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 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 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 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

A working group of eight highly experienced occupational health nurses from various regions in Canada revised and updated the current list of competencies during a five-day meeting. The final list of competencies was approved by the Occupational Health Nursing Certification Exam Committee.

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[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 as an advocate for health and safety in the workplace.

- The occupational health nurse practices in a holistic manner and understands that individuals are unique.

- The occupational health nurse's scope of practice includes the promotion of health, safety and wellness, prevention of illness and injury, care and recovery of employees, enhancement of employee and organizational health, business management and administration, and support of a safe and 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 as a subject matter expert for 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.

- Occupational health nurses practise in a variety of work settings, including any 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 scheme commonly used to organize occupational health nursing.

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
Occupational Health Nursing Practice	6	7%
Identification, Evaluation and Control of Workplace Hazards	28	31%
Health Surveillance	8	9%
Assessment, Care and Case Management of Injuries and Illnesses	32	36%
Health, Safety and Wellness Promotion	5	6%
Health, Safety and Wellness Management	11	12%

Competency Sampling

Using the grouping and the guideline that 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
Occupational Health Nursing Practice	5-10%
Identification, Evaluation and Control of Workplace Hazards	25-30%
Health Surveillance	20-25%
Assessment, Care and Case Management of Injuries and Illnesses	15-20%
Health, Safety and Wellness Promotion	10-15%
Health, Safety and Wellness Management	10-15%

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 format) and special functions of exam questions (e.g., case-based or 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 and 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 health-care scenario (i.e., a description of the client's health-care situation). Independent questions stand alone. In the Occupational Health Nursing Certification Exam, 60 to 70 per cent of the questions are presented as independent questions and 30 to 40 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 and 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 in 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 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 concerning 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 Occupational Health Nursing Exam
Knowledge/Comprehension	10-20%
Application	50-60%
Critical Thinking	25-35%

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[2] These levels are adapted from the taxonomy of cognitive abilities developed in Bloom (1956).

Contextual Variables

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

Organizational Culture: Questions 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 practiced in a variety of settings. Therefore, for the purposes of the Occupational Health Nursing Certification Exam, the health-care environment is only specified where it is required for clarity or in order to provide guidance to the examinee.

Conclusions

The blueprint for the Occupational Health Nursing Certification Exam is the product of a collaborative effort between CNA, ASI 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.

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 multiple-choice questions	
Question Presentation	Independent questions: Case-based questions:	60-70% of the questions 30-40% of the questions
Cognitive Ability Levels of Questions	Knowledge/Comprehension Application Critical Thinking	10-20% of the questions 50-60% of the questions 25-35% of the questions

Competency Categories	Occupational Health Nursing Practice (6 competencies)
	Identification, Evaluation and Control of Workplace
	  Hazards (28 competencies)
	Health Surveillance(8 competencies)
	Assessment, Care and Case Management of Injuries
	  and Illnesses (32 competencies)
	Health, Safety and Wellness Promotion (5 competencies)
	Health, Safety and Wellness Management (11 competencies)
		5-10% of the questions
		
		25-30% of the questions
		20-25% of the questions
		
		15-20% of the questions
		10-15% of the questions
		10-15% of the questions

CONTEXTUAL VARIABLES		
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	Questions 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.	

The Occupational Health Nursing Certification Exam List of Competencies

1.   Occupational Health Nursing Practice (6 competencies)

The occupational health nurse...

1.1   Practices in accordance with nursing standards, code of ethics, professional legislation, evidence-based practices and industry best practices.

      1.1.1   Advises stakeholders on occupational health and safety issues within the workplace using effective leadership, communication and decision-making skills.

      1.1.2   Maintains complete and accurate employee health records respecting security, privacy and confidentiality (e.g., levels of security in relation to electronic and paper documentation, access, transfer, release, retention and disposal).

      1.1.3   Delivers nursing services based on current occupational health nursing best practices, evidence-based practices and research.

1.2   Practices in accordance with legislation, codes, and standards (e.g., jurisdictional occupational health and safety legislation, workers' compensation, human rights legislation, labour standards).

      1.2.1   Uses principles of program planning to develop programs consistent with legislative requirements by setting priorities, goals and objectives.

      1.2.2   Ensures documentation meets requirements of legislation (e.g., hazard recognition, evaluation and control, health and safety training, incident reports and investigations, workplace hazardous materials information system (WHMIS), workplace databases/records, health and safety committee minutes, safe work practices).

      1.2.3   Reports to governmental bodies as required by legislation.

2.   Identification, Evaluation and Control of Workplace Hazards (28 competencies)

The occupational health nurse...

2.1   Implements a comprehensive hazard recognition process (e.g., involvement in the design phase, worksite inspections, health and safety audits, job task analysis, trend analysis).

2.2   Identifies potential and existing workplace hazards.

2.2.1 Identifies workplace chemical hazards.

2.2.1a Identifies hazards in relation to solids (e.g., lead, cadmium, nickel, asbestos).

2.2.1b Identifies hazards in relation to liquids (e.g., solvents, degreasers, acids, alkali).

2.2.1c Identifies hazards in relation to gases (e.g., carbon monoxide, chlorine, anesthetic gases, cyanide).

2.2.1d Identifies hazards in relation to particulates (e.g., pesticides, wood dust, silica, aerosols).

2.2.2 Identifies workplace biological hazards.

2.2.2a Identifies hazards in relation to infectious agents (e.g., tuberculosis, West Nile virus, hepatitis, HIV, methicillin-resistant Staphylococcus aureus (MRSA), toxoplasmosis, influenza, psittacosis, hantavirus).

2.2.2b Identifies hazards in relation to allergens and toxins from plants, fungi and animals (e.g., poisonous plants, flour, animal dander, insect bites/stings, moulds).

2.2.3 Identifies workplace physical hazards.

2.2.3a Identifies hazards in relation to thermal stress (e.g., heat, cold).

2.2.3b Identifies hazards in relation to noise (e.g., impact noise, high frequency noise).

2.2.3c Identifies hazards in relation to vibration (e.g., segmental, whole body).

2.2.3d Identifies hazards in relation to ionizing and non-ionizing radiation (e.g., lasers, X-rays, nuclear materials, radioactive isotopes, electromagnetic radiation).

2.2.3e Identifies hazards in relation to air pressure (e.g., hydraulic, pneumatic, hyperbaric).

2.2.3f Identifies hazards in relation to energy (e.g., steam, electrical, kinetic, moving parts).

2.2.3g Identifies hazards in relation to environmental factors (e.g., confined space, heights).

2.2.3h Identifies hazards in relation to powered mobile equipment (e.g., vehicles, scissor lifts, boats, forklifts).

2.2.4 Identifies workplace ergonomic hazards.

2.2.4a Identifies hazards in relation to workplace environment (e.g., illumination, workplace design, person/machine interface).

2.2.4b Identifies hazards in relation to physical demands (e.g., lifting/carrying, pushing/pulling, positioning, force, repetition, duration, frequency, unsafe work practices and procedures).

2.2.5 Identifies workplace psychosocial hazards.

2.2.5a   Identifies hazards in relation to organizational risk factors (e.g., organizational change, shift work, job demands, role conflict).

2.2.5b   Identifies hazards in relation to workplace harassment and violence (e.g., sexual harassment, bullying, verbal or written threats, verbal abuse, physical attacks).

2.2.5c   Identifies hazards in relation to impairment in the workplace (e.g., substance use, fatigue, impairment caused by health issues).

2.2.5d   Identifies hazards in relation to workforce diversity and communication issues (e.g., literacy issues, multi-cultural issues, multi-generational issues, aging workers).

2.2.5e   Identifies hazards in relation to psychosocial effects from critical incidents (e.g., stress and fear caused by a death in the workplace, bomb threat, natural disaster or pandemic).

2.3   Selects the appropriate measurement tool/standard to evaluate the specific hazard and risk (e.g., material safety data sheets (MSDS), air sampling, musculoskeletal risk assessment, noise measurement).

2.4   Assesses the level of risk and severity of hazards based on probability that harm may occur in a specific situation.

2.5   Makes recommendations for control measures based on identified hazards.

2.5.1   Makes recommendations in relation to engineering controls (e.g., elimination, substitution, containment, design).

2.5.2   Makes recommendations in relation to administrative controls (e.g., work practices, housekeeping, policies and procedures, musculoskeletal injury prevention programs, respiratory protection programs).

2.5.3   Makes recommendations in relation to personal protective equipment (e.g., gloves, glasses/goggles, safety footwear, respirators).

3.   Health Surveillance (8 competencies)

The occupational health nurse...

3.1   Develops and implements appropriate health surveillance policies, programs, and procedures to maintain employee health.

3.1.1   Assesses health status of employees in relation to the job-specific hazards/demands upon initial pre-placement or transfer (e.g., vision screenings, audiometric testing, immune status).

3.1.2   Develops and implements health surveillance in relation to chemical hazards (e.g., pulmonary function test, blood lead levels).

3.1.3   Develops and implements health surveillance in relation to biological hazards (e.g., serum levels, urinalysis, tuberculosis screening, immunizations, immunological testing).

3.1.4   Develops and implements health surveillance in relation to physical hazards (e.g., audiometry, dosimetry, fitness testing).

3.1.5   Develops and implements health surveillance in relation to ergonomic hazards (e.g., musculoskeletal assessments, comfort surveys).

3.1.6   Develops and implements health surveillance in relation to psychosocial hazards (e.g., violence risk surveys, employee assistance programs review, disability management statistics review).

3.2   Evaluates and improves health surveillance policies, programs, and procedures (e.g., type of tests, frequency of measurements, nature of reports and follow-up, incident statistics review, compliance audits).

3.3   Provides education and follow-up in relation to workplace exposures (e.g., chemical, biological, physical, psychosocial).

4.   Assessment, Care and Case Management of Illnesses and Injuries (32 competencies)

The occupational health nurse...

4.1   Applies the nursing process to implement appropriate interventions to minimize effects of occupational and non-occupational illness and injury.

4.1.1   Prioritizes and intervenes in relation to acute and non-acute illnesses and injuries.

4.1.2   Administers care and treatment.

4.1.3   Provides follow-up and health teaching and liaises with appropriate health care providers.

4.1.4   Facilitates critical incident stress management (e.g., defusing/debriefing process, referral to Employee Assistance Program).

4.2   Uses a combination of information sources to evaluate ill or injured employees.

4.2.1   Collects occupational and relevant non-occupational history to evaluate ill or injured employees (e.g., employment history, exposures, lifestyle, hobbies, previous illnesses and injuries).

4.2.2   Uses internal and external reports and consultations to evaluate ill or injured employees (e.g., health-care provider reports, independent medical evaluations, vocational assessments, nurse's notes, changes in work performance).

4.3   Identifies the implications for fitness to work.

4.3.1   Identifies the implications for fitness to work in relation to the respiratory system.

4.3.2   Identifies the implications for fitness to work in relation to the musculoskeletal system.

4.3.3   Identifies the implications for fitness to work in relation to the integumentary system.

4.3.4   Identifies the implications for fitness to work in relation to the neurological system.

4.3.5   Identifies the implications for fitness to work in relation to mental health.

4.3.6   Identifies the implications for fitness to work in relation to the reproductive system.

4.3.7   Identifies the implications for fitness to work in relation to the circulatory system.

4.3.8   Identifies the implications for fitness to work in relation to the hematological system.

4.3.9   Identifies the implications for fitness to work in relation to the hepatic system.

4.3.10   Identifies the implications for fitness to work in relation to the renal and genitourinary systems.

4.3.11   Identifies the implications for fitness to work in relation to the gastrointestinal system.

4.3.12   Identifies the implications for fitness to work in relation to rheumatological disorders.

4.3.13   Identifies the implications for fitness to work in relation to the endocrine system.

4.3.14   Identifies the implications for fitness to work in relation to ears, eyes, nose and throat.

4.3.15   Identifies the implications for fitness to work in relation to the immune system.

4.4   Identifies fitness to work implications in relation to potential transmission of infectious diseases in the workplace (e.g., tuberculosis, varicella, influenza, hepatitis).

4.5   Identifies occupational or non-occupational illnesses and injuries, assesses limitations, and recommends workplace accommodation.

4.6   Provides and coordinates case management.

4.6.1   Maintains regular communication with an ill or injured employee and employee's manager.

4.6.2   Identifies an employee's needs and recovery challenges (e.g., counseling, assistive devices).

4.6.3   Identifies organizational barriers that impede an employee's ability to return to work or continue to work (e.g., collective agreements, interpersonal conflicts, policies, organizational culture).

4.6.4   Facilitates evaluations in relation to fitness for work (e.g., physical demands analyses, functional assessment evaluations, independent medical evaluations, health-care provider assessments, cognitive assessments).

4.6.5   Facilitates an employee's return to work and accommodation in collaboration with stakeholders (e.g., manager, union representative, human resources representative, insurance representative, workers' compensation, health-care provider).

4.7   Works with employees to prevent and manage occupational and non-occupational illnesses and injuries.

    4.7.1   Identifies behavioural or physical manifestations suggestive of potential psychological or physical health issues.

    4.7.2   Identifies employees at risk of medical emergencies and intervenes when required (e.g., suicidal thoughts, hypoglycemic episode, cardiac event).

    4.7.3   Develops and facilitates a holistic recovery plan based on a supportive and confidential relationship.

    4.7.4   Facilitates referrals to appropriate community, health-care and workplace resources (e.g., Employee Assistance Program, allied health professionals, lifestyle counseling, addiction counseling).

5.   Health, Safety and Wellness Promotion (5 competencies)

The occupational health nurse...

5.1   Provides leadership to promote health, safety and wellness.

    5.1.1   Identifies health, safety, wellness and educational needs of individual employees (e.g., health risk assessments, health screenings).

    5.1.2   Identifies organizational health, safety, wellness and educational needs (e.g., environmental scans, demographic analyses, absenteeism rates, time loss reports, overtime usage statistics, perception surveys, Employee Assistance Program utilization).

    5.1.3   Develops and revises educational programs using evidence-based resources (e.g., scientific studies, standards, professional resources, jurisdictional legislation).

    5.1.4   Uses principles of adult education to develop and provide individual and organizational educational activities (e.g., literacy level, established program objectives, delivery format, appropriate learning atmosphere).

    5.1.5   Determines whether learning outcomes are achieved and aligned with program objectives (e.g., questionnaires, evaluation sheets, audits, direct observation).

6.   Health, Safety and Wellness Management (11 competencies)

The occupational health nurse….

6.1   Manages health, safety and wellness services.

    6.1.1   Demonstrates leadership in relation to service development and implementation (e.g., gap analyses, needs assessments, environmental scans, benchmarking).

6.1.2 Sets goals, objectives, policies and procedures that align with organizational strategies and support service development and implementation.

6.1.3 Coordinates provision of services (e.g., emergency preparedness and response, health surveillance, injury management, training/education, hazard recognition).

6.1.4 Illustrates the cost effectiveness of health, safety and wellness services to senior management (e.g., cost benefit analyses, business plans).

6.1.5 Collaborates with senior management to incorporate health and safety into the organization's strategic plan.

6.1.6 Collaborates with stakeholders in relation to health, safety and wellness services (e.g., employees, managers, occupational health and safety committees, unions, infection control committees).

6.1.7 Identifies and accesses appropriate internal and external resources (e.g., auditors, Employee Assistance Program, industrial hygienists, safety professionals).

6.1.8 Facilitates continuous improvement through the evaluation and revision of services.

6.2 Incorporates research into health, safety and wellness services.

6.2.1 Collects and analyzes internal and external aggregate data.

6.2.2 Applies research to health, safety and wellness services.

6.2.3 Communicates research findings to internal and external stakeholders (e.g., publication, research, government agencies, legislative reporting).