collaborates with colleagues, professional and industry associations, as well as individuals and groups, both internal and external to the organization.
- The occupational health nurse acts in an advisory capacity to employers, employees, unions, colleagues and other stakeholders.
- The occupational health nurse understands that health and safety culture is an important component in determining the direction, support and influence of the workplace.
- The occupational health nurse understands that a workplace can include any land, premises, location or equipment at, upon, in or near the place at which a worker works.

Competency Categories

The competencies are classified under a six-category classification scheme. Some of the competencies lend themselves to one or more of the categories; therefore these six 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
Provision of Occupational Health, Safety and Environmental Nursing	16	13%
Recognition, Evaluation and Control of Workplace/ Environmental Health and Safety Hazards	42	33%
Health Assessment, Planning, Implementation, Monitoring and Evaluation	22	17%
Assessment, Care and Case Management of Injuries and Illnesses	36	28%
Environment, Health, Safety, Wellness Promotion and Education	6	5%
Environment, Health, Safety and Wellness Management	5	4%

Competency Sampling

Using the grouping and guidelines, the Occupational Health Nursing Certification Exam will consist of approximately 165 questions; the categories have been given the following weights in the total examination.

Table 2: Competency Sampling

Categories	Approximate weights in the total examination
Provision of Occupational Health, Safety and Environmental Nursing	15-20%
Recognition, Evaluation and Control of Workplace/ Environmental Health and Safety Hazards	25-30%
Health Assessment, Planning, Implementation, Monitoring and Evaluation	20-25%
Assessment, Care and Case Management of Injuries and Illnesses	15-20%
Environment, Health, Safety, Wellness Promotion and Education	10-15%
Environment, Health, Safety and Wellness Management	1-5%

Technical Specifications

In addition to the specifications related to the competencies, other variables are considered during the development of the Occupational Health 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 any 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 165 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 scenario (i.e., a description of the client's health-care situation). Independent questions stand alone. In the Occupational Health Nursing Certification Exam, 50 to 60 per cent of the questions are presented as independent questions and 40 to 50 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 Occupational Health Nursing Certification Exam is aimed at one of three levels: knowledge/comprehension, application or critical thinking.²

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).

2. Application

This level refers to the ability to apply knowledge and learning to new or practical situation. It includes applying rules, methods, principles and theories while providing care to clients (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 occupational health nurse 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.

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

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 Occupational Health Nursing Certification Exam
Knowledge/Comprehension	10-20%
Application	50-60%
Critical Thinking	25-35%

Contextual Variables

Client Age and Gender: Two of the contextual variables specified for the Occupational Health 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 occupational health nurses. These characteristics, listed in Table 4 as percentage ranges, serve as guidelines for test development.

Table 4: Specification for Client Age and Gender

Age Group	Percentage of questions on the Occupational Health Nursing Certification Exam	
	Male	Female
16 to 21 years old	1-5%	1-5%
22 to 64 years old	40-50%	40-50%

Client Culture: Questions measuring awareness, sensitivity and respect for different cultural values, beliefs and practices, without introducing stereotypes, are included on the exam.

Organizational Culture: Items are included that measure awareness, sensitivity and ability to work within a variety of organizational cultures.

Health-Care Environment: It is recognized that occupational health nursing is practised in a variety of settings, and that for the purpose of the examination, the health-care environment is only specified when it is required for clarity or to provide guidance to the candidate.

Conclusions

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

It is recognized that occupational health 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

Occupational Health Nursing Certification Exam Development Guidelines

Structural Variables			
Exam Length and Format	Approximately 165 objective questions (e.g., multiple-choice)		
Question Presentation	50-60% of independent questions 40-50% of case-based questions		
Cognitive Ability Levels of Questions	Knowledge/Comprehension	10-20% of questions	
	Application	50-60% of questions	
	Critical Thinking	25-35% of questions	
Category	Provision of Occupational Health, Safety and Environmental Nursing	15-20% of questions	
	Recognition, Evaluation and Control of Workplace/ Environmental Health and Safety Hazards	25-30% of questions	
	Health Assessment, Planning, Implementation, Monitoring and Evaluation	20-25% of questions	
	Assessment, Care and Case Management of Injuries and Illnesses	15-20% of questions	
	Environment, Health, Safety, Wellness Promotion and Education	10-15% of questions	
	Environment, Health, Safety and Wellness Management	1-5% of questions	
Contextual Variables			
Age and Gender		Male	Female
	16 to 21 years old	1-5%	1-5%
	22 to 64 years old	40-50%	40-50%
Client Culture	Questions measuring awareness, sensitivity and respect for different cultural values, beliefs and practices, without introducing stereotypes, are included on the exam.		
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The Occupational Health Nursing Exam List of Competencies

1. Provision of Occupational Health, Safety and Environmental Nursing

The occupational health nurse...

- 1.1 practises in accordance with occupational health, safety and environmental nursing standards of practice, code of ethics and applicable professional legislation.
 - 1.1.1 advises stakeholders on occupational health, safety and environmental issues within the workplace using effective leadership, communication and ethical decision-making skills.
 - 1.1.2 develops and maintains complete and accurate employee health records respecting security, privacy and confidentiality (e.g., levels of security of both electronic and paper documentation, access, transfer, release, retention and disposal).
 - 1.1.3 delivers nursing services using a nursing process based on current knowledge, best practices and research.
- 1.2 practises in compliance with legislation, codes, regulations and standards (e.g., communicating, interpreting and utilizing jurisdictional occupational health and safety legislation and regulations, workers' compensation, human rights, labour laws, relevant collective agreements, organizational policies).
 - 1.2.1 manages health, safety and environmental programs consistent with organizational strategies, operational goals and ethical guidelines:
 - 1.2.1a demonstrates leadership for project and program planning, implementation, audit and revision;
 - 1.2.1b sets goals and objectives that support organizational strategies and operational goals;
 - 1.2.1c sets priorities based on regulatory requirements, evidence-based practices, epidemiological evidence and current clinical evidence;
 - 1.2.1d develops proposals, programs, policies and procedures that meet or exceed the needs of the organization and employee population;
 - 1.2.1e identifies and accesses appropriate internal and external service providers to assist as required (e.g., health and safety audit of operations, timely and safe return to work);
 - 1.2.1f implements, evaluates and revises programs for continuous quality improvement; and
 - 1.2.1g provides internal/external aggregate statistical and/or narrative reports (e.g., trends and analyses, legislative reports, national or provincial reports).

- 1.3 complies with legislative requirements for due diligence regarding record keeping.
 - 1.3.1 ensures that the documentation meets legislative requirements (e.g., privacy legislation, hazard recognition evaluation and control, workplace inspections, health and safety training, accident reports and investigations, workplace hazardous materials information system (WHMIS), workplace databases/records, compensation or health record, health and safety committee minutes, safe work practices).
 - 1.3.2 ensures confidentiality is maintained when releasing, sharing or transferring health information.

2. Recognition, Evaluation and Control of Workplace/Environmental Health and Safety Hazards

The occupational health nurse...

- 2.1 identifies potential and existing workplace/environmental health and safety hazards as follows:
 - 2.1.1 identifies potential and existing workplace/environmental health and safety hazards including chemical:
 - 2.1.1a solids (e.g., metals);
 - 2.1.1b liquids (e.g., solvents, degreasers, acids, alkali);
 - 2.1.1c gases (e.g., vapours); and
 - 2.1.1d particulates (e.g., dust, aerosols, mists and fumes).
 - 2.1.2 identifies potential and existing workplace/environmental health and safety hazards including biological:
 - 2.1.2a microorganisms and their toxins (e.g., E. coli, salmonella, botulism, psittacosis);
 - 2.1.2b infectious and communicable diseases (e.g., tuberculosis, West Nile virus, hepatitis, methicillin-resistant Staphylococcus aureus [MRSA], Severe Acute Respiratory Syndrome [SARS]); and
 - 2.1.2c allergens and toxins from plants, fungi and animals (e.g., latex, poison ivy/oak, flour, red cedar, animal dander, moulds).
 - 2.1.3 identifies potential and existing workplace/environmental health and safety hazards including physical:
 - 2.1.3a thermal stress (e.g., heat, cold, humidity);
 - 2.1.3b noise;
 - 2.1.3c vibration (e.g., segmental, whole body);
 - 2.1.3d ionizing and non-ionizing radiation; and
 - 2.1.3e air pressure (e.g., hydraulic, pneumatic, hypobaric, hyperbaric).

- 2.1.4 identifies potential and existing workplace/environmental health and safety hazards including ergonomic:
 - 2.1.4a work environment (e.g., optimal lighting and temperature);
 - 2.1.4b person/machine interface;
 - 2.1.4c work demands (e.g., posture, force, repetition); and
 - 2.1.4d organization of work (e.g., rotation of activities, cross-training, deadlines, overuse syndrome).
- 2.1.5 Identifies potential and existing workplace/environmental health and safety hazards including psychosocial:
 - 2.1.5a organizational risk factors (e.g., organizational change, scheduling, shift work, workload, burnout, management-labour relations and employee participation in decision-making); and
 - 2.1.5b workplace conflict (e.g., physical/psychological violence, inappropriate workplace conduct, interpersonal relationships and harassment).
- 2.1.6 identifies potential and existing workplace/environmental health and safety hazards including building-related disorders:
 - 2.1.6a Sick Building Syndrome and associated disorders; and
 - 2.1.6b Idiopathic environmental intolerance.
- 2.1.7 identifies potential and existing workplace/environmental health and safety hazards including safety hazards:
 - 2.1.7a human factors (e.g., work practices and procedures);
 - 2.1.7b material factors (e.g., material handling);
 - 2.1.7c equipment factors (e.g., machine hazards, energy, i.e., lock-out, tag-out);
 - 2.1.7d environmental factors (e.g., confined space, heights); and
 - 2.1.7e employer's manufacturing or service process (e.g., assembly line, providing service to the public).
- 2.2 assesses the level of risk (immediate, long term and continuous) and severity of hazards based on probability that harm may occur in a specific situation.
 - 2.2.1 implements a comprehensive hazard identification process including work, environment, people, equipment, process and materials (e.g., involvement in the design phase, pre-start inspections, walk-through surveys, safety audits, job hazard/demands analysis, trend analysis).
 - 2.2.2 selects the appropriate measurement tool/standard to evaluate the specific hazard and its risk (e.g., material safety data sheet [MSDS], air sampling, musculoskeletal risk assessment, noise measurement, stress audit tools, trend analysis).

- 2.3 applies principles of hazard control.
 - 2.3.1 reviews programs related to the identified hazard (e.g., loss prevention programs, job hazard/demands analysis, emergency preparedness, disaster planning, high-risk situations, accident reports/investigations).
 - 2.3.2 makes recommendations for control measures based on risk assessment findings:
 - 2.3.2a engineering controls (e.g., elimination, substitution, containment, design and redesign);
 - 2.3.2b administrative controls (i.e., work practice, housekeeping, policies and procedures); and
 - 2.3.2c personal protective equipment (i.e., gloves, glasses/goggles, safety footwear, respirators).

3. Health Assessment, Planning, Implementation, Monitoring and Evaluation

The occupational health nurse...

- 3.1 assesses, plans, implements, recommends and monitors interventions to promote employee health and wellness.
 - 3.1.1 assesses health status of employees in relationship to the job-specific hazards/demands (e.g., pre-placement, periodic examinations, accommodation needs, health screening, health surveillance).
 - 3.1.2 plans interventions/education for prevention of illness and injury.
 - 3.1.3 implements plan of action.
 - 3.1.4 evaluates outcomes.
 - 3.1.5 reviews outcomes and makes adjustments to the plan as required.
- 3.2 develops, implements and evaluates programs and procedures for health surveillance.
 - 3.2.1 develops, implements and evaluates programs and procedures.
 - 3.2.2 investigates trends or changes in individual/group health status.
 - 3.2.3 develops and implements appropriate health surveillance/screening:
 - 3.2.3a chemical (e.g., spirometry/pulmonary function test);
 - 3.2.3b biological (e.g., serum levels, urinalysis, tuberculosis screening and immunizations, immunological testing);
 - 3.2.3c physical (e.g., audiometry);
 - 3.2.3d ergonomics (e.g., musculoskeletal assessment, functional abilities evaluation); and
 - 3.2.3e psychosocial (e.g., employee surveys, employee assistance programs).
 - 3.2.4 analyses and reports surveillance results.

- 3.2.5 provides education/follow-up related to workplace exposures (e.g., to employees, management, treating practitioner).
- 3.2.6 modifies programs and procedures for improvement (e.g., type of tests, frequency of measurements, nature of reports and follow-up).
- 3.2.7 communicates aggregate results to relevant workplace stakeholders and recommends control measures and workplace accommodation (e.g., management, employees, Joint Health and Safety Committee).
- 3.3 collects, analyses, uses and communicates aggregate data for prevention, identification of trends, statistical or research purposes.
 - 3.3.1 reviews outcomes/trends and incorporates findings into an aggregate profile of workplace interventions.
 - 3.3.2 communicates results to internal and external stakeholders (e.g., publication, research, government agencies, legislative reporting).

4. Assessment, Care and Case Management of Injuries and Illnesses

The occupational health nurse...

- 4.1 applies the nursing process to implement appropriate interventions to minimize effects of illness and injury.
 - 4.1.1 prioritizes and intervenes in acute and non-acute situations.
 - 4.1.2 administers care and treatment.
 - 4.1.3 provides follow-up and health teaching with employee and liaises with treatment provider and appropriate internal and external providers (e.g., Employee Assistance Program).
 - 4.1.4 facilitates critical incident stress management and defusing/debriefing process.
- 4.2 uses a combination of ongoing data gathering activities to evaluate ill or injured employees:
 - 4.2.1 health history:
 - 4.2.1a occupational and relevant non-occupational history (e.g., employment history, exposures, lifestyle, hobbies, previous injuries and illnesses); and
 - 4.2.1b family history.
 - 4.2.2 physical and psychosocial assessment of the ill or injured employee (e.g., nurse's notes).
 - 4.2.3 internal and external reports and consultations (e.g., treatment provider reports, independent medical evaluations, physical therapist reports, vocational assessments, specialty clinics).
- 4.3 identifies the implications for fitness to work for the following disorders:
 - 4.3.1 respiratory;
 - 4.3.2 musculoskeletal;
 - 4.3.3 skin;

- 4.3.4 neurological;
- 4.3.5 mental health and behavioural;
- 4.3.6 reproductive;
- 4.3.7 cardiovascular;
- 4.3.8 hematological;
- 4.3.9 hepatic;
- 4.3.10 renal and urinary tract;
- 4.3.11 gastro-intestinal;
- 4.3.12 rheumatological; and
- 4.3.13 endocrine.
- 4.4 identifies occupational or non-occupational injuries and illness, assesses limitations, and recommends workplace accommodation as required.
- 4.5 provides and coordinates ability/case management.
 - 4.5.1 maintains regular contact and communication with ill or injured employee and employee's manager.
 - 4.5.2 identifies employee's biopsychosocial needs and recovery challenges (e.g., counselling, assistive devices).
 - 4.5.3 identifies organizational barriers that impede an employee's ability to return to or stay at work (e.g., labour relations, interpersonal conflict, organizational policies, morale).
 - 4.5.4 arranges, refers and/or conducts specific evaluations pertaining to fitness for work (e.g., job hazard/demands analysis, functional assessment evaluation, independent medical evaluation and treatment provider).
 - 4.5.5 facilitates proactive and timely work accommodation for affected employees in collaboration with stakeholders (e.g., employee, manager, labour representative, insurance representative, workers' compensation, treatment provider and other consultants).
- 4.6 counsels employees in the prevention and management of both occupational and non-occupational illnesses and injuries.
 - 4.6.1 identifies behavioural indicators or physical signs suggestive of psychological or physical health concerns.
 - 4.6.2 identifies and intervenes for employees at risk of medical and psychiatric emergencies (e.g., post-traumatic stress disorder).
 - 4.6.3 develops, facilitates or implements a therapeutic recovery plan through building a supportive, trusting and confidential relationship.
 - 4.6.4 intervenes and refers to appropriate community, health-care and workplace resources (e.g., Employee Assistance Program, massage therapy, weight loss clinics, Alcoholics Anonymous, Alanon).

5. Environment, Health, Safety, Wellness Promotion and Education

The occupational health nurse:

- 5.1 provides leadership to empower employees and management to adopt strategies directed towards both organizational and individual health, safety and wellness.
 - 5.1.1 assesses organizational and individual education, wellness and health promotion needs (e.g., environmental scan, target population, trends analysis).
 - 5.1.2 develops content of educational programs utilizing current literature and best practices (e.g., journals, standards, emerging practices, community resources, complementary therapies).
 - 5.1.3 utilizes principles of adult education to develop and provide formal/informal educational activities (e.g., literacy level, define instructional objectives, delivery format).
 - 5.1.4 utilizes evaluation tools and data analysis to determine whether learning outcomes are achieved and aligned with organizational objectives (e.g., questionnaires, evaluation sheets, audits, utilization reviews, direct observation).
 - 5.1.5 evaluates and revises educational programs as required.

6. Environment, Health, Safety and Wellness Management

The occupational health nurse:

- 6.1 manages environment, health, safety and wellness services.
 - 6.1.1 coordinates provision of services and programs.
 - 6.1.2 monitors the quality assurance and effectiveness of care or services.
 - 6.1.3 demonstrates leadership for business planning and marketing of occupational health nursing services to the organization (e.g., cost-benefit analysis, return on investment).
 - 6.1.4 collaborates with stakeholders in a leadership or consultative role (e.g., advocates on behalf of the client on matters related to environment, health, safety and wellness).