



Canadian Midwifery | Conseil canadien
Regulators Council | des ordres de sages-femmes

BLUEPRINT FOR THE CANADIAN MIDWIFERY REGISTRATION EXAMINATION

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Introduction

The Canadian Midwifery Regulators Council (CMRC) is a network of provincial and territorial regulatory authorities, who collectively, regulate the profession of midwifery, setting and maintaining high standards of practice, and ensuring regulatory harmony across the country. The Canadian Midwifery Regulators Council (CMRC) sets and administers the Canadian Midwifery Registration Exam (CMRE). This exam is designed to assess applicants for midwifery registration to ensure they meet entry-level competency standards set out in the *Canadian Competencies for Midwives*.

Following the development of a new competency profile (2020), the Canadian Midwifery Registration Exam (CMRE) Blueprint needed to be updated to ensure proper alignment of future exam content with the updated competency standards. To this end, CMRC contracted with Yardstick Assessment Strategies to facilitate an Examination blueprinting revision process. This report provides an overview of the process used to develop the new blueprint, which is presented in the Appendix.

Canadian Competencies for Midwives

The *Canadian Competencies for Midwives* delineates the essential competencies that are the foundation of midwifery practice, and which all midwives must possess, when they begin to practice. In 2020, CMRC developed a new competency profile, which includes seven broad competency categories, comprising a total of 80 competencies. Please see the *Canadian Competencies for Midwives* for more detail on the revised competency framework.

Exam Blueprint

A fundamental component of a formal approach to examination development is a thorough description of the content domain being measured. The CMRC competencies outlined in this document define the content domain requirements for the development of the examination. This report provides an overview of activities and results for the development of CMRE blueprint.

Examination items are developed according to the established examination blueprint. Items are reviewed and edited at various stages of the item development process by subject matter experts who have been trained in developing high-quality test items. Thus, the validity of the CMRE is established using a content validation process, and the exam blueprint is designed to ensure that the competencies required of entry-to-practice registered midwives are adequately assessed in the exam. This approach ensures that inferences made from the exam are valid (i.e., successful CMRE examinees should perform effectively as entry-to-practice midwives).

CMRE Exam Blueprint Process

Competency Weighting

In total, there are twelve competency categories and 80 competencies required of entry-to-practice midwives. Each of the competency categories contains a different number of specific competencies that vary by the level of importance and frequency of use for entry-to-practice midwives. To ensure that the examination places an appropriate emphasis on the knowledge, skills, and behaviours expected of an

entry-level midwife, competency categories need to be weighted in terms of their relative importance based on the mean importance and frequency for each competency within the category, as represented by a criticality value.

As an initial step in the blueprinting process, statistical weights were calculated based on the mean importance, frequency, and number of competencies to be assessed in each competency category. Importance and frequency values were taken from the results of the validation survey, conducted between May 15-June 11, 2020 during the development of the new *Canadian Competencies for Midwives*. A mapping was conducted to identify the extent to which competency statements had been modified post validation survey during a review by a CMRC steering committee to finalize the competency profile.

The competency validation survey allowed for collection of data from a large sample of registered midwives from all Canadian jurisdictions which regulate the practice of midwifery. In total, 493 registrants responded to the validation survey, representing a response rate of 25%. Findings suggest that the sample was representative of the Canadian midwifery population and that survey results could be reasonably generalized to the Canadian population of Canadian midwife registrants within jurisdictional regulator databases. Please refer to *The Canadian Midwifery Regulators Council Competency Development Technical Report* for a full account of the process and statistical data.

The combined importance and frequency ratings for the 80 competencies were used to determine preliminary statistical weights for each competency categories (see Table 1) which were presented to the CMRE blueprint committee members.

Table 1. CMRE Preliminary Statistical Weights by Competency Category

Competency Category	Statistical Weights
1. Primary Care Provider	
1.A. Assessment	7%
1.B. Decision-Making	7%
1.C. Care Planning	6%
1.D. Implementation	14%
1.E. Population Health	3%
1.F. Reproductive and Sexual Health	5%
2. Advocate	14%
3. Communicator	9%
4. Collaborator	4%
5. Professional	16%
6. Life long Learner	5%

7. Leader	8%
TOTAL	100%

Subject Matter Expert Review

A CMRE Blueprint Committee, comprising 13 registered midwives from various jurisdictions, was established to provide subject matter expert advice in the development of the exam blueprint. Following review of the competency profile, Committee members were provided with the preliminary statistical weights for each competency category, and were asked if any modifications were required. After an extensive discussion, the examination blueprint committee recommended that the criticality for Advocate and Communication competency categories be lowered by 50%. They also recommended a lower weighting of criticality by 75% for the Professional, Life-long Learner, and Leader competency categories. See Table 2 for the results of the adjusted statistical weights. Lastly, Committee members discussed and agreed on a range for the final weights by competency category (see Table 2).

Table 2. CMRE Adjusted Statistical Weights and Final Weights Range by Competency Category

Competency Category	Statistical Weights Adjusted	Final Weights Range
1. Primary Care Provider		
1.A. Assessment	10%	10-14%
1.B. Decision-Making	11%	10-14%
1.C. Care Planning	9%	10-14%
1.D. Implementation	22%	13-18%
1.E. Population Health	5%	5-8%
1.F. Reproductive and Sexual Health	8%	5-8%
2. Advocate	11%	8-12%
3. Communicator	7%	8-12%
4. Collaborator	7%	4-8%
5. Professional	6%	6-10%
6. Life long Learner	2%	2-4%
7. Leader	3%	2-4%
TOTAL	100%	

Exam Format

In addition to the specifications related to the competencies, other variables must be considered during the development of the CMRE. These variables are categorized as structural or contextual variables. Examination Blueprint Committee members reviewed and discussed the weighting of these variables.

Structural Variables

- 1. Examination Length and Format:** As of October 2022, the CMRE will consist of approximately 180 multiple-choice items that meet the blueprint guidelines. With 80 specific competencies (grouped under twelve competency categories), an examination of this length is sufficient to make both reliable and valid decisions about a candidate's readiness to perform effectively as a registered midwife.
- 2. Question Presentation:** The multiple-choice questions will be presented as independent or case/scenario-based questions. Independent questions are stand-alone four-option, multiple choice items that contain all the necessary information to answer the question. Scenario-based questions consist of a set of approximately three to five questions that are associated with a more detailed scenario. In general, the exam should consist of 50% independent and 50% scenario-based questions.
- 3. Cognitive Levels:** To ensure that competencies measure different levels of cognitive ability, each question on the CMRE should be classified into one of three categories.
 - **Knowledge/Comprehension:** This level combines the ability to recall previously learned material and to understand its meaning. It includes such mental abilities such as knowing and understanding definitions, facts and principles.
 - **Application:** This level refers to the ability to apply knowledge and learning to new or practical situations. It includes applying rules and principles to clients.
 - **Critical Thinking:** This level deals with higher-level thinking processes. It includes the ability to judge the relevance of data, to deal with abstractions and to solve problems. The exam taker should be able to identify cause-and-effect relationships, distinguish between relevant and irrelevant data, formulate valid conclusions and make judgments.

Based on these definitions, the recommended distribution of questions by cognitive level is:

- Knowledge: 10%-20%
 - Application: 45%-65%
 - Critical Thinking: 20%-30%
- 4. Standard Setting:** The standard setting cut-score or pass mark is set in reference to the content and the difficulty of the examination questions. The pass mark should be set by a panel of content experts from across Canada using the modified-Angoff standard setting method. Based on this process, an appropriate pass mark is set at a minimum performance level expected of a competent entry-level registered midwife.

Contextual Variables

Contextual variables qualify the content domains by specifying the context in which the exam questions will be set. Although it is recommended that the CMRE represent as closely as possible the recommended distribution for each of the following categories, strict adherence is not mandatory when developing the exam.

- 1. Health care setting:** The CMRE is designed to include questions representing the variety of settings encountered when providing midwifery care in Canada. Thus, for the purpose of the CMRE, the setting is defined as either In-Hospital or Out-of-Hospital. The recommended distribution of questions by health care setting is:
 - In-hospital: 40-50%
 - Out-of-Hospital: 50-60%
- 2. Health care situation:** It is recognized that within the context of midwifery care, the client may experience a range of Normal to Abnormal health care situations. The recommended distribution of questions by health care situation is:
 - Normal: 50%-60%
 - Abnormal: 40%-50%
- 3. Antepartum, Intrapartum, and Postpartum:** The CMRE is designed to include questions that address integral facets of midwifery care. The recommended distribution of questions by Antepartum, Intrapartum, and Postpartum is:
 - Antepartum: 30%-40%
 - Intrapartum: 30%-40%
 - Postpartum Care of Clients: 12%-18%
 - Postpartum Care of Newborn/Young Infant: 12%-18%

4. Cultural Diversity and Inclusion:

Exam questions will reflect diverse clients and populations, including awareness, sensitivity and respect for diverse cultural values and beliefs, gender identity and family structures. Similarly, questions will reflect rural, remote and urban contexts.

STRUCTURAL VARIABLES	
Examination length	Approximately 180 items
Item format	Multiple-choice questions
Item Presentation	

Independent	40 – 60%	
Case-based	40 – 60%	
COGNITIVE LEVEL		
Knowledge/Comprehension	10 – 20%	
Application	45 – 65%	
Critical Thinking:	20 – 30%	
COMPETENCY CATEGORIES		
	Target %	% Range
1. Primary Care Provider	(min. 60%)	
1.A. Assessment	12%	10 – 14%
1.B. Decision-Making	12%	10 – 14%
1.C. Care Planning	12%	10 – 14%
1.D. Implementation	15%	13 – 18%
1.E. Population Health	6%	5 – 8%
1.F. Reproductive Health	6%	5 – 8%
2. Advocate	10%	8 – 12%
3. Communicator	10%	8 – 12%
4. Collaborator	6%	4 – 8%
5. Professional	3%	2 – 4%
6. Life-long Learner	3%	2 – 4%
7. Leader	8%	6 – 10%

Appendix: CMRE Blueprint

CONTEXTUAL VARIABLES	
HEALTH CARE SETTING	
In-hospital	40 – 50%
Out of Hospital	50 – 60%
HEALTH CARE SITUATION	
Normal	50 – 60%
Abnormal	40 – 50%
ANTEPARTUM, INTRAPARTUM, POSTPARTUM	
Antepartum	30 – 40%
Intrapartum	30 – 40%
Postpartum care of Clients	12 – 18%
Postpartum Care of Newborn / Young Infant	12 – 18%
CULTURAL DIVERSITY AND INCLUSION	
Exam questions will reflect diverse clients and populations, including awareness, sensitivity and respect for diverse cultural values and beliefs, gender identity and family structures. Similarly, questions will reflect rural, remote and urban contexts.	