



**Investigation of Language Assessment Tools
and Benchmarks Necessary for Success for
Internationally Educated Medical Laboratory Technologists**

**Final Report
July 2008**



CSMLS



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EXECUTIVE SUMMARY

This project was developed in order to investigate and validate the standards of the Canadian Society for Medical Laboratory Science (CSMLS) for language proficiency of internationally educated medical laboratory technologists (IEMLTs) who apply to the CSMLS prior learning assessment (PLA) process. The project was funded by the Government of Ontario and took place from January 2007 to June 2008.

The intent of the project was to evaluate the level of language proficiency required to succeed in the medical laboratory workplace and at the various stages of the CSMLS certification process. The ultimate goal was to identify means of expediting IEMLT progress through the PLA process and ultimately into the workplace. The major activities carried out in this project were:

1. Benchmarking the language proficiency demands of the CSMLS certification examination
2. Benchmarking the communicative demands of medical laboratory practice
3. Mapping English language proficiency tests
4. Benchmarking the credentialing continuum for IEMLTs
5. Data gathering on PLA files opened in 2004, 2005, 2006 to track PLA candidate progress
6. Deliberation on and implementation of PLA policy and process changes where suggested by project findings.

The work on the first four activities by the consulting firm engaged for this project resulted in the following outcomes:

- recommended broadening the tests accepted by CSMLS to include IELTS and CanTest;
- validated the current language proficiency standard for the CSMLS examination, which maps to a CLB level 8;
- offered a framework for differentiating types of communication skills and levels of proficiency needed (speaking, reading, writing, listening);
- provided guidelines for the nature and timing of language proficiency testing for IEMLTs;
- revealed the role of high-stakes situations in intensifying the need for communication skills not measured by standard language proficiency testing;
- pointed to the need for greater attention to profession-specific language training in preparation for credentialing examinations and the workplace;
- suggested that academically-oriented language proficiency tests fall short in assessing/predicting profession-specific language skills;
- advocated consideration of profession-specific language proficiency testing;
- supported earlier studies about the value of professional bridging programs and clinical experience as preparation for entry into the workplace; and
- pointed out the need to consider the natural acquisition of language over time, i.e., during bridging programs or refresher training as part of the PLA continuum.

Significant outcomes of this project were the validation of the CSMLS standards for language proficiency for IEMLT success in the certification examination and the benchmarking of language proficiency needs for the workplace and for the various stages of the PLA and certification process. The language proficiency test 'mapping' table makes a contribution to the

language proficiency testing literature. The file audit activities permitted collection of tracking data on PLA candidates and their progress through the PLA process.

The findings of this project suggested that the CSMLS PLA policy could benefit from some changes to enhance its accessibility and fairness. Two policy changes were recommended by the CSMLS Council on National Certification (the governance body that oversees all certification processes and policy) and subsequently approved by the CSMLS Board of Directors:

1. Effective January 1, 2008, the CSMLS initiated a pilot phase for a new policy in which IELTS and CanTest are accepted as proof of language proficiency. This is expected to become permanent policy on January 1, 2009.
2. Effective July 1, 2008, the CSMLS has adopted a 'two-stage' language proficiency process, accepting language proficiency scores mapping to CLB 6 for entry into the PLA process, but maintaining the CLB 8 requirement to proceed to the certification examination.

The CSMLS has communicated the policy changes to all stakeholders and has embarked upon a broad dissemination strategy in various venues, including communication with IEMLTs and stakeholders in the medical laboratory profession, and also involving publications, presentations at professional conferences and meetings of organizations with interests in professional credentialing and health human resources.

Conducting this project has offered the CSMLS the following insights and benefits:

- an evidence base and validation for its language proficiency cut scores and PLA processes;
- an opportunity to explore and model responsive, accountable and equitable practices in PLA and professional credentialing;
- a heightened awareness of the issues of IEMLTs, including greater familiarity with the literature and background information on credentialing and language proficiency testing;
- an opportunity to network and share resources among regulators, other health professions, and stakeholders in the credentialing and employment of internationally educated health professionals;
- a confirmation of the importance of appropriate and validated language proficiency requirements utilized by professions and credentialing agencies;
- anecdotal confirmation of the presence of inequitable obstacles for IEMLTs that are *not* related to language proficiency and which merit further investigation, acknowledgement and remedy;
- an appreciation of the challenges of tracking PLA applicants through the process.

This project has permitted the CSMLS to enhance the accountability and accessibility of its prior learning assessment and credentialing processes through evidence-informed policies and practices. In turn, this is expected to expedite the transition of IEMLTs through professional certification and into the workplace. The project has facilitated a valid, fair and evidence-based standard for language proficiency as well as policy and process changes that are advantageous for IEMLTs. In addition, it has provided the foundation for further research and support strategies for internationally educated health professionals.

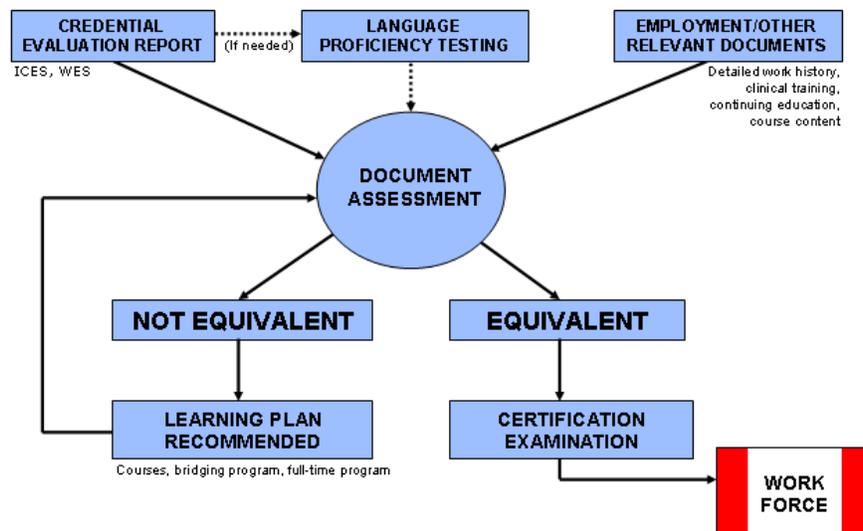
INTRODUCTION AND BACKGROUND

This report outlines the process and outcomes of a project conducted by the Canadian Society for Medical Laboratory Science (CSMLS) and funded by the Government of Ontario from January 2007 to June 2008.

To meet the reporting requirements of the Government of Ontario, this document addresses the following points: Project development and delivery; Evaluation; Achieving sustainability; Lessons learned; and Next steps. The report begins with a brief background description of the CSMLS's prior learning assessment (PLA) process.

The CSMLS is the national certification body for medical laboratory technologists and medical laboratory assistants in Canada. The CSMLS administers PLA for medical laboratory technologists educated outside of Canada in order to establish their eligibility for the national certification examination. The CSMLS currently assesses over 300 PLA candidates per year in order to expedite the integration of skilled internationally educated health professionals into the Canadian healthcare workforce. The CSMLS is one of only two Canadian health professions that offer a single access point for professional credentialing, and facilitates the highest uptake among the health professions of newcomers seeking credentials to practice in Canada.¹ Figure 1 illustrates the CSMLS PLA and credentialing pathway in effect prior to July 1 2008.

Figure 1: The CSMLS Prior Learning Assessment and Credentialing Pathway (prior to July 1 2008)



¹ Allen, M. K., Ceolin, R., Ouellette, S., Plante, J. & Vaillancourt, C. (2007). *Educating health workers: A statistical portrait, 81-595-MIE2007049*. Ottawa: Statistics Canada.

The CSMLS PLA process recently underwent a highly successful and positive external audit which resulted in a number of recommendations to improve the experience for PLA applicants.² The report identified language proficiency as a potential barrier. Internationally educated medical laboratory technologists (IEMLTs) encounter challenges in getting access to language proficiency tests and they are concerned about the high cost of English language instruction. The possibility that language tests include cultural bias was raised during the external audit.

Furthermore, even candidates who have successfully met the CSMLS's language proficiency requirements demonstrate poor pass rates on the national certification examinations and experience challenges in obtaining employment in the laboratory workplace. Employers report language and communication difficulties with the IEMLTs they hire. They consider language to be "one of the primary obstacles to hiring someone trained abroad"³ and comment on difficulties due to terminology, cultural differences and accent. However, IEMLT candidates do not appear to understand the barrier that communication skills may create for their workplace integration and successful practice. Even those who do not have to meet language proficiency requirements (because their language of instruction was English) may have difficulties with communication in the laboratory workplace. IEMLTs whose language of professional instruction was not English generally fare more poorly on CSMLS exams.

These and other observations prompted concerns about the validity and accessibility of the CSMLS PLA process. For example, there were suggestions that the CSMLS's cut-off points for IEMLTs' language proficiency were unfairly high, and higher than necessary for the examination and the workplace. This project facilitated a validation process to determine if this was the case and allowed for information gathering on other aspects of the CSMLS PLA and certification process for IEMLTs.

PROJECT DEVELOPMENT AND DELIVERY

The intent of the project was to evaluate the level of language proficiency required to succeed in the medical laboratory workplace and at the various stages of the certification process. The ultimate goal was to identify means of expediting IEMLT progress through the PLA process, into bridging programs (where indicated) and ultimately, into the workplace.

Accordingly, the major activities identified for this project were as follows:

1. Benchmarking the language proficiency demands of the CSMLS certification examination
2. Benchmarking the communicative demands of medical laboratory practice
3. Mapping English language proficiency tests
4. Benchmarking the credentialing continuum for IEMLTs
5. Data gathering on PLA files opened in 2004, 2005, 2006 to track PLA candidate progress
6. Deliberation on and implementation of PLA policy and process changes where suggested by project findings.

² Haley, B. & Simosko, S. (2006). *Prior learning assessment and internationally trained medical laboratory technologists*. Ottawa: Canadian Association for Prior Learning Assessment.

³ Haley, B. & Simosko, S. (2006), cited above, p. 3

Activities 1 through 4 were facilitated by the English as a second language (ESL) consultants engaged to work with the CSMLS, ardocs writers and consultants of Toronto. Activities 5 and 6 were conducted by CSMLS staff and governance bodies.

The processes and methods used for Activities 1 through 4 have been discussed in detail in language consultant's report, submitted previously⁴ and are outlined here, along with their findings.

Benchmarking the language proficiency demands of the CSMLS certification examination

To determine the language proficiency level required to successfully complete the CSMLS certification examination, the project's ESL specialists described and classified the characteristics of the test items and using as a reference the Canadian Language Benchmarks (CLB), Canada's national standard system for second language proficiency in educational, training, community and workplace settings.⁵ The Canadian Language Benchmarks describe language ability on a continuum of twelve benchmarks of language competency, organized by language skill: speaking, listening, reading, and writing. These benchmarks are used by professionals in the field of language training to assess language ability and to develop language-training curricula. As a nationally recognized standard of language proficiency levels understood by a wide range of stakeholders, the CLB offer a common point of reference as well as a reliable framework with which to analyze the four language skills.

The exam benchmarking methodology was guided by prior work in benchmarking language for specific professions^{6,7,8,9,10,11} and standard-setting methodologies^{12,13} First the overall characteristics of the CSMLS exam and each of the test items in the exam were described in terms of the CLB; then benchmark levels were assigned through a standard-setting process.

⁴ Strachan, A. (2007) English language proficiency and internationally educated medical laboratory technologists: An investigation of language benchmarks and assessment tools for IEMLT success. Toronto: Author.

⁵ Centre for Canadian Language Benchmarks. (2000). *The Canadian Language Benchmarks 2000: English as a second language for adults*, [online]. Ottawa: CCLH. Available: <http://www.language.ca/> [2008, February 21]

⁶ Epp, L. & Lewis, C. (2003). *The development of a nursing-specific language assessment tool – The Canadian English Language Benchmark Assessment for Nurses (CELBAN)*. Ottawa: Centre for Canadian Language Benchmarks.

⁷ Epp, L. & Lewis, C. (2004). *Developing an occupation-specific language assessment tool using the Canadian Language Benchmarks*. Ottawa: Centre for Canadian Language Benchmarks.

⁸ Mendelsohn, D. & Steward, G. (1999). Developing the midwives' language proficiency test: A field-specific performance test. *ESP Malaysia*, 6, 11-27.

⁹ Strachan, A. (2006). *Canadian Language Benchmarks required to successfully complete The College of Massage Therapists of Ontario's professional competency examinations: Final report*. Toronto ON: College of Massage Therapists of Ontario.

¹⁰ Strachan, A. & Russell, B. (2005). Developing CLB referenced assessments for internationally trained health professionals. *Contact*, 32(2).

¹¹ Watt, D. & Cervatiuc, A. (2007). *Benchmarking English language proficiency for the engineering profession: Final report*. Ottawa: Engineers Canada.

¹² Cizek, G. J. (Ed.). (2001). *Setting performance standards*. Mahwah NJ: Lawrence Erlbaum Associates.

¹³ O'Neill, R. R., Buckendahl, C. W., Plake, B. S. & Taylor, L. (2007). Recommending a nursing-specific passing standard for the IELTS examination. *Language Assessment Quarterly*, 4(4), 295-317.

A total of 680 multiple-choice exam items were analysed (this comprised two CSMLS exam versions, each containing 340 multiple-choice questions). To facilitate the analysis, a CLB-referenced typology was developed to describe the linguistic complexity of each question and to identify the cognitive demands of each question. Each multiple-choice question was analyzed at these two different levels: first it was identified and tagged in terms of ‘linguistic complexity’ (the grammatical structure of the questions and choices) and ‘lexical complexity’ (level of vocabulary). Then, each question was described in terms of ‘question type’, which identified the level of cognitive engagement required.

The ESL specialists conducted an initial standard-setting session in which they tagged and then reviewed 100 question items based on the established typologies. From this initial calibration session, they selected exemplars for each category (question type, structural complexity, and lexical complexity) which set the standard for the remaining 580 items. Each specialist then classified the remaining 580 exam items independently and entered the results in an MS Excel spreadsheet. Inter-rater discrepancies were compared and discussed.

The specialists proceeded on the assumption that the technical content knowledge and profession-specific terminology of the exam was not a barrier to test takers, based on the fact that at this point in the PLA process these individuals’ technical skills had been appraised as “equivalent” to Ontario standards. In recognition of the fact that a multiple-choice exam is a demonstration of knowledge but not a communicative task, the analysis was limited to CLB descriptors related to the ‘characteristics of the text’ and the ‘characteristics of the reader’¹⁴. The overall demands of the CSMLS exam were also considered against the performance and situations or conditions described in the CLB. Finally, the impact of variables such as time constraints, possibility of exam preparation, and level of stress were evaluated.

Findings

The results of the benchmarking analysis of the CSMLS exam indicated that the linguistic characteristics of the CSMLS exam include grammatical structures that are mostly moderately complex (68%), vocabulary that is mostly complex, technical and advanced (68%), and question types that are mostly procedural or analytic (62%) as well as factual recall (29%). An objective analysis of these characteristics against CLB descriptors for characteristics of reading texts and characteristics of readers at different benchmarks led the researchers to conclude that a candidate for whom English is a second language would need to be minimally competent at Reading CLB 8 in order to pass the examination. However, the formal, high-stakes context (leading to professional certification) and the stringent time constraints of the CSMLS certification examination indicates performance and situational conditions that are more in line with language use as described in Reading CLB 10, suggesting that success in the exam would require a broader range of competence in reading, from Reading CLB 8 to 10, and indicating the importance of familiarity with test content and test taking skills and strategies.

¹⁴ Stewart, G. & Nagy, P. (2006). *Companion tables to the Canadian Language Benchmarks 2000*, [online]. Ottawa: Centre for Canadian Language Benchmarks. Available: http://www.language.ca/display_page.asp?page_id=550 [2008, February 22].

Benchmarking the communicative demands of medical laboratory practice

In order to assess the language demands of the medical laboratory workplace, the ESL specialists conducted an analysis of the linguistic and communicative demands of medical laboratory practice using a direct, naturalistic observation method. The methodology for workplace observation, data collection, and data analysis was based on the literature on observation field research and discourse analysis.^{15,16,17,18} The benchmarking of professional communication has precedent in the work of Epp and Lewis,¹⁹ Mendelsohn and Stewart,²⁰ Strachan and Russell,²¹ and Watt and Cervatiuc.²²

An ESL specialist visited and observed medical laboratory practice in three laboratory settings that typified where medical laboratory technologists commonly work: a core laboratory in a large urban hospital, a mid-sized microbiology laboratory in a regional hospital in a mid-sized city, and a small town regional laboratory representing a rural setting. During the observation sessions, the specialist shadowed practising technologists throughout their workday and noted the communicative tasks in which they engaged, including the type of language being used and the performance conditions. A variety of communicative tasks were observed, including the routine work and training at different benches, staff meetings, progress report meetings, and interactions with other health care professionals and staff. The observation notes were then transcribed and categorized into speaking, listening, reading and writing tasks. The communicative situation, the nature of the communicative task, participants involved, expected outcomes, time constraints, etc. were also noted.

Six to ten hand-written pages of notes were collected at each site. Field notes were then organized into table format, classified by language skill, and sorted. Each communicative task was characterized in terms of the CLB. A total of 415 communicative tasks were collected, categorized, and analyzed. This resulted in a list of authentic communicative tasks for each skill area – speaking, listening, reading, and writing – that typify the communicative demands of the workplace. An analysis of these tasks against the CLB descriptors made connections between the workplace demands and language ability. Notes on the specific language skills used, the purpose of the task, the nature of the task (routine, frequent, rare), who is involved (colleagues, supervisor, other health professionals) and the stress level of the situation (i.e., STAT ‘urgent’ tests) all contributed to the understanding of the level of language proficiency required.

The ESL specialist observed particular aspects of the laboratory workplace that affected communicative tasks among medical laboratory technologists and commented on the noisy environment of the laboratory (fans, fume hood noise, equipment, conversations among

¹⁵ Blommaert, J. (2005). *Discourse*. Cambridge: Cambridge University Press.

¹⁶ Brown, G. & Yule, G. (1983). *Discourse analysis*. Cambridge: Cambridge University Press.

¹⁷ Davies, A. & Elder, C. (Eds.). (2004). *The handbook of applied linguistics*. Oxford UK: Blackwell Publishing Ltd.

¹⁸ Schiffrin, D., Tannen, D. & Hamilton, H. E. (Eds.) (2001). *Handbook of discourse analysis*. Oxford: Blackwell Publishing Ltd.

¹⁹ Epp & Lewis (2003) and (2004, cited previously).

²⁰ Mendelsohn & Stewart (1999), cited previously.

²¹ Strachan & Russell (2005), cited previously.

²² Watt & Cervatiuc (2007), cited previously.

technologists across laboratory benches, and the almost constant ringing of phones). The specialist pointed out that background noise is a significant factor for ESL adults. It can interfere with listening and requires familiarity with the situation and inference to get a message that is partly impeded by noise.

She also noted the importance of continuity and the role that clear communication plays in ensuring timeliness and accuracy in conveying information, where appropriate terminology and interpersonal skills are needed. A high level of computer literacy is required and typing skills are advantageous. Technologists work with many abbreviations, short forms, and jargon-related terms; and there are frequent interruptions of work by telephone calls. This environment necessitates a balance of attention to task and the ability to multitask and adapt communication style depending on the receiving individual. There is a marked need to pass on information clearly, accurately, and effectively to other technologists using reported speech, paraphrasing, explaining, and clarifying. Negotiation and teamwork are required to maintain continuity of work. The pace of work picks up during non-routine events such as equipment malfunction or staff absence.

Despite the stereotype of laboratory work as a solitary endeavour, there is much interaction in the laboratory workplace. Breaks or lunch are often done in groups; active participation in these groups can be a decisive factor in integrating into the team. Medical laboratory technologists must have the ability to put technical concepts into plain language for trainees or non-technical personnel. There is much figurative language used in describing patterns observed (for example, 'bull's eye'). When technologists train others in laboratory procedures, they must use polite, supportive indirect language. Communication in staff meetings is moderately complex, idiomatic, and filled with acronyms and short forms.

Medical laboratory work is driven by documentation. The need for accuracy in process and quality control requires that all procedures be clearly documented. Skimming and scanning documents are important skills, although reading step-by-step complex instructions for details is paramount. Technologists must be able to interpret visual information (charts, schedules, and directories) and to use forms accurately and expediently.

Findings

The work environment is fast-paced, the continuity of the work is critical, quality control is conducted unremittingly, and laboratory results must be relayed accurately and in a timely fashion. Communication must be exact and seamless. Speaking and listening together were required in combination in 46% of the observed tasks, while reading is the next most used language skill in laboratories (36% of observed tasks). Communicative tasks performed by medical laboratory technologists reflect a continuum of skill level from CLB 6 to CLB 10. Certain communicative tasks were tagged as 'critical' to indicate that these are essential for safe practice. The workplace benchmarking established a minimally competent entry level at CLB 8.

Mapping English language proficiency tests

The study's next phase began with an environmental scan of English language proficiency tests commonly used by health care academic programs and health professional regulatory bodies/certifying agencies across Canada. Scores on the tests identified through the scan were then mapped based on the common standards accepted by various institutions. The resulting corresponding scores were then considered in terms of the CSMLS standards, including the CLB analysis from the earlier phases of the project.

The ESL specialist included 26 post-secondary institutions and 14 regulated health professions in this scan. Post-secondary institutions were included because proof of language proficiency for entry-to-practice has traditionally relied on the English language requirements set by academic and training programs associated to the profession. Eleven language proficiency tests were identified.

Creating official equivalency or concordance charts for different language proficiency tests is not a defensible practice in the field of language testing. Differences in test administration, design, structure, constructs, rating scales, etc. impede the determination of concurrent validity between tests²³. However, there is precedent in the association of a framework of language proficiency such as the Canadian Language Benchmarks and the Common European Framework of Reference to language proficiency tests.^{24,25,26,27}

The methodology adopted for this project was taken from the approach recommended for this purpose by The Council of Europe,²⁸ in particular the first two steps: a) familiarization, and b) specification of examination content (content analysis). The third step, standardization of judgments, was replaced by the collection of standards identified through the environmental scan. The final step, the empirical validation through analysis of test data, was beyond the mandate and capacity of the project. The objective of the mapping activity in this research was not to create an equivalency chart, but rather to indicate in very broad terms the corresponding standards accepted by different institutions. The final "map" should be used with caution until validated empirically through standard-setting activities.

²³ Bachman, L. F. & Palmer, A. (2001). *Fundamental considerations in language testing*. Oxford: Oxford University Press.

²⁴ St. John, J. & Brisay, M. D. (2001). *Development and validation of CanTEST versions for Canadian Language Benchmarks: Report submitted to the Centre for Canadian Language Benchmarks*. Ottawa ON: Centre for Canadian Language Benchmarks.

²⁵ Tannenbaum, R. & Wylie, E. C. (2004). *Mapping test scores onto the Canadian Language Benchmarks. Setting standards of English language proficiency on the Test of English for International Communication (TOEIC), the Test of Spoken English (TSE), and the Test of Written English (TWE)*. Princeton NJ: Educational Testing Service.

²⁶ Tannenbaum, R. & Wylie, E. C. (2005). *Mapping English language tests scores onto the Common European Framework*. Princeton NJ: English Testing Services Research Reports.

²⁷ Watt, D. (2000). *A comparison study of the Canadian Language Benchmarks Assessment and the Test of English as a Foreign Language*. Edmonton AB: Alberta Learning, Language Training Programs.

²⁸ Tannenbaum & Wylie (2005), cited previously.

Following the environmental scan, the first step in mapping the various language proficiency tests began. This involved creating a descriptive table comparing the characteristics, purposes, rating systems and results of each test. Once the construct of each test was outlined and compared, and the tests deemed to have similarities that were sufficient for the mapping activity, scores approved for entry to several health professions and post secondary institutions were placed on a “map” (chart). A global map was then constructed which showed the average corresponding test scores. Two CLB-referenced, occupation-specific language tests were included in the analysis to provide the link to the CLB. CLB equivalencies to other tests were also referenced.^{29,30,31} The resulting correspondences were then evaluated in order to validate the CSMLS language proficiency requirements.

Findings

Table 1 illustrates the outcomes of this mapping process. The column corresponding to CLB 7+/8- was created by the language specialist to acknowledge that the CSMLS cut-off point for its TOEFL iBT test is 90, which falls between CLB categories 7 and 8. This modification is consistent with the understanding that language proficiency for CLB, against which the other tests were mapped, represents a continuum of language levels rather than discrete categories as implied by the use of cut-off points.

CLB	5	6	7	7+/8-	8	9	10
C-TOEFL	140-172	173-203	207-229	230-247	250-270	273-283	287+
TOEFL iBT	48-60	61-79	80-87	88-99	100-110	111-116	117+
IELTS	4.0	5-5.5	6-6.5	7.0	7.5	8 -8.5	9
MELAB	61-68	69-75	76-81	82-85	86-91	92-93	94+
CanTest	--	3.0	3.5 (S 4.0)		4.0	4.5	5
MELA	5	6	7	8	8	9	10
CELBAN	5	6	7	7+	8	9	10

Table 1: A mapping of English language proficiency tests commonly used by Canadian academic institutions and regulated health professions.

Note: CLB = Canadian Language Benchmarks
 C-TOEFL = Computer-based Test of English as a Foreign Language (discontinued; included here for comparison purposes)
 TOEFL iBT = Test of English as a Foreign Language (internet-based testing)
 IELTS = International English Language Testing System
 MELAB = Michigan English Language Assessment Battery
 CanTest = Canadian Test of English for Scholars and Trainees
 MELA = Michener Institute Language Assessment (CLB, profession specific)
 CELBAN = Canadian English Language Benchmark Assessment for Nurses

As noted earlier, this table is not a concordance or equivalency table, and it must be interpreted with caution. It should be considered a very tentative charting of test scores based on limited publicly available information. It has not been formally validated and should therefore not be considered an alignment or formal equivalency of these language proficiency tests. The chart may

²⁹ St. John & Brisay (2001), cited previously.

³⁰ Tannenbaum & Wylie (2004) and (2005), cited previously.

³¹ Watt (2000), cited previously.

serve as an informal reference resource for discussions among organizations of their differing standards and testing tools for language proficiency. It serves as a model for comparing language proficiency tests, which could be useful considering that mapping of the language proficiency tests demonstrated ‘grey areas’ and evidenced that institutions that accept more than one language proficiency test often make use of rather volatile, borrowed, or unvalidated equivalencies. The concordances suggested in this table remain to be validated through further research.

Benchmarking the credentialing continuum for IEMLTs

The final phase of this project consisted of an assessment of English language proficiency requirements at different steps along the credentialing pathway (for example, from entry into the CSMLS PLA process, participation in a professional bridging program, participation in the national certification examination, and entry into the workplace). This involved the identification of the steps involved in the pathway to CSMLS certification and identifying the language demands of different points along the certification pathway.

Findings

Table 2 illustrates the steps in the CSMLS certification pathway and the language proficiency level identified for each step.

STAGE	CLB REQUIRED
Initiate and complete the CSMLS PLA application process	5 to 12
Obtain credential evaluations and proof of language proficiency, if indicated	7+ to 8-
Complete a bridging program or full educational program, if indicated	6 to 8
Obtain clinical experience, if possible (not required)	8 (ideally)
Complete CSMLS certification examination	8 (minimum)
Employment	8 (minimum)

Table 2: Language proficiency levels required to complete the stages of prior learning assessment and credentialing in the medical laboratory profession

It is evident from this chart that the PLA pathway in use up to July 1 2008 (Figure 1) could present an obstacle for IEMLTs: since the current standard for entering the CSMLS PLA process is 7+/8, IEMLTs with language proficiency of CLB 5, 6 or 7 are not permitted to access the PLA assessment that may be able to direct them to appropriate upgrading measures. They cannot get assessment of their education/experience, cannot receive recommendations from the CSMLS for upgrading measures, and they are therefore unaware of the credentialing avenues that best serve their interests, including accessing bridging programs. The CSMLS standard of 7+/8- at the start of the PLA process serves as a barrier to accessing PLA and receiving relevant guidance from the CSMLS.

This pathway benchmarking process illustrates the significance of matching the timing and standards of the language testing to the credentialing stage. Criteria for entry into the PLA process that specify language proficiency standards benchmarked to workplace-level needs may

function as an unfair disadvantage. Accordingly, it may be appropriate and equitable to consider a lower language proficiency benchmark for initial entry into the PLA process, with an expectation of achievement of an acceptable level of occupational language performance as a prerequisite for the final challenge of the certification examinations and subsequent entry into the workforce.

Overall conclusions/recommendations emerging from Activities 1 to 4

As a result of the project Activities 1 to 4, the language consultant's report outlined the following observations and/or recommendations:

- recommended broadening the tests accepted by CSMLS to include IELTS and CanTest;
- validated the current language proficiency standard for the CSMLS examination, which maps to a CLB level 8;
- offered a framework for differentiating types of communication skills and levels of proficiency needed (speaking, reading, writing, listening)
- provided guidelines for the nature and timing of language proficiency testing for IEMLTs;
- revealed the role of high-stakes situations in intensifying the need for communication skills not measured by standard language proficiency testing;
- pointed to the need for greater attention to profession-specific language training for preparation for credentialing examinations and the workplace;
- suggested that academically-oriented language proficiency tests fall short in assessing/predicting profession-specific language skills and advocated consideration of profession-specific language proficiency testing;
- supported earlier studies about the value of professional bridging programs and clinical experience as preparation for entry into the workplace; and
- pointed out the need to consider the natural acquisition of language over time, i.e., during bridging programs or refresher training as part of the PLA continuum.

Data gathering on PLA files opened in 2004, 2005 and 2006

In order to begin to track the progress of PLA candidates through the PLA process, CSMLS staff collected an extensive data set for 511 applications received from IEMLTs in Ontario in the years 2004, 2005, and 2006. As discussed in "Lessons learned", below, this dataset has distinct limitations as a tracking mechanism, and a modified strategy is being implemented (see "Next steps") to monitor applicants' progress on an ongoing basis.

As PLA clients' individual files are large and cumbersome, a knowledgeable staff member transferred relevant data to a single-page data collection form. This was felt to be the most effective way to condense the data and to preserve confidentiality of the clients' documents as much as possible. Part-time staff then entered the data into a spreadsheet using a statistical analysis application (SPSS™ – Statistical Package for the Social Sciences).

Data collected for the purposes of this project include basic demographic information (name, sex, year of birth, first language spoken), other language information (language of medical laboratory education), significant dates (receipt of application, receipt of language proficiency testing score,

receipt of credential evaluation, completion of initial PLA report, revision of report, CSMLS examinations), and outcomes (equivalent assessment, exam score).

Slightly more than two-thirds of applicants (67.7%) are women. The average age of these PLA clients at the time of application to CSMLS was 35.8 years, although there is a noticeable skew toward the younger ages.

Data on the country of birth of PLA applicants was not available and so country of medical laboratory education is used as a proxy indicator for national origin (see Table 3), although this assumption has limitations.

Country of medical laboratory education	%	n
India	35.8	183
Philippines	31.9	163
Pakistan	3.9	20
Iran	3.1	16
China	2.3	12
Sri Lanka	2.0	10
Guyana	1.8	9
Nigeria	1.2	6
Colombia	1.2	6
USA	0.8	4

Table 3: Top ten provider countries of medical laboratory education for Ontario-based PLA applicants in the years 2004, 2005, and 2006. (n = 511)

Collectively, countries in the Middle East (Lebanon, Syria, Kuwait, etc.) have been the provider countries of medical laboratory education for 7.6 % of PLA clients between 2004 and 2006, and African countries (such as Kenya, Nigeria and Uganda) for 3.0 %. Although there is no longitudinal data to support this, it is the impression of the CSMLS staff that the numbers of Middle Eastern and African applicants have increased in recent years (C. Nielsen, personal communication, October 2007).

Approximately 14% of PLA clients require language proficiency testing. This requirement is based on the language of medical laboratory education indicated on the clients' credential evaluation reports received from the International Credential Evaluation Service (ICES) or World Education Services (WES). If the language of instruction was other than English only or French only, a language proficiency test is required. Table 4 indicates the distribution of languages of instruction for medical laboratory education.

Language	%	n	Language	%	n
English	70.8	362	German	0.4	2
English/Filipino	7.4	38	Polish	0.4	2
Farsi	2.5	13	Romanian	0.4	2
Mandarin	2.4	12	Hebrew	0.2	1
Gujarati/English/Hindi	1.2	6	Korean	0.2	1
Spanish	1.2	6	Macedonian	0.2	1
French	0.6	3	Russian	0.2	1
Arabic	0.8	4	Turkish	0.2	1
Persian	0.4	2	Data not available	10.0	51

Table 4: Language of instruction for medical laboratory education of Ontario-based PLA candidates in the years 2004, 2005, and 2006. (n=511)

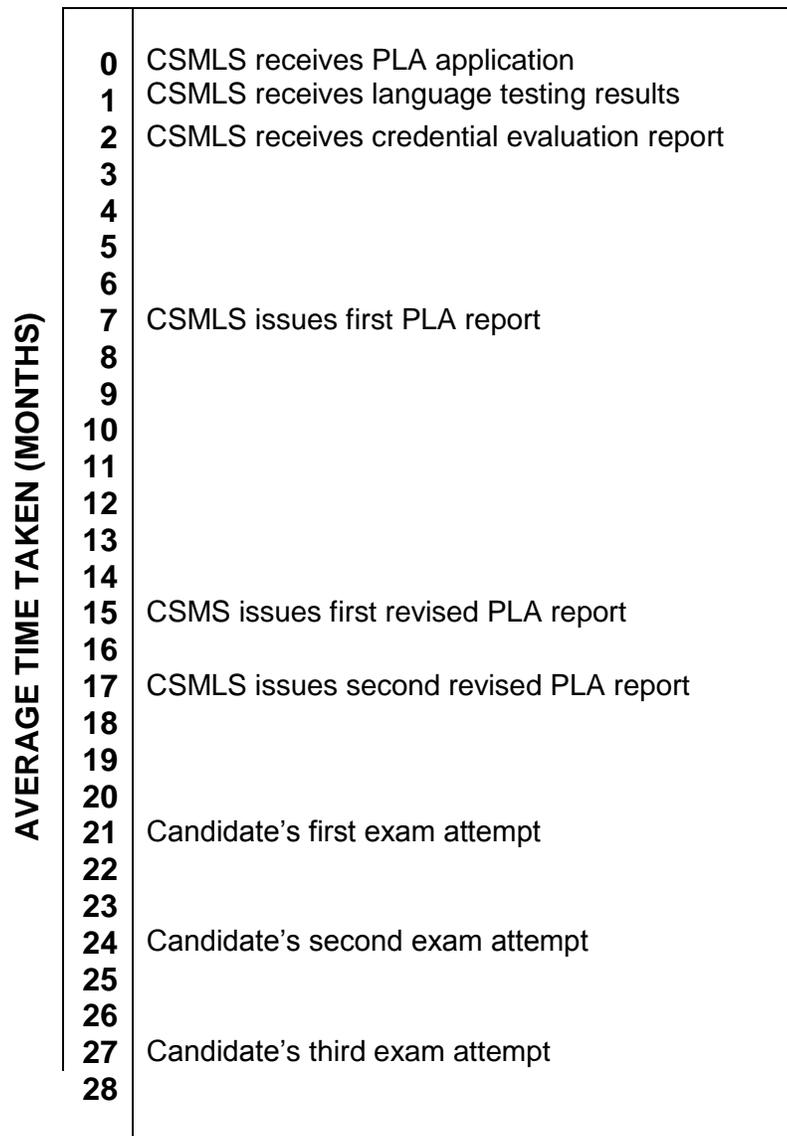
Of those who submitted results for language proficiency testing (n = 57), the majority (82.5%) used the Test of English as a Foreign Language (TOEFL) test. It should be noted that most of these applications were received before the internet-based TOEFL test (TOEFL iBT) was generally available.

Of the 57 individuals who submitted results for language proficiency testing, 27 met CSMLS standards on their first attempt, 6 on the second, and 2 on the third.

Interestingly, those who are required to provide proof of language proficiency testing appear to have a higher pass rate on their first attempt at the CSMLS examination (54.5 %) than do those from whom proof of language proficiency was not required (36.0%). However, the numbers of the former are extremely small (n=11) so further inquiry is needed to validate this on a larger scale. It is possible that, even among those whose language of instruction was English (or French), there are individuals whose language proficiency actually falls below CSMLS standards and this becomes a barrier to their successful completion of the examination.

Figure 1 represents the data gathered on the time intervals for progressing through the CSMLS PLA process.

Figure 1: Timeline for PLA progress of Ontario-based PLA candidates in 2004, 2005, and 2006. (n = 511)



This timeline illustrates the following points:

- the average time to successful completion of the CSMLS certification examination for these individuals was 24 months;
- results for language proficiency tests were received in a cluster around the date of submission of the PLA application; however, they varied widely from submission 30 months *prior* to 30 months *after* submission of the PLA application, and the data on date of receipt are too small in number (n = 12) to permit any conclusions;
- the majority of credential evaluation documents from ICES or WES arrived at the CSMLS within two to four months of submission of the PLA application

- The average time to completion of the first PLA report during this time frame was 7.7 months; 50% of clients received their report within less than 6 months.
- It appears to take an average of 8 months after the first PLA report is returned as ‘non-equivalent’ for candidates to carry out the recommended learning plan or other upgrading activities and to have the submitted documents reviewed for the first revision (a repeated PLA review taking the new documents into account).

The data support the observations of the CSMLS staff that it takes an average of two years for an IEMLT to successfully complete the PLA and certification process.

Ontario applicants to the CSMLS PLA process constitute approximately 70 % of all applicants from within and outside Canada. However, with the data currently available, it is not possible to determine whether the conclusions reached here for the Ontario PLA population are generalizable to all Canadian PLA clients.

PLA policy and process changes

A significant outcome of this project was the validation of the CSMLS standards for language proficiency for IEMLT success in the certification examination and benchmarking of language proficiency levels required in the workplace.

The findings from this project suggested that the CSMLS PLA policy could benefit from some changes to enhance its accessibility and fairness. Two policy changes were recommended by the CSMLS Council on National Certification (the governance body that oversees CSMLS certification processes and policy) and subsequently approved by the CSMLS Board of Directors:

1. Effective January 1, 2008, the CSMLS initiated a pilot phase for a new policy in which IELTS and CanTest are accepted as proof of language proficiency in addition to TOEFL, TOEFL iBT, and TSE. The mapping chart (Table 1) was used to establish acceptable scores corresponding to existing CSMLS standards for TOEFL iBT. The pilot phase has been extended to December 31 2008, at which point it is expected to become permanent.

This policy change was communicated to PLA clients, both current and potential, and to the various stakeholders in the CSMLS PLA process through announcements in the profession’s journal (Canadian Journal of Medical Laboratory Science), changes to the CSMLS web pages for IEMLTs, and by means of a news release.³²

Accepting a broader variety of language proficiency tests is expected to increase accessibility to the PLA process, particularly in light of the fact that IELTS is the test utilized by Immigration Canada.

³² CSMLS. (2007). Internationally educated medical laboratory technologists seeking certification to have more options for language proficiency testing. Hamilton: CSMLS.
http://www.csmls.org/english/news_releases.cfm?ID=55 [July 15 2008]

2. Effective July 1, 2008, the CSMLS has adopted a ‘two-stage’ language proficiency process, accepting language proficiency scores mapping to CLB 6 for entry into the PLA process, but maintaining the CLB 8 requirement to proceed to the certification examination.

This policy change is being communicated to current PLA clients (approximately 470) by means of a mailing to all individuals whose files are awaiting successful completion of a language proficiency test, as well as through an announcement in the profession’s national journal, changes to the CSMLS website, and a news release.³³

This two-step process will increase the number of candidates who are eligible for the CSMLS PLA process. It acknowledges the potential for upgrading and bridging programs to enhance language proficiency and allows individuals with language proficiency at levels lower than required for the national certification examination or for the workplace to benefit from the critique and recommendations of the PLA process.

EVALUATION

Six main indicators can be considered as part of the evaluation of this project:

- Numeric indicators reports and project status reports
- Impact on CSMLS PLA and language proficiency policies
- Uptake of new policies by PLA candidates
- Activities for disseminating project outcomes
- External feedback
- Internal perspectives

Numeric indicators reports and project status reports

These reports were submitted according to the requirements of Schedule B of the project agreement. Numeric indicators did not appear to be a meaningful strategy for tracking progress of the project in this case as the major measurable impact of the project was expected to take place only *after* policy changes were made toward the end of the project period. As indicated in the “Uptake of new policies...” section, below, initial uptake is still minor.

However, these reports were useful for recording contacts made with outside stakeholders and participants and for noting policy deliberations and changes as they occurred. Status reports were more amenable to qualitative reports on project activities. The November 2007 status report offered the opportunity to submit the language consultant’s final report.

³³ CSMLS. (2008). New language policy fast tracks route to Canadian certification for internationally-educated medical laboratory technologists. Hamilton: CSMLS. http://www.csmls.org/english/news_releases.cfm?ID=60 [July 15 2008]

Impact on CSMLS PLA and language proficiency policies

As described in the section on PLA policy and process changes, above, the CSMLS has made two major policy changes that directly enhance the accessibility of its PLA process for IEMLTs.

Uptake of new policies by PLA candidates

Between January 1 and June 18 2008, eight individuals have taken advantage of the policy that broadened acceptable language proficiency tests to include IELTS and CanTest in addition to the original TOEFL iBT (five IELTS and three CanTest). Only two met CSMLS standards for language proficiency in effect at the time of the submission of the test results.

The policy change initiating a ‘two-stage’ language proficiency requirement, effective July 1 2008, is too recent to permit a full appreciation of the numbers affected. However, we are aware of 15 recent PLA applicants whose files are currently active who do not meet the previous CLB 8 requirement for PLA, but who *do* meet the new CLB 6 requirement. Since the CSMLS is sending notice to all PLA applicants who have not met the language proficiency requirement, we expect to receive inquiries from many individuals on whom this policy confers eligibility to enter the PLA process.

Activities for disseminating project outcomes

The CSMLS was able to take advantage of the following opportunities to share the findings and implications of this project:

- Limited distribution of the table mapping language proficiency tests (Table 1) among participant professions in the Health Canada study *Orientation to Canada Health Care Systems, Culture and Context*;³⁴
- A presentation at the annual conference of the American Educational Research Association (AERA);³⁵
- A presentation to the CSMLS Council on National Certification;³⁶
- A presentation at the annual conference of the Teaching English as a Second Language (TESL).³⁷

Planned dissemination activities include:

- Posting the final report to the CSMLS website once approved for public distribution;

³⁴ <http://www.iehpcanada.utoronto.ca/> [July 15 2008]

³⁵ Grant, M. M. & Strachan, A. L. (2008). An inquiry into the ‘language issues’ of internationally educated health professionals. A paper presented at the annual conference of the American Educational Research Association. New York, March 2008.

³⁶ Strachan, A. (2008). *An investigation of language benchmarks and assessment tools for IEMLT success*. A presentation to the CSMLS Council on National Certification, February 23 2008.

³⁷ Strachan, A. (2008). *English language proficiency and internationally educated medical laboratory technologists: An investigation of language benchmarks and assessment tools for IEMLT success*. A presentation to the annual conference of Teaching English as a Second Language (TESL), Moncton, May 2008.

- Distributing the final report to project participants and other stakeholders;
- Publishing the findings in the CSMLS journal, the Canadian Journal of Medical Laboratory Science;
- A presentation to the Canadian Association for Prior Learning Assessment (CAPLA) at its next conference in October 2008;
- A presentation to the Canadian Network of National Associations of Regulators (CNNAR) at its next conference in November 2008;
- Presentations at other conferences and stakeholder venues as the opportunities present themselves;
- Sharing findings with other interested organizations (for example HEAL – Health Action Lobby) via mailing lists and listserv discussions.

External feedback

The policy changes resulting from this study have been well received by employers, educators, regulatory bodies, clients, ESL teachers, and bridging programs. There appears to be increased awareness of the new policies among IEMLTs and evidence of rapid dissemination in the international community. Outside organizations have expressed a great deal of interest in this project. Other health professions have requested use of data from this project.

Conference presentations have generated a good response from audiences, although it appears that other health professions have not yet addressed the issues that this project has highlighted. This suggests that this project and the other work of CSMLS is establishing leading practices in credentialing of internationally educated health professionals and evidences a strong element of knowledge translation in this project.

Finally, there is evidence of increased research on this topic in the medical laboratory community as seen in number of queries being made to CSMLS about current or planned external projects. The findings of this project are providing useful foundational data for the work of others.

Internal perspectives

Although it is admittedly fairly early to be assessing the impact of recent policy changes, the CSMLS staff appears to be satisfied with the additional mechanisms. As a result of this project, the CSMLS staff as a whole is better informed about the body of literature/research on credentialing and language proficiency testing internationally educated health professionals. The bibliography created during this process will inform future projects (see Appendix B). Those directly involved in this project have found it gratifying to be engaged in establishing leading practices for professional associations in validating PLA and language proficiency testing, and in enhancing fairness and accessibility in CSMLS certification processes.

ACHIEVING SUSTAINABILITY

The changes effected as a result of this project have been embedded into CSMLS policy. The new policy regarding additional accepted language proficiency tests came into effect as a pilot policy from January 1 2008 to June 30 2008. The pilot phase has been extended to December 31 2008, at which point it is expected to become permanent.

The new policy for a two-stage language proficiency process took effect on July 1 2008. Both changes, and particularly the second one, have workload implications for the CSMLS in the form of new or re-opened applications from newly eligible clients. As indicated earlier, it is difficult to estimate the exact numbers of individuals who will choose to take advantage of the new policies, so the full impact of this increased workload will become apparent in the coming year. In addition to the increased number of applications and assessments, the new policies can be expected to prompt a large number of inquiries from individuals who would like personal guidance. This is a concern for the CSMLS, as the certification department is already investing significant resources in its PLA activities.

LESSONS LEARNED

Conducting this project has offered the CSMLS the following insights and benefits:

- an evidence base and validation for its language proficiency cut scores and PLA processes;
- the opportunity to explore and model responsive, accountable and equitable practices in PLA and professional credentialing;
- a heightened awareness of the issues of IEMLTs, including greater familiarity with the literature and background information;
- an opportunity to network and share resources among regulators, other health professions, and stakeholders in the credentialing and employment of internationally educated health professionals;
- a confirmation of the importance of appropriate and validated language proficiency requirements utilized by professions and credentialing agencies;
- anecdotal confirmation of the presence of inequitable obstacles for IEMLTs that are *not* related to language proficiency and which merit further investigation, acknowledgement and remedy;
- an appreciation of the challenges of tracking PLA applicants through the process:
 - the constant activity of and frequent changes to PLA files makes it difficult to ensure that an external dataset (such as the one used for this project) is up-to-date; the rapid outdateding of data means that any such set of data can be considered only a 'snapshot' of the PLA process as a whole;
 - as a result, it does not appear to be efficient or effective to maintain the static external data set that was begun in this project. This is discussed further under 'Next Steps.'

NEXT STEPS

Next steps to be undertaken by the CSMLS fall under three main headings:

- tracking uptake of the new policies;
- implementing future PLA process and policy changes; and
- implementing future research and related activities.

Tracking uptake of the new policies

In an effort to appreciate the impact of the policy changes prompted by this project beyond its contractual ending, CSMLS will continue to monitor the numbers of PLA clients whose eligibility is affected by the new policies. As mentioned previously, it is difficult to predict their impact. For example, on the one hand, we can anticipate seeing more applicants submitting IELTS language proficiency test results because this test is in use by Citizenship and Immigration Canada.³⁸ On the other hand, the IELTS test is apparently highly challenging, even for those whose first language is English,³⁹ so the degree to which CSMLS's accepting this test improves IEMLTs' access to PLA remains to be seen.

Future PLA process and policy changes

Further policy and process revisions are necessary as part of the implementation of the two-stage language proficiency process. For example, since it will be necessary for PLA clients whose initial language proficiency fell below CLB 8 to demonstrate this proficiency level before they can proceed to the certification examination, the CSMLS will establish a time interval within which this must take place in order to avoid stagnation of technical skills.

Future research and related activities

The outcomes and lessons learned from this project can be expected to inform the following future activities:

- the CSMLS's latest project with the Government of Ontario Ministry of Citizenship and Immigration, "Language Proficiency Testing for Internationally Educated Medical Laboratory Technologists: Validating Cut Scores and a New Testing Tool"; this new project can be considered a logical extension of the project reported here, in that it seeks to establish language proficiency standards with validated cut-off scores, and to explore the use of a profession-specific language proficiency testing tool;

³⁸ Citizenship and Immigration Canada. (2007). *Skilled workers and professionals: Who can apply – Selection factors*, [online]. Available: <http://www.cic.gc.ca/english/immigrate/skilled/language-testing.asp> [2008 June 30]

³⁹ Taylor, L. C. (2008, June 2). *Think you speak English? Try this test*, [online]. The Toronto Star. Available: <http://www.thestar.com/article/435238> [2008, June 4]

- longitudinal and dynamic monitoring of PLA clients' progress through their assessment process by enhancing the functionality of the existing CSMLS member/client database and creating a link to statistical software for detailed analyses of PLA clients' files;
- further research on obstacles, other than language proficiency, for internationally educated health professionals in certification and workplace transition;
- advocacy for more support mechanisms for IEMLTs, including bridging programs and other forms of educational upgrading and educational, social and financial support strategies.

CONCLUSION

This project has offered the CSMLS an opportunity to enhance the accountability and accessibility of its prior learning assessment and credentialing processes through evidence-informed policies and practices in order to expedite the transition of IEMLTs through professional certification and into the workplace. The project has facilitated a valid, fair and evidence-based standard for language proficiency as well as policy and process changes that are advantageous for IEMLTs. In addition, it has provided the foundation for further research and support strategies for internationally educated health professionals.

APPENDIX A – Bibliography

- Adams, T. L. (1998). Combining gender, class and race: Structuring relations in the Ontario dental profession. *Gender and Society*, 12(5), 578-597.
- Affiliation of Multicultural Societies & Service Agencies of BC. (2000). *Initiatives affecting the labour market integration of foreign-trained professionals and trades workers*, [online]. Vancouver: AMSSA. Available: <http://www.amssa.org/pdf/foreign.pdf> [2008, February 21].
- Alboim, N. (2002). *Fulfilling the promise: Integrating immigrant skills into the Canadian economy*. Ottawa: Caledon Institute of Social Policy.
- Allen, M. K., Ceolin, R., Ouellette, S., Plante, J., & Vaillancourt, C. (2007). *Educating health workers: A statistical portrait. 81-595-MIE2007049*. Ottawa: Statistics Canada.
- Bachman, L. F., & Palmer, A. (2001). *Fundamental considerations in language testing*. Oxford: Oxford University Press.
- Basran, G. S., & Zong, L. (1998). Devaluation of foreign credentials as perceived by visible minority professional immigrants. *Canadian Ethnic Studies*, 30(3), 6-23.
- Baumann, A., Blythe, J., McIntosh, K., & Rheume, A. (2006). *Internationally educated nurses in Ontario: Maximizing the brain gain*. Hamilton ON: Nursing Health Services Research Unit, McMaster University.
- Blommaert, J. (2005). *Discourse*. Cambridge: Cambridge University Press.
- Bloom, M., & Grant, M. (2001). *Brain gain: The economic benefits of recognizing learning and learning credentials in Canada*. Ottawa: Conference Board of Canada.
- Boudarbet, B., & Boulet, M. (2007). *Détérioration des salaires des nouveaux immigrants au Québec par rapport à la Colombie-Britannique*. Montréal: L'institut de recherche en politiques publiques.
- Brouwer, A. (1999). *Immigrants need not apply*, [online]. Caledon Institute of Social Policy. Available: http://www.maytree.com/PDF_Files/INNA.pdf [2008, February 23].
- Brown, G., & Yule, G. (1983). *Discourse analysis*. Cambridge: Cambridge University Press.
- Business Council of British Columbia. (2004). *Making better connections: Integration of skilled immigrants in the BC labour market*. Vancouver BC: Business Council of British Columbia.
- Centre for Canadian Language Benchmarks. (2000). *The Canadian Language Benchmarks 2000: English as a second language for adults*, [online]. Ottawa: CCLB. Available: <http://www.language.ca/> [2008, February 21].
- Cesa, F. (2004a). International medical graduates: A case study. *Health Policy Research Bulletin*(8), 28-31.
- Cesa, F. (2004b). *Report of the Canadian Task Force on Licensure of International Medical Graduates*. Ottawa: Health Canada Advisory Committee on Health Delivery and Human Resources.
- Cizek, G. J. (Ed.). (2001). *Setting performance standards*. Mahwah NJ: Lawrence Erlbaum Associates.
- Conference Board of Canada. (2001). The learning recognition gap. *Worklife Report*, 13(4), 16.
- Cooper-Patrick, L., Gallo, J. J., Gonzales, J. J., Vu, H. T., Powe, N. R., Nelson, C., & Ford, D. E. (1999). Race, gender, and partnership in the patient-physician relationship. *Journal of the American Medical Association*, 282, 583-589.
- Davies, A., & Elder, C. (Eds.). (2004). *The handbook of applied linguistics*. Oxford UK: Blackwell Publishing Ltd.
- Delaney, J. (2005). *Doors opened fro Canadians with foreign credentials*, [online]. The Epoch USA Inc., New York. Available: <http://english.epochtimes.com/news/5-5-1/28344.html> [2008, February 23].
- Denton, F. T., & Spencer, B. G. (2003). *Population change and economic growth: The long-term outlook. QSEP Research Report 383*. Hamilton ON: McMaster University Research Institute for Quantitative Studies in Economics and Population.
- DeVault, M. L. (1995). Ethnicity and expertise: Racial-ethnic knowledge in sociological research. *Gender and Society*, 9(5), 612-631.

- Douglas, D. (2000). *Assessing languages for specific purposes*. Cambridge: Cambridge University Press.
- Dustmann, C., & Fabbri, F. (2003). Language proficiency and labour market performance of immigrants in the UK. *The Economic Journal*, 113(489), 695.
- Epp, L., & Lewis, C. (2003). *The development of a nursing-specific language assessment tool - The Canadian English Language Benchmark Assessment for Nurses (CELBAN)*. Ottawa: Centre for Canadian Language Benchmarks.
- Epp, L., & Lewis, C. (2004). *Developing an occupation-specific language assessment tool using the Canadian Language Benchmarks*. Ottawa: Centre for Canadian Language Benchmarks.
- Fiscella, K., & Frankel, R. (2000). Overcoming cultural barriers: International medical graduates in the United States. *Journal of the American Medical Association*, 283, 1751.
- Fiscella, K., Roman-Diaz, M., Lue, B. H., Botelho, R., & Frankel, R. (1997). "Being a foreigner, I may be punished if I make a small mistake": Assessing transcultural experiences in caring for patients. *Family Practice*, 14, 112-116.
- Galabuzi, G.-E. (2001). *Canada's creeping economic apartheid: The economic segregation and social marginalisation of racialised groups*. Toronto: CSJ Foundation for Research and Education.
- Girard, E., & Bauder, H. (2005). *Barriers blocking the integration of foreign-trained immigrant professionals: Implications for smaller communities in Ontario*. Guelph Canada: University of Guelph.
- Grant, M. M. (2004). *Under the microscope: 'Race', gender and medical laboratory science in Canada*. Unpublished PhD thesis, University of Toronto, Toronto.
- Guo, S. (2005). *Difference, deficiency, and devaluation: Non-recognition of foreign credentials for immigrant professionals in Canada*. 2005 National Conference On-Line proceedings, [online]. Canadian Association for the Study of Adult Education. Available: <http://www.oise.utoronto.ca/CASAE/cnf2005/2005onlineProceedings/CAS2005Pro-Guo.pdf> [2008, February 21].
- Haley, B., & Simosko, S. (2006). *Prior learning assessment and internationally trained medical laboratory technologists*. Ottawa: Canadian Association for Prior Learning Assessment.
- Hawken, S. (2005). Where to now with programmes for overseas-trained doctors? *Journal of the New Zealand Medical Association*, 118(1219).
- Health Canada. (2005). *Internationally trained workers initiative: Integration of internationally trained health professionals*, [online]. Health Canada. Available: http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/2005/2005_29bk1_e.html [2008, February 23].
- Holmes, M. (2008). Unwritten rules of the workplace: Training new Canadians on the dos and don'ts of on-the-job communication. *Ryerson University Alumni*, Winter, 32.
- Human Resources and Social Development Canada. (2005). *Integration of internationally trained health professionals*, [online]. Ottawa: HRSDC. Available: <http://www.hrsdc.gc.ca/en/cs/comm/hrsd/news/2005/050425bc.shtml> [2008, February 23].
- Li, P. S. (2001). The market worth of immigrants' educational credentials. *Canadian Public Policy/Analyse de politique*, 27, 23-38.
- Liu, E. (2007). *A descriptive study of employers' attitudes and practices in hiring newcomer job seekers*. *Policy Matters*, [online]. Toronto: CERIS - The Ontario Metropolis Centre. Available: <http://ceris.metropolis.net/PolicyMatter/2007/PolicyMatters31.pdf> [2008, February 21].
- Malu, K., & Figlear, M. (1998). Enhancing the language development of immigrant ESL nursing students: A case study with recommendations for action. *Nurse Educator*, 23(2), 43-46.
- Mendelsohn, D., & Stewart, G. (1999). Developing the midwives' language proficiency test: A field-specific performance test. *ESP Malaysia*, 6(11-27).
- Metropolis Project. (2004). *Current success and continuing challenges of foreign credentials recognition: Conversation report*, [online]. Ottawa: Metropolis Project & Human Resources and Skills

- Development Canada. Available: http://canada.metropolis.net/research-policy/conversation/conversation_report_14.pdf [2008, February 21].
- Metropolis Project. (2007). *Internationally trained workers' economic performance and foreign credential recognition: Conversation highlights*, [online]. Ottawa: Metropolis Project. Available: http://canada.metropolis.net/research-policy/conversation/conversation_report_20.pdf [2008, February 21].
- Mohr, H. (2007). Integrating international pharmacy graduates into Canadian pharmacy practice. A panel presentation to the conference on Health Human Resources 2007: Connecting Issues and People, December 2007, Ottawa.
- Nielsen, C. (2004). *Determination of factors contributing to examination success for prior learning assessment candidates. Unpublished study*. Toronto: Ryerson University.
- O'Neill, T. R., Buckendahl, C. W., Plake, B. S., & Taylor, L. (2007). Recommending a nursing-specific passing standard for the IELTS examination. *Language Assessment Quarterly*, 4(4), 295-317.
- O'Reilly, P. (2000). *Health care practitioners: An Ontario case in policy making*. Toronto: University of Toronto Press.
- Owen, T. (2005). *The labour market experience of immigrants. A paper presented to the Future of Lifelong Learning & Work Conference, Toronto, June 2005*, [online]. Available: <http://lifelong.oise.utoronto.ca/papers/pOwenPaper.pdf> [2008, February 21].
- Pajak, G. G. (1990). Cultural factors in the interaction between foreign medical graduates and their American patients in a hospital setting. *Dissertation Abstracts International*, 50, 3872-3873.
- Picot, G., & Hou, F. (2003). *The rise in low-income rates among immigrants in Canada. 11F0019MIE-No. 198*. Ottawa: Statistics Canada.
- Pilotto, L., Duncan, G., F., & Anderson-Wurf, J. (2007). Issues for clinicians training international medical graduates: A systematic review. *Medical Journal of Australia*, 187(4), 225-228.
- Reitz, J. G. (2001). Immigrant skill utilization in the Canadian Labour market: Implications of human capital research. *Journal of International Migration and Integration*, 2(3), 347-378.
- Remennick, L. (2003). Language as the main vehicle of social integration. *International Journal of the Sociology of Language*, 164, 83-105.
- Ruddick, E. (2000). *Trends in international labour flows to Canada*. Ottawa: Citizenship and Immigration Canada.
- Sakamoto, I. (2007). A critical examination of immigrant acculturation: Toward an anti-oppressive social work model with immigrant adults in a pluralistic society. *British Journal of Social Work*, 37(3), 515-535.
- Schaafsma, J., & Sweetman, A. (2001). Immigrant earnings: Age at immigration matters. *Canadian Journal of Economics*, 34(4), 1066-1099.
- Schellenberg, G., & Maheux, H. (2007). *Immigrants' perspectives on their first four years in Canada: Highlights from three waves of the Longitudinal Survey of Immigrants to Canada. 11-008-XIE200*, [online]. Ottawa: Statistics Canada. Available: <http://www.statcan.ca/english/freepub/11-008-XIE/11-008-XIE2007000.htm> [2008, February 23].
- Schiffrin, D., Tannen, D., & Hamilton, H. E. (Eds.). (2001). *Handbook of discourse analysis*. Oxford: Blackwell.
- Skelton, J. R., Kai, J., & Loudon, R. F. (2001). Cross-cultural communication in medicine: Questions for educators. *Medical Education*, 35, 257-261.
- Skills for Change. (2004). *Partnering on access solutions to regulated health professions: Regulators, community, and internationally educated professionals. Special focus on examination and supervised practice*. Toronto: Skills for Change.
- St. John, J., & Brisay, M. d. (2001). *Development and validation of CanTest versions for Canadian Language Benchmarks: Report submitted to the Centre for Canadian Language Benchmarks*. Ottawa, ON: Centre for Canadian Language Benchmarks.

- Statistics Canada. (2005). *Knowledge of official languages among new immigrants: How important is it in the labour market?* 89-624-XWE, [online]. Ottawa: Statistics Canada. Available: <http://www.statcan.ca/english/freepub/89-624-XIE/89-624-XIE2007000.pdf> [2008, February 23].
- Stewart, G., & Nagy, P. (2006). *Companion tables to the Canadian Language Benchmarks 2000*, [online]. Ottawa: Centre for Canadian Language Benchmarks. Available: http://www.language.ca/display_page.asp?page_id=550 [2008, February 22].
- Strachan, A. (2006). *Canadian Language Benchmarks required to successfully complete The College of Massage Therapists of Ontario's professional competency examinations: Final report*. Toronto, ON: College of Massage Therapists of Ontario.
- Strachan, A. (2007). *English language proficiency and internationally educated medical laboratory technologists: An investigation of language benchmarks and assessment tools for IEMLT success*. Hamilton ON: Canadian Society for Medical Laboratory Science.
- Strachan, A., & Russell, B. (2005). Developing CLB referenced assessments for internationally trained health professionals. *Contact*, 32(2).
- Tannenbaum, R., & Wylie, E. C. (2004). *Mapping test scores onto the Canadian Language Benchmarks: Setting standards of English language proficiency on the Test of English for International Communication (TOEIC), the Test of Spoken English (TSE), and the Test of Written English (TWE)*. Princeton, NJ: Educational Testing Service.
- Tannenbaum, R., & Wylie, E. C. (2005). *Mapping English language tests scores onto the Common European Framework*. Princeton, New Jersey: English Testing Services Research Reports.
- Tromp, F., Rademakers, J. J., & Ten Cate, T. J. (2007). Development of an instrument to assess professional behaviour of foreign medical graduates. *Medical Teacher*, 29(2-3), 150-155.
- von Zweck, C. (2006). *Enabling the workforce integration of international graduates: Issues and recommendations for occupational therapy in Canada*. Ottawa: Canadian Association of Occupational Therapists.
- Watt, D. (2000). *A comparison study of the Canadian Language Benchmarks Assessment and the Test of English as a Foreign Language*. Edmonton, AB: Alberta Learning, Language Training Programs.
- Watt, D., & Cervatiuc, A. (2007). *Benchmarking English language proficiency for the engineering profession: Final report*. Ottawa: Engineers Canada.
- Whelan, G. P. (2006). Commentary: Coming to America: The integration of international medical graduates into the American medical culture. *Academic Medicine*, 81, 164-170.

APPENDIX B – Acknowledgements

The following individuals contributed to this project:

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