



CAMLPR Field-of-Practice Examinations

Overview of Development

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CAMLPR: The Field-of-Practice Examinations

The CAMLPR Field-of-Practice Exams are high-stakes regulatory examinations. Their purpose is to determine whether an applicant has demonstrated the level of knowledge, judgment, and competence required for safe and effective entry-level practice in the Field-of-Practice for which registration is sought.

Because examination results have important consequences for applicants and for public protection, CAMLPR takes a systematic approach to examination development, scoring, standard setting, and ongoing evaluation.

The examination is not based solely on a passing percentage or on the judgment of a single individual or group. Rather, it is supported by multiple layers of professional, content, and psychometric review.

A comprehensive examination-development process

The defensibility of a competency examination comes from the alignment of the entire assessment process.

CAMLPR's examination development process includes:

- A nationally developed competency framework that identifies the knowledge, skills, and judgment required for entry-level practice.
- Examination blueprints that determine how competencies and content areas are represented on each examination.
- Subject matter experts who develop examination questions based on the competencies and blueprint.
- Independent subject matter expert review of examination questions.
- A structured standard-setting process using the Angoff method.
- Psychometric review of examination and item-level performance.
- Ongoing monitoring of reliability, fairness, and the functioning of individual examination questions.
- Review and revision of examination content as professional practice, technology, and standards evolve.
- Appropriate governance and quality-assurance processes surrounding examination decisions.

Each component serves a different purpose. Together, they provide multiple safeguards intended to ensure that examination results are meaningful, consistent, and appropriate for regulatory decision-making.

The examination is based on defined Entry-to-Practice competencies

CAMLPR does not begin with examination questions. It begins with the competencies that an entry-level Medical Laboratory Technologist must possess to practise safely and effectively.

The CAMLPR Fields-of-Practice Competency Profiles were developed through an extensive consultation and review process involving subject matter experts, practising MLTs, educators, and other stakeholders. The competency profiles identify the essential knowledge, skills, and judgment required for entry-level practice in each Field-of-Practice.

The competencies are organized into areas such as:

- Specimen Collection
- Preparation and Testing
- Evaluation and Interpretation
- Reporting and Communication

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- Equipment and Resources
- Safety
- Professionalism
- Quality Assurance

The competency profiles are deliberately focused on the competencies that are important for entry-level practice rather than attempting to describe every task that may occur in a laboratory.

This provides the foundation for the examination: the examination measures defined professional competencies rather than an arbitrary body of academic material.

Examination blueprints ensure that the examination represents the practice of the profession

Once the competencies are established, they are translated into an examination blueprint.

The blueprint specifies the approximate proportion of examination questions devoted to the different competency areas and ensures that the examination reflects the relative importance of those areas to practice.

This is an important safeguard against an examination being overly influenced by a particular topic, textbook, educational program, or individual question writer.

For example, the examination is not designed simply by asking subject matter experts to contribute questions about whatever topics they personally consider important. Questions are developed within a defined assessment framework and are linked to the competencies and blueprint.

CAMLPR's published examination blueprint identifies the distribution of questions across competency groups and distinguishes between declarative and practical knowledge.

Questions are developed by subject matter experts

Examination questions are developed by qualified subject matter experts with knowledge and experience in the relevant Field-of-Practice.

The role of the subject matter expert is to ensure that questions reflect authentic professional knowledge and situations that an entry-level MLT should be able to understand and respond to.

Questions are written to assess the competencies identified in the examination blueprint. They are not intended to test an applicant's ability to recall obscure information, memorize the content of a particular textbook, or reproduce the curriculum of a particular educational institution.

CAMLPR's approach therefore focuses on competency-based assessment rather than curriculum-based assessment.

Questions undergo an additional review process

Question development and question review are distinct activities.

After questions are developed, they undergo additional review by subject matter experts. This provides an important independent quality-control step.

Reviewers consider issues such as:

- Alignment with the intended competency.
- Relevance to entry-level practice.
- Accuracy of the content.

- Appropriateness of the level of difficulty.
- Clarity of the question and response options.
- Whether there is one best answer.
- Whether the question contains unnecessary or misleading information.
- Whether the question depends on knowledge that is not relevant to the competency being assessed.
- Whether the question could disadvantage applicants because of factors unrelated to competence.
- Whether the question reflects current professional practice.

This separation of responsibilities provides an additional safeguard against individual item writers inadvertently introducing ambiguity, bias, or content that is outside the intended scope of the examination.

The passing score is established before applicants' examination results are considered

A particularly important distinction is the difference between scoring an examination and setting the standard for passing.

Every correctly answered question contributes one point to an applicant's raw score. However, the number of questions answered correctly is not itself the definition of competence.

The passing standard is established through a formal standard-setting process.

CAMLPR uses the Angoff method because the examination is intended to make a criterion-referenced decision: whether an applicant has demonstrated the minimum level of competence required for safe entry-level practice.

The standard is therefore not intended to be:

"The top 70% of candidates pass."

Nor is it:

"A certain percentage of candidates must fail."

Instead, the question is:

What level of performance should be expected from an applicant who is at the minimum level of competence considered acceptable for safe entry-level practice?

That distinction is fundamental to a regulatory examination.

How CAMLPR adopts the Angoff method

For each examination question, a panel of qualified subject matter experts considers the performance that would be expected from a minimally competent entry-level practitioner.

The experts estimate the proportion of minimally competent candidates who would be expected to answer each question correctly.

For example, if experts judge that approximately 80% of minimally competent practitioners should be able to answer a particular question correctly, the item will contribute approximately 0.80 to the standard-setting calculation.

The judgments across the examination are then combined to establish the overall passing standard.

The Angoff method does not ask experts to decide how many applicants should pass. It asks them to make professional judgments about the expected performance of a defined minimally competent practitioner.

This makes the standard directly connected to the purpose of the examination: identifying the minimum level of competence required for safe entry-level practice.

Research on standard setting in health-professions assessment recognizes Angoff as an established criterion-referenced approach. Importantly, the defensibility of any standard-setting process depends not simply on naming the method, but on the selection and preparation of judges and the systematic way in which their judgments are obtained and evaluated.

Standard setting is conducted by qualified subject matter experts

The passing standard is not established by CAMLPR staff based on an arbitrary percentage.

A panel of subject matter experts in the relevant Field-of-Practice establishes the standard. These experts are selected to provide appropriate professional knowledge and representation of the field.

Their role in standard setting is different from their role in writing or reviewing examination questions.

This separation of functions is an important element of the examination's quality-assurance framework.

The standard-setting panel is asked to make judgments about the performance of a minimally competent practitioner—not about the performance of a particular group of applicants and not about what pass rate would be desirable.

Psychometric oversight provides an independent technical layer

CAMLPR partners with a psychometric expert to support the examination program.

The psychometrician's role is fundamentally different from that of a subject matter expert.

Subject matter experts provide professional judgments about what competent practice requires.

The psychometrician evaluates the examination from the perspective of measurement and assessment, including the quality and functioning of the examination and its questions.

Psychometric analysis can examine such characteristics as:

- Examination reliability.
- Item difficulty.
- Item discrimination.
- The functioning of response options.
- Patterns of candidate responses.
- The consistency of examination forms.
- The relationship between examination content and the intended competencies.
- Potential anomalies in item performance.
- Evidence that may warrant review of an individual question.
- Evidence relevant to fairness and consistency.

This creates an important division of expertise: content experts determine what competent practice looks like, while psychometric expertise evaluates whether the assessment is functioning appropriately as a measurement instrument.

Examination results are reviewed after each administration

Establishing a standard before an examination is administered does not mean that the examination is never evaluated again.

After examination data are available, CAMLPR reviews the performance of the examination and its individual questions.

This is a normal and necessary part of responsible high-stakes assessment.

If an item performs unexpectedly, that does not automatically mean that the item is removed or that the passing standard is changed. Instead, the item and the available evidence are reviewed to determine whether there is a legitimate reason for concern.

For example, an unexpectedly difficult question could reflect an appropriately challenging competency, or it could indicate a problem with the question itself. Psychometric evidence helps identify situations that warrant further professional review.

Where concerns are identified, CAMLPR can use the appropriate combination of psychometric and subject matter expertise to determine whether an item requires revision, removal, or other action.

Fairness is considered throughout the assessment process

Fairness is not something that can be evaluated only after an examination has been administered.

It must be considered throughout the assessment lifecycle.

CAMLPR's examination framework is designed to provide a common competency standard for applicants regardless of their educational background. Examination questions are linked to the CAMLPR competency framework rather than to the curriculum of a particular school, program, textbook, or instructor.

This is particularly important for a national regulatory examination serving applicants with different educational and professional backgrounds.

The goal is not to make every applicant's educational experience identical. The goal is to ensure that applicants are evaluated against the same defined standard of entry-level competence.

Examination forms are designed to be comparable

Applicants may write different forms of an examination. This is necessary because secure examinations cannot repeatedly administer the exact same questions to every applicant.

Consequently, examination development includes controls intended to ensure that different forms assess the same underlying competencies and follow the established blueprint.

Psychometric analysis is an important part of monitoring whether examination forms are functioning as intended.

The objective is that an applicant's result should reflect their demonstrated competence—not which particular secure form they happened to receive.

The examination is regularly reviewed and updated

Medical laboratory science is always evolving.

Technology, methodologies, professional standards, laboratory practices, and expectations of entry-level practitioners change over time.

For that reason, examination content cannot be treated as permanently fixed.

CAMLPR's subject matter experts regularly review examination content so that questions remain aligned with current professional practice and the competency framework.

Ongoing psychometric analysis provides an additional source of evidence about how examination questions and forms are performing.

Together, these processes support the continuing quality and currency of the assessment program.

The CAMLPR examination process can be summarized as follows:

1. Define competence

Identify the knowledge, skills, and judgment required for safe entry-level practice.

2. Build the blueprint

Determine how the competencies will be represented on the examination.

3. Develop questions

Subject matter experts create questions aligned with the competencies and blueprint.

4. Review questions

Additional subject matter experts review questions for accuracy, relevance, clarity, and appropriateness.

5. Establish the standard

A separate panel of subject matter experts uses the Angoff method to establish the minimum passing standard.

6. Administer the examination

Applicants complete a standardized, secure examination.

7. Score the examination

Correct responses are converted into a raw score and evaluated against the established passing standard.

8. Analyze the results

Psychometric analysis evaluates the reliability, functioning, and fairness of the examination and its items.

9. Investigate concerns

Items or examination forms showing unexpected performance are examined using appropriate psychometric and subject matter expertise.

10. Improve the assessment

Evidence from each examination administration informs future examination development, review, and quality assurance.

CAMLPR'S Commitment

CAMLPR recognizes that examination results can have significant consequences for applicants. We therefore take seriously our responsibility to ensure that the examination is professionally developed, appropriately standardized, psychometrically sound, and focused on the competencies required for safe entry-level practice.

CAMLPR will continue to evaluate and improve the examination program as additional evidence becomes available.

At the same time, CAMLPR remains firm on the fundamental principle underlying the examination:

Registration requires applicants to demonstrate the minimum level of competence necessary for safe and effective entry-level practice.

The purpose of the examination is not to rank applicants against one another. It is to determine whether each applicant has demonstrated the required standard of competence.

That standard is established through a structured, evidence-informed process involving subject matter expertise, formal standard setting, and psychometric oversight.

The examination is therefore not a single test-development event. It is an ongoing assessment program with multiple layers of professional and psychometric quality assurance.