

RESOURCES FOR INTERNATIONALLY EDUCATED MEDICAL LABORATORY TECHNOLOGISTS

Canadian Society for Medical Laboratory Science

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Canadian Society for Medical Laboratory Science

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INTRODUCTION

We have prepared this document for CSMLS's internationally educated medical laboratory technologist (IEMLT) clients who have applied to the Prior Learning Assessment (PLA) process for general medical laboratory certification. It contains resources that may support them in their goal to become certified in Canada. We gathered these resources after interviewing international technologists, CSMLS clients, educators, employers and CSMLS staff.

No document can provide an internationally educated technologist everything that they need to know about working in Canada as a medical laboratory technologist. It is our experience that bridging programs that include a clinical education component can fill the majority of the gaps that our key informants have observed. However, there are few places in these limited programs, so our IEMLT clients do not have full access to these opportunities. We hope that this resource can begin to fill in some of the information gaps we have identified.

In assembling this document, we have assumed that the reader has already begun the CSMLS PLA process or, at the very least, is familiar with the contents of the PLA Handbook (available from our website www.csmls.org).

We are providing this document as a resource only. We do not recommend using it as a sole source of information; it should be complemented with other credible resources, such as courses, textbooks and practical experience, in order to provide a full range of perspectives on medical laboratory practice in Canada. We note that the online references we have provided are accurate as of the completion date of this document (March 2010); like many online resources, they may become outdated or unavailable without notice.

We appreciate the contributions that our IEMLT, educator and employer informants have given us and we are grateful for the financial support of the Government of Ontario in preparing this document.

PREPARING TO WORK IN CANADA

AS A MEDICAL LABORATORY TECHNOLOGIST

Our international clients tell us that they wish they had more information before they arrived in Canada. These online resources will be useful for individuals who are not familiar with the Canadian workplace or medical laboratory practice in Canada. There are many steps that international medical laboratory technologists can take before they come to Canada. Planning ahead provides clear advantages, according to our IEMLT clients.

Working in Canada

Service Canada www.servicecanada.gc.ca

Foreign Credentials Referral Office www.credentials.gc.ca

Citizenship and Immigration Canada www.cic.gc.ca

Career profiles www.cfeep2p.com

Planning to work in Canada – workbook <http://www.credentials.gc.ca/immigrants/workbook/index.asp>

In addition, some of Canada’s provinces have agencies that offer support for international professionals seeking work. For example:

British Columbia	http://www.welcomebc.ca/en/immigration/come/lmp/employment_services/skills_connect/index.html http://skilledimmigrants.vpl.ca/index.php/infocentre/
Alberta	http://www.alberta-canada.com/immigration/index.html
Government of Saskatchewan	http://www.immigration.gov.sk.ca/
Manitoba	http://www2.immigratemanitoba.com/browse/regionalcommunities/settlement_strategy.html
Ontario	www.healthforceontario.ca
Nova Scotia	http://novascotiaimmigration.com/

Federal and provincial governments are adding to their resources. We recommend you check their websites frequently for updates and new opportunities.

Introduction to healthcare in Canada

Healthcare systems vary widely around the world. It can be very confusing to arrive in a new country and attempt to work in an environment where the traditions and practices are nothing like your

previous experiences. We **strongly recommend** that newcomer health professionals to Canada participate in a course that will help them to understand how Canadian healthcare and health institutions work.

University of Toronto: Orientation to the Canadian Healthcare System http://www.iehpcanada.utoronto.ca/
This course is available in both in-class (Toronto) and online formats.
Preparation for practice in Canadian health care http://www.michener.ca/access/interdisp.php
This is a classroom-based course offered in Toronto.

The medical laboratory profession in Canada

The CSMLS is the FIRST place internationally educated medical laboratory technologists should contact about working as an MLT in Canada. The CSMLS has several web pages with many resources for learning how to become certified (www.csmls.org)

<http://www.csmls.org/career/en/>

<http://www.csmls.org/en/learn-about-labs.html>

These pages also provide helpful orientations to the profession in Canada:

<http://www.cfeep2p.com/site/careerdetail.php?id=10&language=EN>

www.credentials.gc.ca/immigrants/factsheets/medical.asp

Our international clients tell us that medical laboratory practice in Canada is very different from healthcare in their home countries. Medical laboratories in North America are highly automated. These videos will give you an idea of the kinds of tasks you would perform as a technologist in Canada.

<http://www.youtube.com/watch?v=xShAmA4QUHU>

<http://www.youtube.com/watch?v=a17SaWJwBVM&feature=related>

<http://www.youtube.com/watch?v=zGTbkPgiYW8&feature=related>

For more videos about the medical laboratory profession, visit www.youtube.com and search for 'medical laboratory' or 'clinical laboratory'.

For an idea of the professional behaviours expected of Canadian MLTs, please visit these links:

CSMLS Code of Professional Conduct: www.csmls.org/en/about-csmls/code-of-conduct.html

CSMLS Standards of Practice. www.csmls.org/en/about-csmls/standards-of-practice.html

BASIC JOB-RELATED SKILLS

Language and communication skills

Although our internationally educated clients do not usually consider communication skills to be a challenge, employers and educators frequently mention communication as a barrier. For those whose first language is not English, passing a language proficiency test such as TOEFL iBT or IELTS does not mean that the individual will communicate well in the medical laboratory setting. Our research has shown that, in a stressful and fast-paced laboratory environment, MLTs need more complex communication skills than the minimum required to begin the CSMLS PLA process. Even for those who have been educated in English, North American laboratory terminology can be very different.

It can be difficult for an internationally educated technologist to practice their laboratory communication skills if they do not have a job in a laboratory. However, we encourage our clients to seek out all opportunities to improve their general communication proficiency. Here are some examples of opportunities:

Immigrant Settlement and Community Agencies

Many agencies offer free English language training or can help you to find courses:

<http://www.cic.gc.ca/english/resources/publications/welcome/wel-20e.asp>

http://www.settlement.org/sys/faqs_detail.asp?faq_id=4000108

http://www.kwymca.org/Contribute/immigrant/program_ISAP.asp

http://www.eslincanada.com/linc_programs.html

We recommend that internationally educated health professionals visit the agencies in their city to find out about the services available to support them in their new communities.

Public Speaking Support groups

'Toastmasters' groups meet on a regular basis to support their members in developing clear and effective speaking skills. There is a group in almost every major city in Canada, and they can be found by searching online for "Toastmasters" and the name of the city.

Laboratory-specific terminology

Like other health professions, medical laboratory practice requires familiarity with many specialized terms, abbreviations, and acronyms. While we can't list them all here, we recommend that you visit the following websites for an overall idea of these terms and also review medical laboratory texts and course materials. Professional journals and texts in English can help to familiarize you with laboratory terminology, but they are often difficult to read because they use so many technical terms. Start with introductory-level materials first, such as these web sites.

<http://www.wikihow.com/Read-and-Understand-Medical-Laboratory-Results>

<http://www.labtestsonline.org/>

http://findarticles.com/p/articles/mi_m3230/is_n9_v21/ai_7952877/ (2010 March 24)

http://www.mt911.com/site/lab/lab_abbreviations.asp?start=a (2010 March 24)

http://www.mt911.com/site/main/medical_transcription_nav.asp?pid=25 (2010 March 24)

This journal article may also be helpful:

Hallam K. Abbreviations, acronyms, and alphabet soup: a glossary for the laboratory. Medical Laboratory Observer 1989; September.

Taking laboratory –based courses in medical laboratory subject areas can be useful as well. Distance education courses are less helpful because they do not give students an opportunity to hear and use laboratory –specific terms. Also see the Study Guide on Communication in this document for other resources.

To learn more about language requirements for working in Canada, visit the following sites:

- Canadian Language Benchmarks www.language.ca
- <http://www.credentials.gc.ca/individuals/language.asp>

To learn more about CSMLS’s research on language proficiency testing for medical laboratory technologists, visit the Research Reports page on our website:

<http://www.csmls.org/en/research/reports.html>

Workplace Readiness

BioLanguage and BioWorkplace: Test your readiness for working in a Canadian scientific workplace

<http://www.biotalent.ca/courses/details.asp?coid=19&eventtype=8>

<http://www.biotalent.ca/courses/details.asp?coid=20&eventtype=9>

Job search skills

Our IEMLT clients tell us that finding employment once they are certified as an MLT can be challenging and frustrating.

How to find available positions:

- on online services, such as Workopolis.ca: www.workopolis.com or Monster.com www.monster.com or www.jobbank.gc.ca or www.careerbuilder.ca or www.working.com
- on hospital websites
- in newspapers
- in professional journals, such as CJMLS
- on the CSMLS web site: <http://www.csmls.org/en/jobs.html>
- through the websites of other professional associations or regulatory bodies; find a list of these at <http://csmls.org/en/links/provincial-organizations.html>
- at career or job fairs hosted by hospitals and regional health authorities or educational institutions
- through the Canadian Blood Services or HémaQuébec
- consider contacting private laboratories: not all provinces make use of private laboratories; in Ontario, the Ontario Association of Medical Laboratories (OAML) keeps a list of its member laboratories at http://www.oaml.com/abt_member.html ; other private laboratory organizations include LifeLabs, GammaDynacare, Canadian Medical Laboratories

You could try ‘googling’ for lists of hospitals (using the search engine at www.google.ca). To find the names of hospitals in your province of interest, enter ‘Hospital list in [Name of province] in the search box. Or try this site:

http://en.wikipedia.org/wiki/List_of_hospitals_in_Canada

It is worth remembering that not all laboratory jobs are advertised or posted on websites. Some of our IEMLT clients have told us that they found their job by personally presenting their resumes to the laboratory manager. They believed that the personal contact was an important strategy for demonstrating their communication skills and their dedication to working in the lab.

How to use the internet for your job search:

- Government of Alberta. Tip sheets: using the internet for work search: finding jobs and work opportunities. <http://alis.alberta.ca/ep/eps/tips/tips.html?EK=12416>
- The Riley Guide: how to use the internet in your job search. <http://www.rileyguide.com/jobsrch.html> (2010 March 15)

Creating an effective resume:

- Through local community organizations and settlement agencies, for example: Teaching and learning resources. Immigrant Settlement and Integration Services, Government of Nova Scotia. <http://www.isisns.ca/resources.php> (2010 March 31)
- <http://alis.alberta.ca/ep/eps/tips/tips.html?EK=113>

- Resume tips and advice: <http://jobsearch.about.com/od/resumetips/qt/resumetips.htm>
- How to write a cover letter: <http://jobsearch.about.com/od/coverletters/a/coverletters.htm>

Employers are increasingly expecting applicants to submit their resumes online. For tips, visit

- Government of Alberta. Tip sheets: applying for work online.
<http://alis.alberta.ca/ep/eps/tips/tips.html?EK=12428> (2010 March 15)
- The Riley Guide: how to use the internet in your job search.
<http://www.rileyguide.com/jobsrch.html> (2010 March 15)
- Diekel M & Roehm F. Guide to internet job searching 2008-2009. McGraw-Hill; 2008.

Some educational institutions offer courses on how to become employed as a medical laboratory technologist. For example, Mohawk College in Hamilton offers a course called *Steps to Employment for Internationally Educated Medical Laboratory Technologists*:

<http://www.mohawkcollege.ca/Discover/CE/EmployMLTs.html>

Our IEMLT clients tell us that the most important factor in finding a job is networking. They consider their friends and course instructors to be valuable sources of information and guidance. Not everyone has these friends and connections. Online help is an alternative:

Government of Alberta. Networking online. <http://alis.alberta.ca/ep/eps/tips/tips.html?EK=12422>
(2010 March 15)

PROFESSION-SPECIFIC SKILLS

CSMLS reference textbook list

The CSMLS uses specific professional textbooks to prepare its national certification examinations. The list of books is available here:

<http://www.csmls.org/en/certification/reference-textbooks.html>

We realize that these books are expensive and difficult to locate. Educational institutions with medical laboratory programs will have many of these texts in their libraries. You may be permitted to borrow these books or use them in the library. With the support of the Government of Canada, CSMLS has recently donated sets of these books in general medical laboratory science to the following libraries:

Vancouver BC	Vancouver Public Library
Calgary AB	Calgary Public Library
Winnipeg MB	Winnipeg Public Library
Toronto ON	Toronto Public Library HealthForce Ontario
Hamilton ON	Mohawk-McMaster Institute of Allied Health Sciences Hamilton Public Library
Halifax NS	Immigrant Settlement and Integration Services Halifax Public Library

Please check with these institutions about borrowing privileges and availability of the books. Even if you do not live in one of the listed cities, you may be able to borrow books through the inter-library loan program of your local public library. If you have access to a hospital library, you may find some of these texts there, as well.

CSMLS loan library

CSMLS makes a wide selection of publications on laboratory standards and guidelines available to its members:

<http://www.csmls.org/en/continuing-education/course-info-loan-library.html>

CSMLS list of courses

We recommend that you wait until **after** you have received your PLA report before you take a course to upgrade your knowledge. This will ensure that you take the course that is most appropriate for your learning needs. Your PLA report will make course recommendations. The lists of approved courses are found here:

<http://www.csmls.org/en/international-technologists/9-stage-2-after-your-assessment.html>

Bridging programs

Bridging programs are proven ways to help internationally educated professionals become certified and enter the workforce more quickly. They offer valuable opportunities to learn technical, communication, and clinical skills for the Canadian workplace. Please visit the following web sites for further information:

MLS Professional Qualifying Program – British Columbia Institute of Technology, Vancouver BC

(This program is not accepting students in early 2010 but interested individuals are asked to contact BCIT for further information.)

<http://www.bcit.ca/study/programs/6565certt>

Access & Options – Michener Institute for Applied Health Science, Toronto ON

http://www.michener.ca/access/ao_pgm_medlab.php?main=2&sub=5&sub2=2

This program is not considered to be a 'full' bridging program. It is modular in format (offering courses one by one) and it offers a simulated laboratory experience and not a workplace clinical placement.

International Technologists Bridging Program – Diagnostic Services of Manitoba, Winnipeg MB

This program is conducted in partnership with the Mohawk program, below.

http://www.dsmanitoba.ca/careers/files/Bridgingbrochure_2009.pdf

Bridging Program for Medical Laboratory Technology – McMaster-Mohawk Institute of Applied Health Sciences, Hamilton ON

<http://www.mohawkcollege.ca/Discover/CE/health/fml.html>

Study guides

Starting with the June 2010 certification examinations, CSMLS is using a new competency profile (<http://www.csmls.org/en/certification/competency-profiles.html>) for its general medical laboratory examinations. This new profile includes non-technical competencies that MLTs are expected to demonstrate in the increasingly demanding healthcare workplace. The new competency categories that have been added are:

- Critical Thinking
- Applied Investigation
- Resource Management
- Communication and Interaction
- Professionalism

We recognize that there may be few resources available for internationally educated technologists to learn about and acquire these new competencies. To prepare our clients for these new areas, we have developed study guides that may be helpful for professional upgrading and preparing for the CSMLS certification examination. The study guides may also be useful for educators who are hoping to develop more detailed curricula for future courses.

The study guides consist of the following sections:

1. **Description** – a brief outline of what the study guide covers; it generally parallels the competency profile.
2. **Learning outcomes** – a list of the skills that you might expect to develop if you access the reading resources and carry out the learning activities listed in the guide.
3. **Learning resources** – a selection of materials that are matched to the outcomes they cover. The resources are of three types:
 - CSMLS textbooks – these references are drawn from the CSMLS textbook list mentioned earlier in this catalogue. Where possible, specific chapters are provided.
 - Online resources – these may be somewhat more accessible or current than the texts and additional resources, but often are not as thorough. Not all online resources have been written by experts (for example, Wikipedia ©). Where possible, we have used recognized credible sources.
 - Additional resources – these are mainly print-based books, articles and papers
4. **Suggested learning activities** – questions and exercises that may prompt critical reflection on the topic. There are no ‘right’ answers – Canadian employers want to hire technologists who can solve problems in multiple ways. In the laboratory, there could be several equally valid solutions to a problem. We encourage you to discuss these points with your colleagues and to critique your personal strategies for information-gathering and problem solving.

STUDY GUIDE

CRITICAL THINKING

Description

This study guide outlines activities and resources that may be helpful in meeting the competency requirements outlined in the CSMLS competency profile category on critical thinking. It is intended to provide a sense of the expectations of professional practice for a critically reflective and systems-oriented approach to working as a self-directed and socially-aware individual within a global health care environment. We recognize that critical thinking cannot be taught and cannot be learned by reading about it in a book or online. The best way to develop critical thinking skills is to begin to examine your thought processes and to observe and critique those of others. Engaging in analysis and discussions of healthcare in Canada is a good way to begin to think critically.

This study guide addresses CSMLS Competency Profile Category 7, Critical Thinking. As outlined in the competency profile, "...the medical laboratory technologist applies critical thinking skills to constructively solve problems."

Learning Outcomes	Recommended Resources*
Self-directed learning and change <ul style="list-style-type: none"> • Critique your self-directed learning in past learning opportunities • Outline personal strategies for self-directed learning in your professional life. 	T3, Chapter 18 O1, O2, O10, O11 A1, A2, A3
Healthcare in Canada <ul style="list-style-type: none"> • Describe how Canadian healthcare is organized and funded • Outline how the Canadian medical laboratory profession is organized 	T1, Chapter 1 O3, O4, O5, O7 O6
Determinants of health <ul style="list-style-type: none"> • Describe the relationship between social determinants of health and patient outcomes • Describe the relationship between social determinants of health and laboratory outcomes 	T2 O12, O13
Systems thinking in healthcare <ul style="list-style-type: none"> • Given a healthcare scenario, describe the impact that the proposed change could have on other areas of the healthcare system 	O8, O9

* From the 'Learning Resources' list, below

Learning Resources

Texts from the CSMLS reference book list	
T1	Downie J, Caulfield T, Flood C (Eds). Canadian health law and policy, 3 rd ed. LexisNexis Canada Inc; 2007. ISBN 978-0-433-45221-8
T2	Raphael D (Ed). Social determinants, of health, 2 nd ed. Toronto: Canadian Scholars' Press; 2009.
T3	Harmening D. Laboratory management. Principles and processes, 2 nd ed. Philadelphia: FA Davis Company; 2007. ISBN 978-0-8036-1599-1

Online resources	
O1	Long HB. Skills for self-directed learning. http://faculty-staff.ou.edu/L/Huey.B.Long-1/Articles/sd/selfdirected.html (2010 February 26)
O2	Ainoda N, Onishi H, & Yasuda Y. Definitions and goals of “self-directed learning” in contemporary medical education literature. <i>Annals Acad Med</i> 2005; 34(8):515-19. http://www.annals.edu.sg/pdf/34VolNo8200509/V34N8p515.pdf (2010 February 26)
O3	Wikipedia. Health care in Canada. http://en.wikipedia.org/wiki/Health_care_in_Canada (2010 March 2) NOTE: Use information from Wikipedia pages with caution. Sometimes the information is inaccurate, incomplete or poorly referenced.
O4	Health Canada. Canada Health Act. http://www.hc-sc.gc.ca/hcs-sss/medi-assur/cha-lcs/overview-apercu-eng.php (2010 March 2)
O5	Health Canada. Health care system. http://www.hc-sc.gc.ca/hcs-sss/medi-assur/index-eng.php (2010 March 2)
O6	CSMLS. (2010). Provincial societies and regulatory bodies. www.csmls.org/en/links/provincial-organizations.html (2010 February 23)
O7	Austen I. How does Canada’s health care system actually work? http://economix.blogs.nytimes.com/2009/07/07/how-does-canadas-health-system-actually-work/ (2010 March 2)
O8	Canadian Health Services Research foundation. Mythbusters: We can eliminate errors in health care by getting rid of the ‘bad apples’; 2004. http://www.chsrf.ca/mythbusters/html/myth15_e.php (2010 March 2) (and other excellent papers on this site)
O9	Pegasus Communications. What is systems thinking? http://www.pegasuscom.com/systems-thinking.html (2010 March 2)
O10	LEO Network. What kind of learner are you? http://www.learnenglish.de/learnerpage.htm (2010 March 2)
O11	Campaign for Learning. What kind of learner are you? http://www.campaign-for-learning.org.uk/cfl/yourlearning/whatlearner.asp (2010 March 2)
O12	World Health Organization. Social determinants of health. http://www.who.int/social_determinants/en/ (2010 March 2)
O13	Public Health Agency of Canada. Determinants of health. http://www.phac-aspc.gc.ca/ph-sp/determinants/index-eng.php (2010 March 2)
O14	BioTalent. Biosmarts: Gauge your critical thinking skills. http://www.biotalent.ca/courses/details.asp?coid=4&eventtype=7 (2010 March 22)
Additional Resources	
A1	CSMLS continuing education course: <i>An Introduction to Ethics and Professionalism for Medical Technologists [4658]</i>
A2	CSMLS continuing education course: <i>Emotional Intelligence at Work [4875]</i>
A3	Grant MM. Toward a working definition of critical thinking in medical laboratory technology. <i>Canadian Journal of Medical Laboratory Science</i> , 58(3), 115-7.
	Troubleshooting sections in instrument manuals can provide insight into technical problem-solving strategies. A number of instrumentation companies provide online examples with information about operating instrumentation, analytical principles and quality control.

Suggested Learning Activities

1. There are many different tools and tests for getting information about how you learn. Using online reference # O10 or O11 (or any other learning styles inventory), find out what it says about how you learn. Did you learn anything new about yourself? How does this match your past learning experiences? Can you use this information to make future choices about your learning activities?
2. Using a journal, keep a record of your learning activities, particularly incidents that surprise you or cause strong reactions. What is noteworthy about these events? What can you learn about yourself as a result of your observations? Would you respond differently in the future?
3. How do the determinants of health affect Canadians' access to good health care?
4. Name one determinant of health that has a direct impact on laboratory results and describe its effects.
5. Let's say the Government of Ontario decides to initiate a screening program for diabetes in the whole Ontario population. What are the implications for medical laboratory services? What are the implications for other types of health services?
6. What would happen if a widespread pandemic placed major demands on healthcare institutions while also causing closing hospitals to all non-essential personnel? Consider the consequences for patient wait times; laboratory staffing (workload and scheduling); employees who hold multiple jobs at different institutions; student practicum training.

STUDY GUIDE

APPLIED INVESTIGATION

Description

This study guide presents some basic concepts in information-gathering and problem solving. These skills create a foundation for research and inquiry both within the laboratory and for academic or professional development activities.

This study guide addresses CSMLS Competency Profile Category 8, Applied Investigation. As outlined in the competency profile, "...the medical laboratory technologist demonstrates research skills to investigate, evaluate or problem-solve in the health care setting."

Learning Outcomes	Recommended Resources
Problem Solving Given a workplace case study or problem: <ul style="list-style-type: none"> • Outline steps in a systematic approach to resolving a problem • Describe information-gathering strategies for arriving at possible resolutions • Propose more than one solution to the problem 	T1, Chapter 30 T2, Chapter 4 O1, O2
Research skills <ul style="list-style-type: none"> • Use common information gathering tools in health care • Outline a procedure for evaluating laboratory analytical methods • Produce a brief report outlining the process and outcomes of a project or assignment 	T1, Chapter 11, 27 T3, Chapter 13 T4, Chapter 26 O4 A1, A2, A3, A4

Learning Resources

Texts from the CSMLS reference book list	
T1	Hudson J (Ed). Principles of clinical laboratory management: a study guide and workbook. Upper Saddle River NJ: Prentice Hall; 2004. ISBN 0-13-049538-7
T2	Harmening D. Laboratory management. Principles and processes, 2 nd ed. Philadelphia: FA Davis Company; 2007. ISBN 978-0-8036-1599-1
T3	Burtis A et al. Tietz fundamentals of clinical chemistry, 4 th ed. Philadelphia: Saunders/Elsevier; 2008. ISBN 978-0-7216-3865-2
T4	Kaplan et al. Clinical chemistry: theory, analysis and correlation, 5 th ed. CV Mosby; 2003.
Online resources	
O1	MindTools. Introduction to problem solving skills. http://www.mindtools.com/pages/article/newTMC_00.htm (2010 March 15)
O2	BusinessBalls. Problem solving and decision-making. http://www.businessballs.com/problemsolving.htm (2010 March 15)
O3	Online technical writing: technical reports. http://www.io.com/~hcexres/textbook/techreps.html (2010 March 24)

O4	Taylor D. The literature review: A few tips on conducting it. www.writing.utoronto.ca/advice/specific-types-of-writing/literature-review (2010 March 24)
Additional materials	
A1	Chatburn RL. Handbook for health care research, 2 nd ed. Jones & Bartlett Publishers.
A2	Hickson M. Research handbook for health care professionals. Oxford UK: Wiley-Blackwell.
A3	Grant MM. The Write Stuff series – Parts 1 to 6. <i>Canadian Journal of Medical Laboratory Science</i> , 2008 (4-6) and 2009 (1-3).
A4	Grant MM. Reading critically: getting what you need from scientific papers. <i>Canadian Journal of Medical Laboratory Science</i> , 63(1):18-24.

Suggested Learning Activities

1. Prepare an outline for a literature review on a laboratory topic in which you are very interested. What sources would you consult to fill in the outline to create the full paper?
2. Your supervisor asks you to evaluate a new glucose analyzer. What are the main steps you would take? How would you structure your written report to your supervisor?
3. Visit the websites of the following organizations and search for their documentation on laboratory standards:
 - CSMLS Loan Library
 - CLSI (formerly NCCLS)
 - ISO
 - CSB (Canadian Standards Board)
 - QMPLS-OLA
 - Health Canada

STUDY GUIDE

RESOURCE MANAGEMENT

Description

This study guide provides foundational resources and activities to support laboratory-related management skills development. It addresses the points outlined in the CSMLS competency profile Category 9 – Resource Management, which states, “The medical laboratory technologist addresses workplace challenges by applying skills involving human resources as well as skills in change management, materials management, financial management and information management.”

Learning Outcomes	Recommended Resources
Stress management <ul style="list-style-type: none"> • <i>Recognize indicators of individual stress</i> • <i>Recognize indicators of group stress</i> • <i>Propose an appropriate response to stress in others</i> • <i>Recognize your personal indicators of stress</i> 	T1 – Chapters 10, 12 O1 A1, A2
Conflict management <ul style="list-style-type: none"> • <i>Assess the effectiveness of strategies for handling conflict</i> • <i>Propose a strategy for handling a conflicted situation</i> • <i>Identify your personal conflict management strategy</i> 	T1 – Chapter 16 O2, O3
Change management <ul style="list-style-type: none"> • <i>Recognize indicators of resistance to change in others</i> • <i>Propose strategies for dealing effectively with change</i> • <i>Describe how change is evidenced in the healthcare environment</i> 	T1 – Chapter 9 O6 A3
Time management <ul style="list-style-type: none"> • <i>Recognize indicators of effective/ineffective time management</i> 	T1 – Chapter 34 O4, O5 A4
Information management <ul style="list-style-type: none"> • <i>Describe the role of a laboratory information system</i> • <i>Outline effective strategies for gathering information for work-related decisions.</i> 	T1 – Chapter 35 T2 – Chapter 15 T3 – Chapter 1 T4 – Chapter 18 T5 – Chapter 26 A5, A6

Learning Resources

Texts from the CSMLS reference book list	
T1	Hudson J (Ed). Principles of clinical laboratory management: a study guide and workbook. Upper Saddle River NJ: Prentice Hall; 2004. ISBN 0-13-049538-7
T2	Harmening D. Laboratory management. Principles and processes, 2 nd ed. Philadelphia: FA Davis Company; 2007. ISBN 978-0-8036-1599-1
T3	Burtis A et al. Tietz fundamentals of clinical chemistry, 4 th ed. Philadelphia: Saunders/Elsevier; 2008. ISBN 978-0-7216-3865-2
T4	Kaplan et al. Clinical chemistry: theory, analysis and correlation, 5 th ed. CV Mosby; 2003.
T5	Harmening DM. Modern blood banking & transfusion practices, 5 th ed. Philadelphia: FA Davis Company; 2005.

Online resources	
O1	Government of Ontario. Stress Management. http://www.edu.gov.on.ca/eng/career/stress.html (2010 February 17)
O2	Authenticity Consulting. Conflict management. http://managementhelp.org/intrpsnl/basics.htm (2010 February 17)
O3	National School Boards Association. Dealing with conflict. http://www.nsba.org/sbot/toolkit/Conflict.html (2010 February 17)
O4	Landsberger J. Time management. Ten applications of time management for learning. http://www.studygs.net/timman.htm (2010 February 17)
O5	National Capital FreeNet. Time management. http://web.ncf.ca/an588/time_man.html (2010 February 17)
O6	Chapman A. Change management. http://www.businessballs.com/changemanagement.htm (2010 February 17)
O7	MindTools. Stress management techniques. http://www.mindtools.com/pages/main/newMN_ISS.htm (2010 March 15)
Additional materials	
A1	Adler RB, Rosenfeld LB & Proctor RF. Interplay: the process of interpersonal communication, 11th ed. New York: Oxford University Press; 2009.
A2	Rout U & Rout JK. Stress management for primary health care professionals. Dordrecht Netherlands: Kluwer Academic Publishers; 2002.
A3	Drafke MW. Working in health care: what you need to know to succeed. Philadelphia: FA Davis; 2002.
A4	MacKenzie A & Nickerson P. The time trap: the classic book on time management, 4 th ed. Washington DC: American Management Association; 2009.
A5	Johns M. Information management for health care professions. Scarborough Canada: Thomson Delmar Learning; 2002.
A6	McGargle R. Laboratory information management systems. New York: VCH publishers; 2005.

Suggested learning activities

1. One of the technologists in the laboratory is extremely rude to other health professionals who telephone the laboratory. If you were his supervisor, how would you handle this situation?
2. As laboratory manager, you have observed that the heavy workload of the technologists appears to be affecting their productivity. What would you do in this case?
3. Take each of the case studies or scenarios described above, where would you go to gather the necessary information to make an appropriate decision?

STUDY GUIDE

COMMUNICATION

Description

This study guide provides guidance for acquiring the communication and personal interaction skills expected of a medical laboratory technologist. It has been designed to complement Category 10 of the CSMLS profile on communication and interaction, which states, “The medical laboratory technologist interacts in a professional and competent manner, using effective listening, verbal and written communication in dealings with laboratory colleagues, patients, students, clients, and other health professionals. The medical laboratory professional projects a professional image and follows generally accepted practices regarding interactions with clients, patients and colleagues.”

Learning Outcomes	Recommended Resources
Communication skills <ul style="list-style-type: none"> • <i>Recognize the differing communication needs of those with whom the MLT interacts</i> • <i>Describe the characteristics of effective listening skills</i> • <i>Demonstrate effective verbal communication</i> • <i>Create basic word-processed business communications</i> • <i>Create clear written documents</i> • <i>Identify major barriers to communication</i> • <i>Recognize non-verbal communication</i> 	T2, Chapter 9, 10, 11, 12 O1, O2, O3, O4, O5, O6, O7 A1, A2, A9
Interdisciplinary <ul style="list-style-type: none"> • <i>Outline the links between medical laboratory technologists and colleagues, patients, students, clients and other health professionals</i> • <i>Outline strategies for interdisciplinary collaboration</i> 	A3, A4, A5, A6
Patient care skills <ul style="list-style-type: none"> • <i>Recognize signs of stress/distress in patients</i> • <i>Propose strategies for responding to patient stress/distress</i> 	T2, Chapter 15, 16, 18 A7, A8, A9, A10

Texts from the CSMLS reference book list	
T1	Hudson J (Ed). Principles of clinical laboratory management: a study guide and workbook. Upper Saddle River NJ: Prentice Hall; 2003. ISBN 0-13-049538-7
T2	Purtilo R, Haddad A. Health professional and patient interaction. 7 th ed. Saunders Elsevier; 2007. ISBN 978-1-4160-2244-2
Online resources	
O1	Directorate of Optometric Continuing Education and Training. Communication skills in everyday practice. http://www.docet.info/docet/filemanager/FactSheet2.pdf (2010 February 26)
O2	Seagal J, Smith M & Jaffe J. Nonverbal communication skills: the power of nonverbal communication and body language. http://discoveryhealth.queendom.com/communication_short_access.html (2010 February 26)
O3	Quan K. Communication is essential to safe patient care; another skill health care professionals need to master. http://healthfieldmedicare.suite101.com/article.cfm/communication_is_essential_to_safe_patient

	_care (2010 February 26)
O4	Quan K. How well do you communicate? Language skills are vital for health care professionals. http://healthfieldmedicare.suite101.com/article.cfm/how_well_do_you_communicate (2010 February 26)
O5	Guenther M, Fitzgerald M. Patient communication – patient communication skills 2009. https://open.umich.edu/education/dent/patient-comm-skills (2010 February 26)
O6	Art-of-patient-care.com. Communication in health care. http://www.art-of-patient-care.com/communication.html (2010 February 26)
O7	MindTools. Improve your communication skills. http://www.mindtools.com/page8.html (2010 March 15)
Additional resources	
A1	Adler RB, Proctor RF, Towne N, Rolls JA. Looking out: looking in 3 rd Canadian ed. Nelson College Indigenous; 2006.
A2	Barnard S, Hughes KT, St. James D. Writing, speaking and communication skills for health professionals. New Haven CT: Yale University Press; 2001.
A3	Hammick M, Freeth DS, Goodson D & Copperman J. Being interprofessional. Polity Press; 2009.
A4	Drinka, T. J. K. & Clark, P.G. (2000). Health Care Teamwork: Interdisciplinary Practice and Teaching. Westport CT: Auburn House.
A5	Barrett, G., Sellman D., Thomas, J. (Eds.) (2005). Interprofessional working in health and social care. New York: Palgrave Macmillan.
A6	Hall, P. (2005). Interprofessional teamwork: Professional cultures as barriers. <i>Journal of Interprofessional Care</i> , May (Supp 1):188-196.
A7	Minor, S. & Minor, M. A. (2005). Patient care skills, 5th ed. Upper Saddle River NJ: Prentice-Hall. [See Chapter 2, "Preparation for patient care"]
A8	Acello, B. (1997). Patient care: Basic skills for the health care provider. Scarborough Canada: Thomson Delmar Learning.
A9	Silverman J. Skills for communication with patients, 2 nd ed. Radcliffe Medical Press; 2004.
A10	Woods MS. In a blink: Awareness, assessment and adapting to patient communication needs. Join Commission Resources; 2007
A11	van Servellen G. Communication skills for the health care professional: concepts, practice, and evidence, 2 nd ed. Jones & Bartlett; 2009.

Suggested learning activities

1. Keep a journal of your learning and work experiences. They do not need to be laboratory-related to be useful. When an incident surprises, angers, or interests you, write it down: describe the incident and how you felt about it; what types of communication skills were evident in the situation? Would the incident have ended differently if other (more/less effective) communication skills had been used?
2. How would others describe your communication style? (If you don't know, ask them!) Does their view match your own view of how you communicate?
3. You are preparing to perform a venipuncture on a patient in the out-patient clinic. What signs might tell you that she is scared of this procedure? How will you handle the situation?
4. How would you confirm that a patient has understood your instructions?

STUDY GUIDE

PROFESSIONALISM

Description

This study guide unit provides an orientation to the expectations for professional responsibility and conduct in the medical laboratory profession. It addresses the points outlined in the CSMLS competency profile Category 11 – Professionalism, which states that “The medical laboratory technologist meets the legal and ethical requirements of practice and protects the patient’s right to a reasonable standard of care. Professional responsibility encompasses scope of practice, accountability, and professional development.”

Learning Outcomes	Recommended Resources
Given scenarios, propose strategies for ethical practice that preserve patient confidentiality, dignity, and personal beliefs.	T1 – Chapter 2 T3 – Chapter 2, 10, 11, 12 T4 – Chapter 1, 2, 9 T5 – Chapter 17 T6 – Chapter 2 A1, A2, A3, A6, A7, A8, A9, A10, A11 O3
Demonstrate awareness of the certification, regulatory and licensing requirements in your province or territory.	T2 O5 A11
Demonstrate awareness of professional scope of practice and propose appropriate actions when asked to perform outside it.	O3 A11
Outline procedures for obtaining appropriate informed consent.	T2 – Chapter 5 T3 – Chapter 2 T4 – Chapter 12 T6 – Chapter 2 A11
Take responsibility for personal actions and personal safety.	T1 – Chapters 1 & 2 A3, A10
Develop a personal learning strategy for professional development	T5 – Chapter 18 A1, A4 O6, O7, O8, O11, O12 A5, A10
Propose personal strategies to promote the medical laboratory profession.	O3, O9
Create a personal definition of professionalism.	O1, O3, O4 A1, A2

LEARNING RESOURCES

Texts from the CSMLS reference book list	
T1	Hudson J (Ed). Principles of clinical laboratory management: a study guide and workbook. Upper Saddle River NJ: Prentice Hall; 2004. ISBN 0-13-049538-7
T2	Downie J, Caulfield T, Flood C (Eds). Canadian health law and policy, 3 rd ed. LexisNexis Canada Inc; 2007. ISBN 978-0-433-45221-8
T3	Purtilo R, Haddad A. Health professional and patient interaction. 7 th ed. Saunders Elsevier; 2007. ISBN 978-1-4160-2244-2
T4	Pozgar GD. Legal and ethical issues for health professionals. Boston: Jones and Bartlett; 2005.
T5	Harmening D. Laboratory management. Principles and processes, 2 nd ed. Philadelphia: FA Davis Company; 2007. ISBN 978-0-8036-1599-1
T6	McCall RE, Tankersely CM. Phlebotomy essentials, 4 th ed. Philadelphia: Lippincott Williams & Wilkins; 2008.
Online resources	
O1	West Virginia Rural Health Education Partnerships. Professionalism [online]. http://www.wvrhep.org/ids/chapters/IDS-%20ManualProfessionalism.htm (2010 February 23)
O2	University of Massachusetts Medical School. Guidelines for professional behaviour. http://www.umassmed.edu/uploadedfiles/Professionalism.pdf (2010 February 23)
O3	CSMLS. (2001). Code of professional conduct. www.csmls.org/en/about-csmls/code-of-conduct.html (2010 February 23)
O4	CSMLS. (2009). Standards of practice. www.csmls.org/en/about-csmls/standards-of-practice.html (2010 February 23)
O5	CSMLS. (2010). Provincial societies and regulatory bodies. www.csmls.org/en/links/provincial-organizations.html (2010 February 23)
O6	College of the North Atlantic. Personal PD plan development. http://www.cna.nl.ca/employees/PD/pdplan.asp
O7	eHow. How to create a professional development plan. http://www.ehow.com/how_5319951_create-professional-development-plan.html
O8	National Science Teachers Association. Steps to developing a personal professional development plan. Available: www.nsta.org/pdfs/pd_steps.pdf (2010 February 23)
O9	McLane, M. A. (2010). Do one thing to promote the lab profession. Medical Laboratory Observer, February. http://www.mlo-online.com/features/2010_february/0210_washington_report.aspx (2010 February 23)
O10	Bissell M. (1991). How ethical dilemmas induce stress – ethical dilemmas and the clinical laboratory, part 1. <i>Medical Laboratory Observer</i> . http://findarticles.com/p/articles/mi_m3230/is_n7_v23/ai_11001055/ (2010 March 15)
O11	A question of professionalism. <i>Medical Laboratory Observer</i> . http://findarticles.com/p/articles/mi_m3230/is_n6_v21/ai_7355044/ (2010 March 15)
O12	MindTools. Information and study skills. http://www.mindtools.com/pages/main/newMN_ISS.htm (2010 March 15)
O13	MindTools. Career development skills. http://www.mindtools.com/pages/main/newMN_ISS.htm (2010 March 15)
Additional resources	
A1	Scott, R. W. (2006). Guide for the new health care professional. Sudbury MA: Jones & Bartlett.
A2	Makely, S. (2008). Professionalism in health care: A primer for career success, 3 rd ed. Upper Saddle River NJ: Prentice Hall.
A3	Flynn, E. P. (2000). <i>Issues in health care ethics</i> . Upper Saddle River NJ: Prentice Hall.

A4	Costa, A. & Kallick, B. (2003). <i>Assessment strategies for self-directed learning</i> . Thousand Oaks CA: Corwin Press Inc.
A5	Gray, E. (2003). <i>Conscious choices: A model for self-directed learning</i> . Upper Saddle River NJ: Prentice Hall.
A6	Veatch, R. M., Haddad, A., & English, D. D. (2009). <i>Case studies in biomedical ethics: Decision-making, principles, and cases</i> . New York: Oxford University Press.
A7	Seedhouse, D. (2005). <i>Values-based decision-making for the caring professions</i> . Mississauga Canada: John Wiley & Sons.
A8	Seedhouse, D. (2009). <i>Ethics: The heart of health care</i> , 3 rd ed. Mississauga Canada: Wiley-Interscience.
A9	CSMLS continuing education course: <i>An Introduction to Ethics and Professionalism for Medical Technologists [4658]</i>
A10	CSMLS continuing education course: <i>Emotional Intelligence at Work [4875]</i>
A11	CSMLS continuing education course: <i>The Technologist and the Law [2603]</i>

Suggested learning activities

1. Is the province/territory in which you work regulated? What are the expectations for professional conduct of your provincial professional association or regulatory body? [for further information, visit www.csmls.org/en/links/provincial-organizations.html]
2. What are the expectations for professional conduct of the Canadian Society for Medical Laboratory Science? [for further information, visit www.csmls.org/en/about-csmls/code-of-conduct.html and www.csmls.org/en/about-csmls/standards-of-practice.html]
3. Discuss this case with your work colleagues or other health professionals: A physician insists that the staff in your laboratory perform arterial punctures, even though the technologists have not been trained in this technique and this is not part of the Canadian MLT's scope of practice. Where do you go for information and advice?
4. Discuss this case with your work colleagues or other health professionals: A friend of yours is worried about the health of her mother, who has just undergone some laboratory testing. Your friend asks you to look up her mother's lab results so that she doesn't have to wait for the doctor's appointment to find out if something's wrong. What do you do?
5. Discuss this case with your work colleagues or other health professionals: You have been asked to perform a venipuncture on a patient while he is asleep. What do you need to keep in mind in this situation?
6. Where would you like to be in the profession in five years? How do you plan to accomplish this? What kinds of professional development will you undertake to achieve this goal?
7. Discuss this case with your work colleagues or other health professionals: You are traveling in an elevator with other health professionals, patients, and visitors to the hospital. One of the other health professionals starts to tell a story about the illness of one of his patients. What do you do?
8. How would you differentiate 'professional behaviour' from 'professionalism'?
9. How do you plan to contribute to the next National Medical Laboratory Week (held in April of each year)?
10. Keep a journal of your learning and work experiences. They do not need to be laboratory-related to be useful. When an incident surprises, angers, or interests you, write it down: describe the incident and how you felt about it; outline what you found noteworthy; suggest

how you (or another person) might learn from the experience or handle it differently the next time.

11. You observe a colleague changing the result for a quality control (QC) specimen (without re-testing it) so that it now fits inside the acceptable limits. You ask her about this and she says that the QC specimen is usually *never* outside the limits so she knows this is just an isolated error. Besides, it would delay the whole batch of results if she had to retest all of the specimens just because of the QC. What are your possible actions in this case? Which would you choose, and why?