

# Revisiting the English Language Benchmarks for Medical Laboratory Technologists

February 18, 2022

Prepared by inQuire consulting on behalf of  
the Centre for Canadian Language Benchmarks



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## Background & Objective

In 2007, the Canadian Society of Medical Laboratory Science (CSMLS) hired language consultants to benchmark the English language demands of Medical Laboratory Technologists (MLTs). The researchers conducted onsite observations, identifying and analyzing language tasks to understand the communicative demands of the occupation. The team concluded that the following English language benchmarks enable individuals to perform the tasks of entry-level MLTs.<sup>1</sup>

	Listening	Speaking	Reading	Writing
2007 Benchmarks	CLB 8	CLB 8	CLB 8	CLB 7

Given the benchmarks were established over ten years ago, the Canadian Alliance of Medical Laboratory Professionals Regulators (CAMLPR) and the provincial regulators see value in revisiting the exam and entry-to-practice benchmarks for MLTs.

The Centre for Canadian Language Benchmarks (CCLB) was contracted to lead an associated study, with inQUIRE consulting reviewing the English language benchmarks. Specifically, inQUIRE consulting explored how workplace language demands have changed since the benchmarks were established in 2007, and whether any identified changes indicate a need to increase or decrease the entry-to-practice benchmarks. The research outlined below took place alongside complementary research conducted by other CCLB team members.

## Data Sources

Three data sources were used to determine whether and how workplace language demands have changed for MLTs since the original benchmarks were set: a focus group, survey and interviews.

### Focus Group

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A focus group was held on October 25, 2021 with seven individuals in leadership positions at seven provincial regulators. The purpose of the focus group was to identify changes in the occupation that might signal a change in language demands. The **Focus Group Interview Guide (Appendix A)** was used to conduct the semi-structured interview. Two interviewers participated, with one leading the questioning and the other taking notes.

The focus group required participants to recall and elaborate on occupational changes that have occurred since the benchmarking study was conducted. This limitation was addressed by gathering information about changes in a group setting wherein contributions made by participants could aid others' recall.

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<sup>1</sup> Strachan, A. (2007). English Language Proficiency and Internationally Educated Medical Laboratory Technologists: An Investigation of Language Benchmarks and Assessment Tools for IEMLT Success. Phase I: Language Proficiency Levels Required to Work in the Profession. Hamilton: Canadian Society of Medical Laboratory Science (CSMLS), page 4

## Survey

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A national survey was developed to collect preliminary information from those currently employed as MLTs about language tasks related to occupational changes identified through the focus group. In addition to questions about their employment context, respondents were asked to review a series of language tasks to indicate a) whether they consider them a necessary part of their job as an MLT and b) how frequently they perform the tasks in their current position (**Appendix B: Survey**).

Researchers established a survey distribution strategy intended to reach as many practising MLTs as possible. The strategy required the cooperation of national and provincial organizations, not all of whom ended up being in a position to distribute the survey. Nonetheless, 421 individuals responded to the survey. Respondents were screened to ensure they held Canadian Society of Medical Laboratory Science (CSMLS) certification, spent most of their time conducting MLT tasks, were employed in Canada and had worked in their current position for at least one year. Of 421 respondents, 275 individuals were deemed eligible.

Eligible respondents have the following characteristics:

- Most (86%) spend the majority of their time conducting laboratory tests, experiments and analyses.
- A third (33%) have spent between one and five years and almost half (47%) have spent 11 or more years in their positions.
- Most spend the majority of their time working in core laboratory (32%), hematology (32%), transfusion medicine (29%) and chemistry (29%) departments.<sup>2</sup>
- Two-thirds work in three provinces: Manitoba (40%), Saskatchewan (15%) or Nova Scotia (14%).
- More than half (62%) are employed by publicly funded institutions and 28% by government.
- Most (83%) identify as female.
- Most (88%) received their MLT education in Canada, while 12% indicated they are internationally educated.

See Appendix C: Characteristics of Eligible Survey Respondents for a detailed breakdown.

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<sup>2</sup> Respondents could choose more than one department.

## Interviews

The purpose of the interviews was to elicit language tasks that may differ from those identified in 2007. Prior to the interview, participants were asked to sign a letter of consent (**Appendix D: Letter of Consent**) and to review a list of language tasks rated at or above the entry-to-practice benchmarks set in 2007 (**Appendix E: Language Tasks Tool**). During the interview, they were asked about language tasks associated with occupational changes signalled through the focus group and survey, and to identify any missing tasks they would consider as or more complex than those documented in 2007.

The interviews required individuals to articulate how they use language skills on the job. This differs from typical benchmarking studies that rely on workplace observations and job incumbents' descriptions of job tasks, which are then analyzed for language demands. Given COVID restrictions, worksite observations were not possible. This limitation was addressed by supplying interviewees with the list of language tasks observed in 2007 to help them identify their own language tasks.

Three CCLB project team members conducted a total of 18 interviews using an online meeting platform and **Appendix F: Interview Guide**. Since we could not conclude that the survey sample was representative of MLTs across the country, we opted to ask questions about all the occupational changes identified through the focus group and survey, regardless of how widespread they appeared to be. Project advisory group members helped identify MLTs for the interviews.

Maximum variation sampling was used to choose MLTs who differed from each other in ways that likely influence how they use language skills on the job. Regional variation was sought as well as variety in workplace setting and occupational focus. This purposeful sampling technique allowed for the selection of information-rich cases for in-depth study of language use.

All interviewees selected indicated that 1) English was their primary language of communication at work, 2) they were currently employed full-time as licensed MLTs, and 3) they were employed in their current position for at least one year.

The following table summarizes interviewee characteristics.

ID	Prov	Setting	Occupational Focus
MLT01	SK	Regional hospital	Hematology: blood testing
MLT02	SK	Regional hospital	Hematology: transfusions, phlebotomy, blood testing
MLT03	MB	Regional hospital	Biochemistry
MLT04	NS	Regional health campus	Cytology
MLT05	NB	Regional hospital	Hematology: differentials and bone marrows
MLT06	AB	Clinic	General: chemistry, hematology, urine, phlebotomy, etc.
MLT07	SK	Hospital	Transfusion medicine: group and screens for antibodies, pre-natal testing, cord tests

ID	Prov	Setting	Occupational Focus
MLT08	MB	Regional health campus	Molecular genetics
MLT09	MB	Regional health campus	Cytology
MLT10	ON	Regional health campus	Chemistry, hematology
MLT11	NS	Laboratory	Hematology, transfusion medicine, phlebotomy, accessioning
MLT12	MB	Laboratory	Transfusion medicine
MLT13	NB	Regional hospital	Pathology
MLT14	SK	Regional hospital	Microbiology
MLT15	NS	Laboratory	Hematology, transfusion medicine, phlebotomy
MLT16	SK	Hospital	Hematology, chemistry, phlebotomy, bone marrow collection
MLT17	SK	Regional hospital	Histology
MLT18	NB	Laboratory	Microbiology

While we were unable to achieve regional variation, the sample was reviewed by CAMLPR and deemed to reflect variation in employment setting and occupational focus, the characteristics most likely to influence language use on the job.

## Analysis

### Changes to the Occupation

Focus group and survey data were analyzed to identify occupational changes and determine how widespread they are. The focus group revealed a number of changes in the occupation since the 2007 benchmarking study was conducted. The changes of particular interest are those with the potential to change the language demands of the occupation. The table that follows summarizes the occupational changes of interest and shows related survey prompts and responses.

Change	Tasks included in the survey	Number (and percent) of respondents who answered “Yes, this is a necessary part of my job”	Number (and percent) of respondents who reported carrying out the task sometimes or frequently <sup>3</sup>
Molecular techniques are more prevalent. These tests have multiple steps carried out by different MLTs.	Carry out lab tests that require coordination and information sharing with others in the lab	257 (93.5%)	251 (91.3%)
Increased reliance on laboratory information system	Read information in a laboratory information system	263 (95.6%)	261 (96.3%)
	Enter information in a laboratory information system	255 (92.7%)	255 (93.8%)
Individuals who are not trained as MLTs and/or do not have the same language proficiency work alongside MLTs in the lab	Orient new hires	221 (80.4%)	197 (74.3%)
	Train or instruct lab employees (e.g., on new procedures, steps in a test, tasks at a bench)	235 (85.5%)	216 (78.8%)

<sup>3</sup> Respondents could opt to skip this survey question.

Change	Tasks included in the survey	Number (and percent) of respondents who answered “Yes, this is a necessary part of my job”	Number (and percent) of respondents who reported carrying out the task sometimes or frequently <sup>3</sup>
Increased prevalence of point-of-care testing where other healthcare practitioners collect specimens and/or conduct tests outside the lab	Train or instruct other healthcare professionals (e.g., nurses who may be collecting specimens or doing point-of-care testing)	140 (50.9%)	116 (42.6%)
	Help other healthcare professionals troubleshoot error messages	166 (60.4%)	152 (55.9%)
Instrument automation	Contact IT for assistance with equipment	255 (92.7%)	210 (78.1%)
	Speak to equipment and/or supply vendors	179 (65.1%)	147 (53.8%)
More onsite evaluations	Conduct Rapid On-Site Evaluations (e.g., during surgery or at patient’s bedside)	54 (19.6%)	52 (19.3%)
MLTs contribute to the selection of appropriate tests	Offer suggestions or recommendations to doctors about which tests should be ordered	88 (32.0%)	74 (27.2%)
Need to communicate critical results	Share critical results with other healthcare professionals	234 (85.1%)	229 (83.9%)

Change	Tasks included in the survey	Number (and percent) of respondents who answered “Yes, this is a necessary part of my job”	Number (and percent) of respondents who reported carrying out the task sometimes or frequently <sup>3</sup>
MLTs are being included on project teams	Participate in multidisciplinary team meetings	118 (42.9%)	103 (37.9%)
Consolidation of testing – fewer employers, MLTs across sites	Read Standard Operating Procedures	272 (98.9%)	262 (96.3%)
Lab results include the name of the MLT who conducted the test	Receive calls from healthcare providers asking about results	246 (89.5%)	237 (87.8%)

More than 80% of survey respondents indicated that they:

- Carry out lab tests that require coordination and information sharing with others in the lab.
- Read information in a laboratory information system.
- Enter information in a laboratory information system.
- Orient new hires.
- Contact IT for assistance with equipment.
- Share critical results with other healthcare professionals.
- Read Standard Operating Procedures.
- Receive calls from healthcare providers asking about results.

In addition to being carried out by most respondents, these tasks are also carried out regularly. Seventy-four to 96% of respondents reported that these tasks are carried out sometimes or frequently.

Less than 35% of respondents indicated that they conduct Rapid On-Site Evaluations (e.g., during surgery or at patient’s bedside) or offer suggestions or recommendations to doctors about which tests should be ordered.

## Changes to Language Demands

The purpose of the interviews was to elicit language tasks that may differ from those identified in 2007. Findings from the focus group and survey were used to prepare interview questions to uncover language tasks associated with occupational changes.

Interview data was analyzed to identify and document listening, speaking, reading and writing tasks described by interviewees which they perceived as either related to occupational changes, or not captured in the 2007 language tasks they reviewed. Language tasks were analyzed to identify those that differ from those observed as part of the 2007 benchmarking study.

### Listening

Interviewees described seven listening tasks which they perceived as either related to occupational changes or absent in the 2007 language tasks they reviewed. Each task is listed below, with a note to indicate whether it is addressed in the 2007 report.

Listening tasks identified in current study	In 2007 report
1. Listen to patient details and requests from porters, nurses, service aids, physicians and MLTs from other departments, e.g., to ensure that blood products are provided accurately and required tests are completed.	Yes
2. Listen to verify the accuracy of information repeated by healthcare professionals. When MLTs report results, the information is repeated by the recipient to limit miscommunication. Some of these exchanges occur over the phone.	No
3. Understand questions and requests, e.g., from other MLTs seeking advice or assistance with difficult cases; from healthcare professionals about specimen adequacy, test availability and options; from members of the public about sample collection and testing locations; from IT personnel and equipment vendors about troubleshooting, carrying out and testing repairs; from students, new hires and MLTs being (cross-)trained; and from laboratory staff and other healthcare professionals attending professional development sessions.	Yes
4. Receive information from physicians, nurses, laboratory scientists and technologists, e.g., to verify the necessity of tests, test results and interpretations.	Yes
5. Follow troubleshooting instructions from IT and equipment vendors usually over the phone.	Yes
6. Receive updates and instructions from laboratory staff members to learn what has been done, priorities and expected timelines.	Yes
7. Attend committee and special project team meetings both in person and online, e.g., to learn about new procedures and documents.	Yes

Our analysis shows that six of the seven tasks were observed and documented in the 2007 benchmarking report; as such, they are accounted for in the listening benchmark (CLB 8).

The following listening task was not identified in 2007. It is listed here with a CLB rating:

- Listen to verify the accuracy of information repeated by healthcare professionals. When MLTs report results, the information is repeated by the recipient to limit miscommunication. Some of these exchanges occur over the phone. (CLB 7)

## Speaking

Interviewees described 14 speaking tasks which they perceived as either related to occupational changes or absent in the 2007 language tasks they reviewed. Each task is listed below, with a note to indicate whether it is addressed in the 2007 report.

Speaking tasks identified in current study	In 2007 report
1. Carry out brief interactions with the public, e.g., receive clients at reception desks to verify their identity and collect samples, answer questions on a general telephone line about testing locations, share routine test results and receive orders for blood products for home-based treatments.	No
2. Share information and coordinate tasks with laboratory staff. They relay what has been done, priorities and expected timelines. They may describe where they are in a process so another MLT can take over, e.g., during breaks, shift changes; request follow-up tests from other departments; and coordinate treatments, e.g., the location for blood transfusions.	Yes
3. Discuss testing procedures and results with co-workers. They ask for assistance, advice and second opinions from other technologists, laboratory scientists and specialist physicians and discuss more difficult cases.	Yes
4. Confirm patient details and requests made by porters, nurses, service aids and physicians, e.g., to ensure that blood products are provided accurately.	Yes
5. Discuss unusual test requests and results with physicians, nurses, laboratory scientists and technologists. They verify information, offer explanations and make suggestions. Requires tact.	Yes
6. Provide instructions and information to physicians, nurses and other technologists during on-site specimen collection. They let them know how to handle specimens and whether specimens are sufficient and adequate for the intended test.	Yes
7. Give information to IT personnel and equipment vendors to explain problems with networks, computers and other equipment. They provide passwords, error codes and other detailed information so problems can be resolved. MLTs may need to express and justify urgency to ensure that repairs happen quickly. Interactions usually occur over the phone and may last up to 30 minutes.	Yes

Speaking tasks identified in current study	In 2007 report
8. Speak with patients and family members when collecting samples. Interactions typically involve introducing themselves, describing testing procedures and what to expect, and seeking consent. Patients and family members may need reassurance.	No
9. Share information with healthcare professionals about specimen adequacy, blood product availability, test availability and options, changes to tests, and to explain or clarify test results, testing procedures, documentation and sample collection requirements. Interactions usually take place over the phone.	Yes
10. Report results, including critical results, to healthcare professionals, usually by phone. Information is often read back to verify accuracy. Miscommunication can lead to incorrect diagnoses and unnecessary treatments.	Yes
11. Train students, new hires and MLTs from other departments or labs. They offer detailed explanations on testing procedures, using Standard Operating Procedures (SOPs), and provide feedback on their work. They respond to questions and provide assistance throughout the training period, which can last several days to several months.	Yes
12. Deliver presentations to lab staff and professional development sessions for MLTs and other healthcare professionals, e.g., to describe new testing procedures (e.g., Covid-19 testing) and answer questions.	Yes
13. Familiarize other healthcare professionals (e.g., residents, post-doctoral students) with lab work. Sessions may last several hours, during which time MLTs describe how the lab works, their tasks, observations and interpretations and answer questions.	No
14. Participate in committee and special project team meetings both in person and online, e.g., to provide input on new procedures and documents.	Yes

The 14 tasks were analyzed and 11 were found to have been observed and documented in the 2007 benchmarking report; as such, they are accounted for in the speaking benchmark (CLB 8).

Three of the 14 speaking tasks were not identified in 2007. They are listed here with CLB ratings:

- Carry out brief interactions with the public, e.g., receive clients at reception desks to verify their identity and collect samples, answer questions on a general telephone line about testing locations, share routine test results and receive orders for blood products for home-based treatments. (CLB 6-7)
- Speak with patients and family members when collecting samples. Interactions typically involve introducing themselves, describing testing procedures and what to expect, and seeking consent. Patients and family members may need reassurance. (CLB 7-8)
- Familiarize other healthcare professionals (e.g., residents, post-doctoral students) with lab work. Sessions may last several hours, during which time MLTs describe how the lab works, their tasks, observations and interpretations and answer questions. (CLB 8-9)

## Reading

Interviewees described 13 reading tasks which they perceived as either related to occupational changes or absent in the 2007 language tasks they reviewed. Each task is listed below, with a note to indicate whether it is addressed in the 2007 report.

Reading tasks identified in current study	In 2007 report
1. Read group chat messages from team members and other coworkers (e.g., sample collection) to organize and coordinate workflow.	Yes
2. Read test requisition forms that accompany samples, e.g., to identify tests required, source of specimen and reason for testing.	Yes
3. Follow a work card to identify the tasks completed by the previous technician.	Yes
4. Read patient files in laboratory information systems including patient identifier details, medications, histories, reports, previous diagnoses and clinician notes, e.g., to prepare for testing and to verify the validity of test results.	Yes
5. Read emails, memos and communication logs, e.g., to learn about changes to policies, procedures or regulations.	Yes
6. Refer to training materials (e.g., course materials, PowerPoint slide content) to deliver training.	No
7. Refer to equipment manuals, e.g., to learn how to use, solve technical problems and draft SOPs.	Yes
8. Read SOPs to stay up to date on procedures. SOPs contain technical descriptions, point-form instructions, flowcharts and forms, and can be between two and 50 pages. They are reviewed when received and/or annually.	Yes
9. Refer to SOPs to carry out complex testing procedures and when infrequent or unfamiliar tests are performed.	Yes
10. Refer to reference materials such as textbooks and reputable websites, e.g., to interpret test results.	Yes
11. Review drafts of new documents (e.g., policies, forms, SOPs) to provide input.	No
12. Read articles to stay current.	Yes
13. Read ministerial or departmental directives with objectives and detailed instructions to learn about initiatives (e.g., 40- to 50-page covid testing directives). <sup>4</sup>	No

<sup>4</sup> Task appears to be unique to MLTs working for the Canadian Armed Forces.

Our analysis reveals that ten of the 13 tasks were observed and documented in the 2007 benchmarking report; as such, they are accounted for in the reading benchmark (CLB 8).

Three of the 13 reading tasks were not identified in 2007. They are listed here with CLB ratings:

- Refer to training materials (e.g., course materials, PowerPoint slide content) to deliver training. (CLB 8)
- Review drafts of new documents (e.g., policies, forms, SOPs) to provide input. (CLB 8-9)
- Read ministerial or departmental directives with objectives and detailed instructions to learn about initiatives (e.g., 40- to 50-page covid testing directives) (CLB 9)

## Writing

Interviewees described the following seven writing tasks which they perceived as either related to occupational changes or absent in the 2007 language tasks they reviewed.

Writing tasks identified in current study	In 2007 report
1. Write information on labels.	Yes
2. Make entries in logs and forms, e.g., to document problems with testing, quality control findings, requests for other tests; to indicate they have carried out a regularly scheduled review of SOPs.	Yes
3. Write notes and messages, e.g., to remember or pass on information or instructions to co-workers and supervisors; to organize and coordinate workflow.	Yes
4. Enter data into the laboratory information system, including test results, quality control observations and who results were shared with. Data is entered using drop-down menus and hot keys and may also include brief narrative descriptions.	Yes
5. Record results manually, e.g., on card system or in Word or Excel, including patient details, diagnosis, explanation of results e.g., level of abnormality.	Yes
6. Write email messages, e.g., to share information, provide instructions, make requests (e.g., to IT) and ask for second opinions on diagnoses.	Yes
7. Revise or draft SOPs to reflect current techniques, processes and requirements.	Yes

In analyzing the language tasks, we found that all seven tasks were in fact observed and documented in the 2007 benchmarking report; as such, they are accounted for in the writing benchmark (CLB 7).

## Findings

Our analysis of focus group data reveals some changes to the occupation since the original benchmarking study was carried out in 2007. We explored these changes first to identify associated language tasks, then to establish whether those tasks are documented in the 2007 benchmarking study. Where differences arose between language tasks identified in this research and in the 2007 study, they were further analyzed to determine whether the differences suggest that language demands for the occupation have changed.

We found that while there have been changes due to technology and other forces, these changes have not resulted in substantial changes to the communicative demands of the occupation. Most language tasks revealed through this research were documented in the 2007 benchmarking report. As such, they are accounted for in the benchmarks established at that time. The small number of additional language tasks that were identified in three of four skill domains do not provide evidence that occupational language demands have changed since 2007.

The following is a summary of findings by language skill:

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### **Listening** Listening demands have not changed

Six of seven tasks (84%) identified through this study were observed and documented in the 2007 report. The one task that was not documented in the 2007 report is rated slightly below the 2007 benchmark.

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### **Speaking** Speaking demands have not changed

Eleven of 14 tasks (79%) were observed and documented in the 2007 report. Of the three additional tasks identified through this research, only one requires abilities slightly above the 2007 benchmark. This task does not appear to be performed widely, as it was reported by just four of 18 interviewees.

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### **Reading** Reading demands have not changed

Ten of 13 tasks (77%) were observed and documented in the 2007 report. Of the three additional tasks identified through this research, two require abilities slightly above the 2007 benchmark. Neither of these tasks appears to be performed widely; one was reported by three of 18 interviewees and the second appears to be unique to one employment context.

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### **Writing** Writing demands have not changed

All seven tasks (100%) identified through this study were observed and documented in the 2007 report.

## Appendix A: Focus Group Interview Guide

Before conducting the interview, the researchers will:

- Thank participants for setting time aside to be interviewed.
- Introduce themselves, their role and the research. The research aims to determine whether and how the language demands for MLTs have changed since the language benchmarks for the occupation were set in 2007.
- Ask participants to introduce themselves.
- Explain that the purpose of the interview is to gather information to understand how the occupation of medical laboratory technologists has changed since the research was conducted. The information will be used alongside data collected directly from MLTs.
- Explain that the interview is confidential and that only project team members will know what each participant has said. The interview is being recorded to verify any details as required for data analysis. Neither the recording nor any notes will be shared beyond the project team.
- Tell participants that the interview is expected to take approximately two hours and includes 11 questions in total.
- Offer to answer participants' questions.

We will begin by asking questions about likely sources of change in the occupation.

1. a) Please describe any **technological advances** in the last 10-15 years in the field of medical laboratory technology.

Probes:

Differences across areas of specialization, employment contexts

- b) Describe the ways in which these advances have changed the way MLTs carry out their work.

Probes:

Differences across areas of specialization, employment contexts

Changes to what MLTs read and write

Changes to how MLTs communicate with each other

2. a) Please describe any **regulatory changes** in the last 10-15 years in the field of medical laboratory technology.  
Probes:  
Differences across provinces / territories  
Differences across areas of specialization, employment contexts
- b) Describe the ways in which these changes have affected the way MLTs carry out their work.  
Probes:  
Differences across provinces / territories  
Differences across areas of specialization, employment contexts  
Changes to what MLTs read and write  
Changes to how MLTs communicate with each other
3. a) Please describe any changes to **health care priorities** in the last 10-15 years that have affected the field of medical laboratory technology.  
Probes:  
Differences across provinces / territories  
Differences across areas of specialization, employment contexts
- b) Describe the ways in which these changes have affected the way MLTs carry out their work.  
Probes:  
Differences across provinces / territories  
Differences across areas of specialization, employment contexts  
Changes to what MLTs read and write  
Changes to how MLTs communicate with each other
4. a) Please describe any changes to laboratory technologists' **employment settings** in the last 10-15 years.  
Probes:  
Employer size, mergers, privatization  
New or different job duties (e.g., direct patient testing)
- b) Describe the ways in which these changes have affected the way MLTs carry out their work.  
Probes:  
Changes to what MLTs read and write  
Changes to how MLTs communicate with each other

5. We've talked about changes in technology, regulation, health care and employment settings. Are there any other changes that have affected the way MLTs carry out their work?

Probes:

Nature of change

Differences across provinces / territories

Differences across areas of specialization, employment contexts

How the change has affected the way MLTs carry out their work

Changes to what MLTs read and write

Changes to how MLTs communicate with each other

6. Having identified all these changes, what do you think has had the most significant effect on the language required to work in your field? Why?

7. Is there anything else related to changes in the occupation, or in the way MLTs do their job that you'd like to mention?

## Appendix B: Survey

### I. Introduction

The Canadian Alliance of Medical Laboratory Professionals Regulators (CAMLPR) is undertaking a review of occupational language benchmarks, given they were established more than ten years ago. The research is being carried out by the Centre for Canadian Language Benchmarks (CCLB), the national standard setting body for the Canadian Language Benchmarks (CLB) and *Niveaux de compétence linguistique canadiens* (NCLC). The project is overseen by an advisory committee that includes representatives from medical laboratory professionals working in different environments and from across Canada.

This survey has been prepared to gather preliminary information about a selection of language tasks performed by medical laboratory technologists. We expect it will take approximately 15 minutes to complete. Please complete the survey only once. Survey findings will be explored in more detail through one-to-one interviews with medical laboratory technologists from across Canada.

#### Participation

Your participation in this survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty.

#### Confidentiality

Survey responses will be viewed by CCLB project team members. Your responses will remain anonymous. No one will be able to identify you or your answers, and no one will know whether you participated in the survey.

#### Contact

If you have questions, you may contact **CAMLPR** by email at [mltgateway@camlpr.org](mailto:mltgateway@camlpr.org).

1. Do you agree to participate in the survey according to the terms set out above? \*  
 Yes  
 No [skip to 'Thank you' page of survey]

### II. Demographics

Please answer the following questions about your current job as a medical laboratory technologist.

2. What is your current job title? \* [open-ended response]
3. Do you hold Canadian Society of Medical Laboratory Science (CSMLS) Medical Laboratory Technologist certification? \*  
 Yes  
 No [skip to 'Thank you' page of survey]

4. How do you spend most of your time in your current position? \*
  - I conduct medical laboratory tests, experiments and/or analyses
  - I conduct quality control assessments
  - I supervise or manage others [skip to 'Thank you' page of survey]
  - I deliver training [skip to 'Thank you' page of survey]
  - Other, please specify: \_\_\_\_\_
  
5. How long have you worked in your current position? \*
  - Less than 1 year [skip to 'Thank you' page of survey]
  - 1 - 5 years
  - 6 - 10 years
  - 11 or more years
  
6. Which department(s) do you work in most of the time? \*
  - Chemistry
  - Core Lab
  - Cytology
  - Hematology
  - Immunology
  - Microbiology
  - Molecular/Cytogenetics
  - Pathology/Histology
  - Phlebotomy
  - Point of Care Testing
  - Quality Assurance
  - Specimen Receiving
  - Transfusion Medicine
  - Other
  
7. Where do you work? \*
  - Alberta
  - British Columbia
  - Manitoba
  - Northwest Territories
  - Nunavut
  - New Brunswick
  - Newfoundland and Labrador
  - Nova Scotia
  - Ontario
  - Prince Edward Island
  - Quebec
  - Saskatchewan
  - Yukon
  - Outside Canada [skip to 'Thank you' page of survey]

8. Who do you work for? \*
- Publicly funded institution (hospital, university, health clinic)
  - Provincial, territorial or federal government
  - Private for-profit company
  - Other, please specify: \_\_\_\_\_
9. Which language do you use most often at work? \*
- English
  - French [skip to 'Thank you' page of survey]
  - Both English and French equally
  - Other, please specify: \_\_\_\_\_ [skip to 'Thank you' page of survey]
10. What is your gender? [can be left blank]
- Male [skip to Q12]
  - Female [skip to Q12]
  - Non-binary [skip to Q12]
  - Prefer to self-describe
11. Please describe. [open-ended response]
12. Are you an Internationally Educated Medical Laboratory Technologist (i.e., you received your original education as an MLT outside Canada)? \*
- Yes
  - No

### III. Language Tasks Part 1 \*

13. Listed below is a selection of language tasks performed by some medical laboratory technologists. Please review each language task. Indicate whether you consider each task a **necessary** part of your job.

Language Tasks	Yes, this is a necessary part of my job.	No, this is not a necessary part of my job.	Not sure
Carry out lab tests that require coordination and information sharing with others in the lab	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Read information in a laboratory information system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enter information in a laboratory information system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orient new hires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Language Tasks	Yes, this is a necessary part of my job.	No, this is not a necessary part of my job.	Not sure
Train or instruct lab employees (e.g., on new procedures, steps in a test, tasks at a bench)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Train or instruct other healthcare professionals (e.g., nurses who may be collecting specimens or doing point-of-care testing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help other healthcare professionals troubleshoot error messages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contact IT for assistance with equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speak to equipment and/or supply vendors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conduct Rapid On-Site Evaluations (e.g., during surgery or at patient's bedside)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offer suggestions or recommendations to doctors about which tests should be ordered	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Share critical results with other healthcare professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participate in multidisciplinary team meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Read Standard Operating Procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Receive calls from healthcare providers asking about results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Do you have any additional comments? [open-ended response; can be left blank]

---

#### IV. Language Tasks Part 2

15. Please review each language task again. Indicate **how often** you perform each task. You can skip the tasks you are not sure about.

Language Tasks	Never	Rarely	Sometimes	Frequently
Carry out lab tests that require coordination and information sharing with others in the lab	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Read information in a laboratory information system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Language Tasks	Never	Rarely	Sometimes	Frequently
Enter information in a laboratory information system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orient new hires	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Train or instruct lab employees (e.g., on new procedures, steps in a test, tasks at a bench)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Train or instruct other healthcare professionals (e.g., nurses who may be collecting specimens or doing point-of-care testing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Help other healthcare professionals troubleshoot error messages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contact IT for assistance with equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speak to equipment and/or supply vendors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conduct Rapid On-Site Evaluations (e.g., during surgery or at patient's bedside)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Offer suggestions or recommendations to doctors about which tests should be ordered	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Share critical results with other healthcare professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participate in multidisciplinary team meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Read Standard Operating Procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Receive calls from healthcare providers asking about results	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Do you have any additional comments? [open-ended response; can be left blank]

---

### ***V. Thank you***

Thank you for your interest in the research.

If you have questions, you may contact **CAMLPR** by email at [mltgateway@camlpr.org](mailto:mltgateway@camlpr.org).

## Appendix C: Characteristics of Eligible Survey Respondents

Characteristic	Response Options	Number (n =275)	Percent of respondents
Primary occupational focus	Conduct medical laboratory tests, experiments and/or analyses	236	86%
	Conduct quality control assessments	5	2%
	Other	34	12%
Time in current position	1 - 5 years	92	33%
	6 - 10 years	54	20%
	11 or more years	129	47%
Department(s) they work in most of the time <sup>5</sup>	Chemistry	79	29%
	Core Lab	89	32%
	Cytology	6	2%
	Hematology	88	32%
	Immunology	14	5%
	Microbiology	44	16%
	Molecular/Cytogenetics	17	6%
	Pathology/Histology	21	8%
	Phlebotomy	43	16%
	Point of Care Testing	16	6%
	Quality Assurance	18	7%
	Specimen Receiving	31	11%
	Transfusion Medicine	79	29%
	Other	17	6%
Province / territory	Alberta	19	7%
	British Columbia	24	9%
	Manitoba	111	40%
	Northwest Territories	0	0%
	Nunavut	0	0%
	New Brunswick	3	1%
	Newfoundland and Labrador	18	7%
	Nova Scotia	39	14%

<sup>5</sup> Respondents could choose more than one department

Characteristic	Response Options	Number (n =275)	Percent of respondents
	Ontario	2	1%
	Prince Edward Island	17	6%
	Quebec	0	0%
	Saskatchewan	42	15%
	Yukon	0	0%
Employer type	Publicly funded institution (hospital, university, health clinic)	170	62%
	Provincial, territorial or federal government	78	28%
	Private for-profit company	20	7%
	Other	7	3%
Gender	Male	44	16%
	Female	228	83%
	Non-binary	1	0%
	Prefer to self-describe	2	1%
Internationally educated	Yes	33	12%
	No	242	88%

## Appendix D: Letter of Consent



Centre for  
Canadian Language  
Benchmarks

Centre des niveaux de  
compétence linguistique  
canadiens

294, Albert Street, Suite 400  
Ottawa, ON K1P 6E6  
Tel. 613-230-7729  
Fax 613-230-9305

[info@language.ca](mailto:info@language.ca) | [www.language.ca](http://www.language.ca)

Dear Participant:

You have been invited to participate in a project being conducted by the Canadian Alliance of Medical Laboratory Professionals Regulators (CAMLPR) to validate the language skills needed for medical laboratory technologists to practise in Canada. The research is being conducted by the Centre for Canadian Language Benchmarks on behalf of CAMLPR.

This project builds on research carried out in 2007 to establish language benchmarks for the occupation. Occupational language benchmarks represent the minimum English and French language requirements for the job. The language benchmarks are used to inform policies on who is permitted to work as a licensed medical laboratory technologist. CAMLPR wants to determine whether the language benchmarks established in 2007 still reflect occupational requirements.

Your participation will involve two related activities:

- Review language tasks from the original research to identify tasks you perform. The review will take approximately 60 minutes.
- Participate in a one-on-one interview to share information about how you use reading, writing, listening and speaking skills at work. One of the project's language consultants (Marisa Mazulla, Karen Geraci, Anne Senior, or Peyman Mirmiran) will lead the interview via video conferencing and take notes of your responses. The interview will be recorded for the interviewer's reference. It is expected to take approximately 90 minutes.

All information gathered as part of the project will be confidential. Only the researchers will see your responses and have access to the recordings from the interviews. Your name will not be used in any presentations or publications of the study results. You may withdraw from participating in the study at any time.

If you have any questions or concerns about this project or your participation in it, please contact Paula Steeves, Project Manager, Gateway Canada for International Medical Laboratory Technologists, at 778-653-6584 or by email at [mltgateway@camlpr.org](mailto:mltgateway@camlpr.org).

### CONSENT

I have read and understood the objectives of the study and I agree to participate. I am aware that my participation is voluntary and that I may withdraw at any time, without fear of penalty. I give my consent for my responses be used in reports and publications that do not identify me or my workplace.

Print name

Signature

Date

## Appendix E: Language Tasks Tool

### *I. Introduction*

Thank you for agreeing to be interviewed as part of the CAMLPR Research Study. This research aims to determine whether and how the language demands for MLTs have changed since the language benchmarks for the occupation were set in 2007.

Please respond to the questions that follow at least 24 hours before your scheduled interview.

The first question asks for your name so that the interviewer can refer to your responses during the interview. Responses will only be viewed by CCLB project team members. Your name will not be used in any presentations or publications of the study results.

For more information about the study and your role, please refer to the letter of consent. If you have questions, you may contact CAMLPR by email at [mltgateway@camlpr.org](mailto:mltgateway@camlpr.org).

---

### *II. Demographics*

Please answer the following questions about your current job as a medical laboratory technologist.

1. What is your name? \*
  2. Do you hold Canadian Society of Medical Laboratory Science (CSMLS) Medical Laboratory Technologist certification? \*  
Yes  
No [skip to 'Thank you' page of survey]
  3. What is your gender? [can be left blank]  
Male [skip to Q5]  
Female [skip to Q5]  
Non-binary [skip to Q5]  
Prefer to self-describe
  4. Please describe. [open-ended response]
  5. Are you an Internationally Educated Medical Laboratory Technologist (i.e., you received your original education as an MLT outside Canada)? \*  
Yes  
No
-

### III. Language Tasks

The following language tasks were observed during the benchmarking study carried out in 2007. The tasks listed are either at or above the entry-to-practice benchmark set for the occupation at that time.

Prior to your scheduled interview, please review each task and indicate:

1. Whether you consider the task a necessary part of your job
2. Whether you perform the task regularly

Reading	CLB	1. Necessary for my job	2. Performed regularly
1. Read memos regarding changes to workplace procedures	7-8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Scan lists, menus, tables of contents for information required	7-8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Skim and scan labels to organize sequence of testing or to find specimens	7-8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Refer to procedures in online and print manuals, e.g., health & safety, equipment	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Read multiple forms (formatted text)	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Read technical bulletins about equipment, supplies	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Refer to textbooks to find information	8-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Read topical articles provided by management to keep up with changes in professional field	8-10	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Writing	CLB	1. Necessary for my job	2. Performed regularly
1. Complete incidence or occurrence forms or reports to document quality control issues, such as mislabeled or misreported specimens	7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Write notes to explain quality control failures	7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Write explanations of test interpretations	7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Make notes to colleagues on incoming shifts about results printouts or priority items	7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Select stock phrases from drop-down menus to explain results or add information	7	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Communicate with the next shift through post-it notes, print outs and email messages	6-8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Take minutes during meetings	9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Update operating manuals	10	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

<b>Listening</b>	<b>CLB</b>	<b>1. Necessary for my job</b>	<b>2. Performed regularly</b>
1. Understand small talk comments (in order to be able to respond)	6-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Understand and respond to questions regarding work procedures	7-8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Receive instructions from IT department over the telephone	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Respond to telephone inquiries about results	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Understand non-routine descriptions	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Understand instructions related to technical tasks	7-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Take multi-step telephone messages	8-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Understand suggestions and recommendations	8-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Understand instructions from supervisors about non-routine procedures	8-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Identify tone and intent in urgent requests, criticisms, recommendations	9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

<b>Speaking</b>	<b>CLB</b>	<b>1. Necessary for my job</b>	<b>2. Performed regularly</b>
1. Joke	6-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Engage in small talk	6-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Respond to requests for information from colleagues, other health professionals (nurses, doctors)	7-8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Tell colleagues about changes in procedures, equipment failures (one-on-one)	7-8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Participate in staff meetings	7-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Verify procedures with co-workers, supervisors	7-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Answer the telephone in a professional manner	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Brainstorm solutions	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Call in inpatient/outpatient blood test results	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Call IT to request help	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
11. Call the floor to request additional information or specimens	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
12. Compare and analyze results	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
13. Coordinate work responsibilities at coffee and lunch breaks to maintain continuity	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
14. Describe and explain results	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Speaking	CLB	1. Necessary for my job	2. Performed regularly
15. Describe observations	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
16. Question the validity of results	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. Give multi-step instructions (one-on-one)	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
18. Respond to requests from nurses, doctors for add-ons	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. Hypothesize regarding the nature of results and possible causes of errors	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
20. Identify an issue that requires attention	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
21. Problem-solve (routine, one-on-one)	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
22. Report problems with equipment	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
23. Thank staff at meetings	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
24. Train on routine, multi-step, moderately complex procedures	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
25. Transfer telephone calls	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
26. Troubleshoot equipment failures	8	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
27. Report critical results: Inform charge nurses or physicians about positive test results requiring immediate action	8-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
28. Request that specimens be submitted with proper forms (other health professionals)	8-9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
29. Give complex instructions to small groups	9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
30. Negotiate	9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
31. Problem-solve at staff meetings	9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
32. Report on status of work to supervisors (performance appraisal; team leader update)	9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
33. Train on complex procedures	9	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

\*Note: CLB levels provide reference for the researchers. They were not included in the participant survey.

## VII. Thank you

Thank you for your interest in the research.

If you have questions, you may contact CAMLPR by email at [mltgateway@camlpr.org](mailto:mltgateway@camlpr.org).

## Appendix F: Interview Guide

Before conducting the interview, the researcher will:

- Thank the participant for setting time aside to be interviewed.
- Introduce herself, her role and the research. The research aims to determine whether and how the language demands for MLTs have changed since the language benchmarks for the occupation were set in 2007.
- Explain that the purpose of the interview is to gather information to understand how the participant uses reading, writing, listening and speaking skills in their current position. The information will be used alongside data collected from regulators and from a national survey.
- Tell participant that the interview is expected to take 90 minutes and includes 19 questions in total.
- Explain that the interview is confidential and that only project team members will know what the participant has said. The interview will be recorded for the purpose of filling in any gaps in notes. Neither the recording nor any notes will be shared beyond the project team.
- Offer to answer participant's questions.

[Begin recording]

### Part 1

I'd like to begin by learning a little about where you work and your primary responsibilities.

1. Can you tell me about your lab?

Probes:

Work setting (e.g., hospital, blood bank, community and private clinic, research facility, post-secondary educational institution)

Number of co-workers

Roles of co-workers

2. Can you give me an overview of what you do?

Probes:

Types of lab tests performed

Area of specialization

## Part 2

Now I'm going to ask you about specific tasks that are carried out by some MLTs. In each case, I'll ask whether you carry out the task as part of your current job. If you do, I'll ask you to describe what is involved so I can understand the language demands.

3. Do you carry out lab tests that require coordinating and sharing information with others in the lab (e.g., molecular technique)?

No - Go to next question

Yes - Could you describe a lab test where more than one MLT is involved?

Probes:

What information is shared?

How is information shared (e.g., in person, by phone, in writing, online)?

4. Does your lab use a laboratory information system?

No - Go to next question

Yes - Can you describe how you use it?

Probes:

What information do you refer to?

What information do you enter into it?

5. Are you involved in teaching **other lab employees** (e.g., orienting new hires, training or instructing lab employees)?

No - Go to next question

Yes - Can you describe what is involved in teaching?

Probes:

Carried out in person, by phone, in writing, or online?

6. Are you involved in teaching **other healthcare professionals** (e.g., those who may be collecting specimens or doing point-of-care testing)?

No - Go to next question

Yes - Can you describe what is involved in teaching?

Probes:

Carried out in person, by phone, in writing, or online?

7. Do you interact with IT personnel?

No - Go to next question

Yes - Can you describe the purpose and nature of these interactions?

Probes:

Carried out in person, by phone, in writing, or online?

8. Do you interact with members of the public or patients?

No - Go to next question

Yes - Can you describe the purpose and nature of these interactions?

Probes:

Carried out in person, by phone, in writing, or online?

9. Do you interact with equipment and/or supply vendors?  
No - Go to next question  
Yes - Can you describe the purpose and nature of these interactions?  
Probes:  
Carried out in person, by phone, in writing, or online?
10. Do you interact with healthcare providers to help them collect specimens, conduct tests outside the lab or troubleshoot error messages?  
No - Go to next question  
Yes - Can you describe the purpose and nature of these interactions?  
Probes:  
Who is involved?  
Carried out in person, by phone, in writing, or online?
11. Do you interact with healthcare providers about the selection of appropriate tests?  
No - Go to next question  
Yes - Can you describe the purpose and nature of these interactions?  
Probes:  
Who is involved?  
Recommend, advise, describe options?  
Carried out in person, by phone, in writing, or online?
12. Do you interact with healthcare providers about test results?  
No - Go to next question  
Yes - Can you describe the purpose and nature of these interactions?  
Probes:  
Who is involved?  
What is discussed?  
Risks/stakes associated with miscommunication?  
Carried out in person, by phone, in writing, or online?
13. Do you carry out Rapid On-Site Evaluations (e.g., during surgery or at a patient's bedside)?  
No - Go to next question  
Yes - Can you describe what is involved?
14. Do you participate in multidisciplinary project teams as part of your job as an MLT?  
No - Go to next question  
Yes - Please describe what is involved.  
Probes:  
Nature of interactions?  
Team size & composition?  
Carried out in person, by phone, in writing, or online?
15. Do you read or refer to Standard Operating Procedures?  
No - Go to next question  
Yes - Please describe when and why you read or refer to them.

### Part 3

[Bring up interviewee's questionnaire responses on screen to refer to in this part of interview.]

In this last part of the interview, I'd like to turn your attention to the language tasks that were included in the online questionnaire you completed. Thanks for reviewing the list and responding to the questions. The lists include language tasks that were observed during the benchmarking study carried out in 2007. The language tasks listed are either at or above the entry-to-practice benchmarks set for the occupation.

16. Let's start with **reading**.

To begin, do you have any questions or comments about the **reading** tasks in the list?

Is there anything else you need to **read** that you think might be as or more complex than these tasks that you haven't already told me about?

17. Now let's talk about **writing**.

Do you have any questions or comments about the **writing** tasks in the list?

Is there anything else you need to **write** that you think might be as or more complex than these tasks that you haven't already told me about?

18. Now let's talk about **oral communication**.

Do you have any questions or comments about the **speaking** and **listening** tasks in the list?

Can you tell me about other **oral communication** demands you haven't already told me about that you think might be as or more complex than these tasks?

19. Is there anything else related to the way you use your language skills in your current job that you'd like to mention?

[Thank the participant and end the interview and recording.]