

Trillium Chapter



THE RESOURCE FOR LABORATORY PROFESSIONALS

Laboratory Medicine: Education/Career Path Model

DISCUSSION PAPER

Clinical Laboratory Management Association
Trillium Chapter

August 11, 2009

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MESSAGE FROM THE CLMA TRILLIUM CHAPTER PRESIDENT

Dear Fellow Laboratory Stakeholders:

As healthcare is entering into a new era of preventative and predictive medicine (“Health for All”), it is faced with formidable challenges: Funding, Capacity, and Health Human Resources.¹ As most of us appreciate, challenges open new prospects for change and innovations.

The Clinical Laboratory Management Association (CLMA) Trillium Chapter supports and advocates for laboratory leaders and the laboratory medicine profession at the management level. Our Board Members are all leaders within Ontario’s Healthcare system. As leaders, we would like to initiate some discussion amongst laboratory stakeholders on proposing a new Education/Career Path Model as part of our human resource strategy. We feel that radical and innovative changes are needed to sustain and enhance the level of laboratory services that we have all worked to provide.

Laboratory medicine is at the forefront of medical advances. There has been a remarkable growth in the laboratory environment with respect to complexity of available tests, equipment, techniques, and services. It is predicted that clinical laboratory technology will play an even greater role in the future delivery of healthcare.

Our objective is “Sustainability in Laboratory Human Resources”: To establish the right mix of talents, education, and expertise in the laboratories for the good of all patient care.

This Discussion Paper outlines the impact laboratory medicine has made on healthcare and the implication on diminishing human resources as the current workforce approaches retirement age. It demonstrates the basis of the proposed Education/Career Path Model, and promotes stakeholder engagement. The feedback that we receive from this Discussion Paper will be used to draft a Position Paper which will set out a comprehensive laboratory human resource strategy and actions for laboratory medicine.

I encourage all laboratory stakeholders to take the opportunity to participate in the discussion and express your ideas on how we could shape our future and influence the generations to come. Your comments on this Discussion Paper are invited by **November 30, 2009**.

Sincerely,

Bonnie Reib
President, CLMA Trillium Chapter

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OVERVIEW

The purpose of the Discussion Paper is to raise awareness, create a platform for discussion, and solicit feedback and opinions on issues affecting the sustainability of laboratory human resources--most particularly the adoption of an improved Laboratory Education/Career Path Model ("Model"). The paper is intended to invite stakeholders and interest groups to provide input on this proposed Model.

Your feedback is important for two reasons: Firstly, there is urgency in addressing the shortage of laboratory professionals in order to mitigate its impact on patient care. Secondly, in order for educational institutions, regulatory bodies, and certifying organizations to embrace an alternative model, it will be important to have thorough and open discussion and strong support from laboratory stakeholders.

Part of the stakeholder engagement process is the opportunity to respond to this Discussion Paper and/or the participation in an upcoming national survey. Once broad-based input from stakeholders is received, a position paper will be drafted which will outline the Clinical Laboratory Management Association Trillium Chapter's ("CLMA Trillium") stance and recommendations on sustaining the laboratory human resources. We believe the position paper will be beneficial for advocating alternative entry channels into the laboratory professions and provide improvements to the career paths available to laboratory professionals.

Included in this Discussion Paper are instructions for submitting responses, background information, statements of problem and need, illustration of the proposed career-laddering model, and rationale of the approach.

STAKEHOLDER ENGAGEMENT PROCESS

The stakeholder engagement process was launched in March 2009 at a Stakeholder Engagement Reception at Queen's Park (Ontario) where laboratory stakeholders from the government, Ministry of Health and Long Term Care ("Ministry"), healthcare organizations, educational institutions, accreditation and professional organizations committed to collaborate and continue the dialogue towards advancing laboratory medicine and elevating the profile of laboratory professionals.

The Discussion Paper is one of several exploratory and consultative initiatives that have been planned and/or are underway; including, but not limited to, pilot surveys of interest groups comprising laboratory leaders, educators, and laboratory specialists. The intention is to use the feedback from the discussion paper and pilot surveys to develop a Position Paper which the CLMA Trillium will use to advocate for changes that will improve the sustainability of laboratory services delivery.

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HOW TO RESPOND TO THIS DISCUSSION PAPER

The CLMA Trillium invites written submission in response to this Discussion Paper, which is also available at <http://www.cmatc.com/> . Answers to specific questions posed in this paper (see page 8) or general comments on the proposed Model or related issues raised are invited.

The closing date for submission is **September 13, 2009**.

Submission should be sent by email or fax to:

Discussion Paper
CLMA Trillium Chapter
C/O Maricon Sanelli, CLMA Trillium Chapter Board Member
maricon.sanelli@sickkids.ca
OR
416-813-2156

The following details should be provided if you wish to participate in the national survey and/or receive survey results and copy of the position paper.

Name/Name of Organization
Title (if applicable)
Affiliated Institution (if applicable)
Telephone #
Email Address
Fax # (optional)

Mark the submission “Confidential” or “Anonymous”, if preferred.

If you have any questions regarding the Discussion Paper process, please contact **Maricon Sanelli** at 416-813-6205 or maricon.sanelli@sickkids.ca.

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BACKGROUND

This section of the paper provides background information about laboratory medicine's impact on healthcare and its implications on human resources. It explains the forces that formed laboratory medicine into its current state and from which the need to consider a new career-laddering approach or education/career model have emanated. This section will also describe the drivers of future needs in laboratory medicine, which will influence the way in which laboratory human resources are sustained as a record number of experienced technologists retire from the profession.

Historical Context

Three Eras of Healthcare.²

1st Era → 1750 – 1950

- Focused on acute and infectious disease;
- Early medical laboratory technology program was established in 1950's
- *Laboratory: Entry into the profession was on-the-job training*
Nursing: Entry into the profession was apprenticeship (1874 to 1949)³

2nd Era → 1950 – 2010

- Increasing focus on chronic diseases;
- Registered General Technologists, "Subject" Registered Technologists (up to 1990's), Advanced Registered Technologists (ART) were instituted
- BScMLS (some provinces)
- *Laboratory: Entry into the profession is completing a Medical Laboratory Program and passing national examination*
Nursing: Entry into the profession required either baccalaureate degree or college diploma (two streams coexisted for many years); but effective 2005 baccalaureate degree in nursing is required.³

3rd Era → 2010 – Future

- Increasing focus on optimal health status (Health for All)
- Demand for trained and experienced technologists/technicians who are ready to perform in a clinical setting
- *As healthcare evolves, so too should be the entry-to-practice educational requirements for all healthcare professionals.³*

Health Reform & Laboratory Restructuring

Health reform and laboratory restructuring occurred in the 1990's that resulted in flattening of organizations (layoffs), reduced availability of clinical settings, and fewer candidates successfully challenging the national certification examination.⁴⁻⁵

Environmental Impact

There are a number of factors impacting the education required to practice Medical Laboratory Technology. These include:

- Regulation of Medical Laboratory Technology as a regulated health profession;
- Aging workforce;
- The flattening of organizations in the 1990's which precluded in-house professional development, and even resulted in a moderate size exit from the field;

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- Ongoing transition in the focus of laboratory services from diagnostic testing to preventative and predictive testing;
- Innovation in laboratory technology (new tests and advances in equipment and techniques) that could lead to specialized MLT training needs.

Current State

1. MLTs are the third largest group of healthcare professionals in Canada after nurses and physicians.⁶
2. Over 80% of the medical decisions made are based on laboratory test results.⁷
3. Fifty percent (50%) of MLTs are eligible to retire by 2016.
4. The minimum training and certification requirements for MLTs is two to three years post-secondary education and mandatory Certificate of Registration, respectively.⁸
5. Many students are entering the medical laboratory program with a Baccalaureate degree, therefore it could take up to six to seven years of education before these individuals can work at a bench.
6. The current education model for MLTs (curriculum focuses on generalist disciplines) combined with the current regulatory requirements which excludes a segment of trained candidates who lack prerequisites for entry to practice—(e.g. those with bachelor of science and master degrees in specialty areas such as Virology, Electron Microscopy, Flow Cytometry, Nucleic Acid Testing (NAT/PCR), Microarray (DNA testing), Mass Spectrometry, and Pathology Assistants).
7. Experience or credentials of specialists with advanced degrees or internationally educated technologists are rarely accepted as having equivalent educational backgrounds so registration is seldom granted. This results in highly educated and or experienced candidates having to enroll in programs that will prepare them to write the national general certification examinations and qualify for registration as a MLT. This can require an additional 3 to 4 years of schooling to qualify for the MLT certification examinations.

PROBLEM STATEMENT

Problem

The aging and uneven distribution of medical laboratory technologists could compromise the sustainability of healthcare such that it could potentially impact wait times, access, and cost effectiveness, if human resources issues are not addressed.

Issues

Key human resources issues are affecting the efficient operations of clinical laboratories and patient care at large:

1. Shortage of qualified and registered Medical Laboratory Technologists (MLT)
2. Educational institutions are not training a sufficient number of Medical Laboratory Technologists to meet the current or future needs of the laboratory industry.
3. Current educational channels do not support medical technologists to easily obtain specialized training and certification to make use of new technologies (such as molecular diagnostic techniques).
4. Newly developed technologies are not readily incorporated into the training curriculum for medical laboratory training programs, creating a bottleneck in the introduction of new technologies.
5. Regulatory/licensing barriers exist in most provinces with respect to employment of “Lab Specialists” who hold advanced degrees (including those from abroad) in specialty areas of laboratory medicine. In Ontario, however, the current regulatory model (e.g. Regulation 682 of the *Laboratory and Specimen Collection Centre Licensing Act*) permits alternate entry into practice for these trained laboratory professionals, but this option is not being exercised or given much attention.

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6. Current training programs for MLTs and MLAs (Medical Laboratory Assistants), and PA (Pathology Assistants) limit career paths for laboratory professional.
7. Lack of awareness of interest of students and guidance counselors in career in laboratory medicine.

NEEDS STATEMENT

To meet the operational needs of laboratories, improve the education process and career paths for laboratory personnel, and make laboratory medicine profession more attractive and accessible, there is a potential or need to revamp the laboratory education models and career paths.

POSSIBLE APPROACH TO CONSIDER

Education/Career Path Model

The development of Education/Career Path Model (See Figure 1, page 9) is aimed to address the aforementioned human resources issues. The proposed process is progressive in that the core or general training is laid as the foundation of an MLT education. The MLT could choose to branch into a subject or specialist area or discipline; then pursue a BScMLS, expand to management, research, or education; and ultimately pursue higher learning for expertise, if so desired.

The Model is designed to generate the following benefits:

- “Fast-track” entry into the profession
- Offers natural career progression or career ladder
- Recognition of specialization and experience of internationally educated MLTs
- Potentially more attractive to enter laboratory medicine
- May increase employers’ interest in participating in clinical placements
- Supports staffing for “Load & Go” (automated/routine testing) and laboratory specialization
- Provides broader education and career opportunities to MLTs in rural laboratories who work across various disciplines
- Encourages stakeholder collaboration

QUESTIONS

When responding to this Discussion Paper, please provide feedback on the following issues. If you can offer the perspective of more than one stakeholder groups when providing your feedback, please identify the stakeholder group perspective that you are expressing.

1. To what extent do you agree that a new conceptual model for laboratory medicine education needs to be developed? Explain.
2. To what extent do you support the concept of discipline-specific specialists? Explain.
3. In your opinion, what should the “Core” of the model look like? What competencies would you like included in the “Core”?
4. If any, add comment(s) or feature(s) that should be considered in the approach or the development of the model.
5. Would you be interested in participating in, and receiving results of, a national survey?

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Proposed Education / Career Path Model

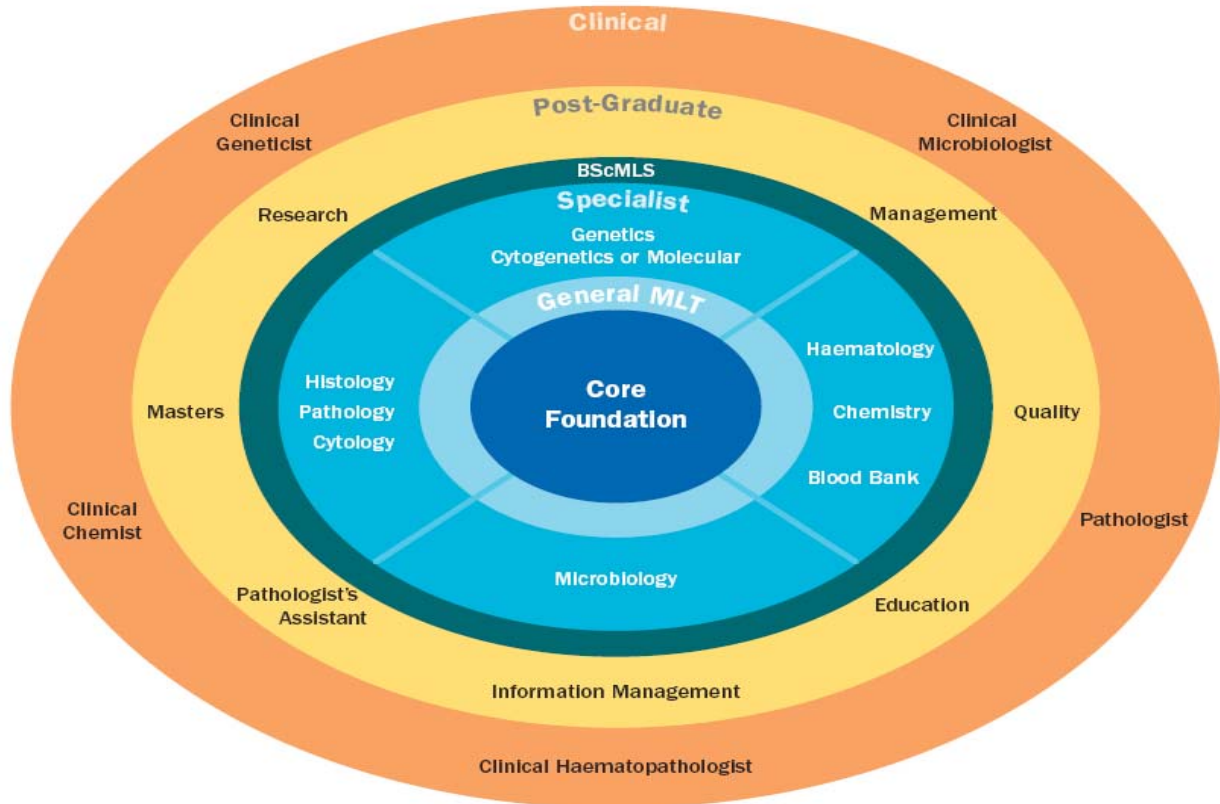


Figure 1: Proposed Education/Career Path Model

DISCUSSION

Human resource shortages, the need for specialization, and the impact of emerging technological and scientific advances are considered highly pressing as we usher in Era 3 of Healthcare (predictive and preventative medicine).⁹ Accordingly, we are forced to challenge the status-quo and re-think some of the approaches that we employ, such as the re-defining of the education career path of laboratory professionals. Moving to Era 3 will require: Innovating, rebalancing, re-aligning; new or renewed partnerships; and new communication strategy. It is this context in which this Discussion Paper resides.

There is dichotomy in Laboratory Medicine today: Laboratories are becoming more automated (perform routine testing) and they are also sought upon to perform complex testing. “Load & Go” is becoming more prevalent in the laboratories and requires less skilled operators while other specialized technologies require highly skilled users. This highlights the need for multi-tiered skills and education in order to sustain laboratory medicine (“one size no longer fits all”). General MLTs and laboratory specialists should be delineated such that laboratory specialists who perform more expansive and esoteric testing should be given advanced or higher level core competencies and specialist registration category by the regulatory/licensing bodies. This approach would also validate laboratory specialists with advanced degrees (e.g. internationally educated MLTs) to perform approved testing in the laboratory.

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To be considered as counterparts to other healthcare professionals, laboratory technologists should be supported by an education/career path model that will provide them opportunity to develop their potential, advance their careers, and contribute to research in laboratory medicine. Currently, there is little or no research generated by MLTs as there are few current BSc and MSc routes for MLTs, unlike nursing.

Anecdotally, there is a debate about whether MLT should require a baccalaureate degree like new nurses do in order to enter into the profession. Nursing is moving from a task focus to a profession that demands critical thinking, problem solving, evidence-based practice and research in response to the complexity in their patients and environment as well as their collaborative relationships with interprofessional teams.³ So, too, laboratory medicine demands baccalaureate degree and the same type high caliber skills, *but only* in certain niche areas that are complex and require high expertise (e.g. virology, molecular genetics). It follows that those solid general skills in routine laboratories that require fewer rigors in judgment do not necessitate a baccalaureate degree. Therefore, the proposed education/career path model must be dynamic and flexible to sustain the future healthcare demands.

The model suggests a basic (core) entry level and then other levels through which MLTs can progress as they gain more education and experience. For instance, a Medical Laboratory Assistant (MLA) may obtain additional training and qualify for MLT certification; and an MLT may specialize in particular discipline(s). There are also a number of other career paths that an MLT or MLA may move into, such as management roles, Information Technology (IT) roles, Quality Management, and so on. In some cases, an MLT may progress to a Pathologist or Haematologist. Some may ultimately obtain a PhD and become Biochemists, Clinical Geneticists or Clinical Microbiologists (might require obtaining an MD or PhD). All these roles do have profound impact on quality and safe patient care.

Due to the recent high-profile quality and patient safety issues faced by Quebec and Newfoundland & Labrador, laboratory medicine has been and will continue to be under public scrutiny. Pressure is upon laboratory medicine to maintain high quality standards, therefore must address prevailing human resource issues. The Commission of Inquiry on (inaccuracies of) Hormone Receptor Testing (Cameron Report) and Health Professions Regulatory Advisory Council's recommendations on the practice of MLTs (HPRAC Report) highlight the negative impact of laboratory staffing shortages on patient safety, and the necessity for medical laboratory stakeholders collaboration to address the human resources concern, respectively.¹⁰⁻¹¹ To this end, it is imperative that laboratory stakeholders get involved through this Discussion Paper.

CLMA Trillium is inviting laboratory stakeholders' input to build an education/career path model for laboratory professionals that is sustainable, cost effective, and focused on patient outcomes.

CONCLUSION

In conclusion, it is hoped that this Discussion Paper has raised awareness and mobilized stakeholders to contemplate, discuss, and provide input into revitalizing the laboratory human resources to meet future patient needs. Our future is in our hands!

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