

Medical Laboratory Technologists National Human Resources Review – 2002 Update

Nation-Wide Alert!

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Section 1: National Overview

Introduction

In May 2001, the Canadian Society for Medical Laboratory Science published a report, *Medical Laboratory Technologists National Human Resource Review – A Call for Action*. The report analyzed the supply of certified general medical laboratory technologists in Canada for the next 15 years. Detailed information, including estimates of the percentage of the laboratory workforce expected to retire over the next fifteen years, was provided for each province.

The report concluded that Canada will face a serious shortage of general medical laboratory technologists within the next five to fifteen years. Data from the report indicate that 12 per cent of the general medical laboratory technologists in Canada will be eligible to retire by 2005; another 15.8 per cent by 2010 and another 16.6 per cent by 2015. It predicted that by the year 2015, nearly half (44.4 per cent) of all Canada's MLTs will be eligible to retire.

Cutbacks to training programs for general medical laboratory technologists have significantly reduced the supply of new graduates. Based on current figures, Canada is not producing a sufficient number of graduates to replace those who will retire over the next fifteen years. Manitoba and Nova Scotia were identified as being at the highest

risk for a shortage of MLTs due to the fact that neither province had a training program for MLTs. Ontario, British Columbia, Saskatchewan were also identified as being a high risk for a shortage of MLTs.

Background

Medical laboratory technologists are Canada's third largest group of health care professionals. They conduct sophisticated medical tests on blood, body fluids and tissue. Test results are used by physicians to evaluate and make informed decisions about their patients' health and possible treatment and to further advances in medical research. Medical laboratory technologists are graduates of accredited training programs at the college level, although many also have university degrees. Most of them complete the national certification examination administered by the Canadian Society for Medical Laboratory Science. Certification is offered in three disciplines: General Medical Laboratory Technology, Diagnostic Cytology and Clinical Genetics.

While this edition of the report deals primarily with human resource issues affecting general medical laboratory technology, issues affecting the specialty areas of cytotechnology

and clinical genetics are also considered.

As noted in the first issue of this report, health care restructuring resulted in significant downsizing of the medical laboratory technology work force in Canada during the 1990s. Accredited training programs in medical laboratory technology were cut back or eliminated altogether. In 1997, following the identification of extremely concerning data about future HR supply for the profession, CSMLS contacted the Advisory Committee on Health Human Resources (ACHHR), an interprovincial committee comprised of deputy ministers of health or their designates, and eventually persuaded them to conduct an environmental scan on the human resource issues affecting medical laboratory technology. The results were published in May, 1999 in a report entitled, "*An environmental scan of the human resource issues affecting medical laboratory technologists and medical radiation technologists.*" The report concluded that "the anticipated rate of retirement in the baby boom technologists work force in the next five to 10 years is expected to create a significant shortage, which is already being felt." It recommended that a national strategy be developed to address this impending human resource crisis.

The ACHHR report has been recently updated to reflect the current situation and is expected to be publicly available some time later this spring. As such, three years later there have been no actions taken on the recommendations contained within the initial environmental scan, and the situation continues to deteriorate across Canada.

Reports emanating from other countries, such as Britain and the United States, indicate that this a global problem. The first edition of this report was a **Call to Action** to provincial and federal governments to take immediate steps to ensure that there is a sufficient number of medical laboratory technologists to meet the future health care needs of Canadians. *Time is running out for several provinces, and this report is therefore entitled **Nation-Wide Alert for all.***

Limitations of Existing Work Force Data

One of the major difficulties of addressing the human resources issue for medical laboratory technologists is the lack of accurate data on the current work force. CSMLS has been successful in the past year in bringing attention to the fact that the previous data published by the Canadian Institute for Health Information (CIHI), taken from the CSMLS Annual Report, was not totally representative of the profession. The recent updates for medical laboratory personnel now also include input from provincial regulatory bodies where they exist. The need for a reliable human resources database for all health professions is

still an urgent need, and we believe that the original recommendation in the ACHHR report must be given urgent priority.

This 2002 report is an update of the compilation of information from a variety of sources, including CSMLS, provincial societies and regulatory bodies for medical laboratory technologists and accredited training programs. While the data presented in this report present a reasonably accurate picture of human resource trends in general medical laboratory technology across the country, it should be noted that it has been seen as a conservative estimate of the HR picture in the profession.

CSMLS Data Forecasts Worsening Picture

As reported in the **Call to Action**, the total number of medical laboratory technologists was significantly reduced during the health reform of the 1990s (CIHI – Review of Health Human Resources 1986-1997). Medical laboratory technology sustained more cuts than any of the other health care professions. The current work force has been downsized to such an extent that it is *extremely* vulnerable, and has likely exceeded any possible safety margins. A shortage of personnel is now not a question – it is matter of how seriously it will compromise patient care!

Table 1 shows the **updated estimates** of the number of medical laboratory technologists who will be eligible to retire over the next 15 years. As you can see, 14.6 per cent of the total work force will be eligible to retire in five years;

17.8 per cent in ten years and another 18.1 per cent in 15 years. By the year 2016, 50.5 per cent of the medical laboratory work force will either have retired or will be eligible to retire.

These numbers show a 6% increase from the previous estimates in the total number of future retirements from the profession. This is a reflection of the change in the demographics that is already happening in the workforce. It includes those who have chosen for now to defer retirement at 55, as well the increasing number eligible each year as we head for the crest of the wave – “the pig in the python” effect.

The table also now includes predictions for the time slot 2017 to 2021, where we can see that the problem is not as severe, but the needs still exceed the capacity of today’s educational program output. (See Table 2)

The impact of cuts to training programs

Results of the 2001 CSMLS Graduate Employment Survey¹ confirm that a nation-wide shortage of medical laboratory technologists is imminent. The survey looked at the employment status of the 163 medical laboratory technologists who completed the national certification examinations in 2001. It found that 50.9 per cent of graduates were permanently employed as medical laboratory technologists one year after graduation – an increase of more than 20 per cent over the 2000 survey. Less than 5 per cent of the year 2000 graduates surveyed were not employed as a technologists in either a full time or

Table 1

Time frame	Total number of eligible retirements *	Number per year	Percentage of total work force
Now - 2006	3013	603	14.6
2007 - 2011	3681	736	17.8
2012 - 2016	3720	744	18.1
2017 - 2021	2838	567	13.7

Estimate of current medical laboratory work force in Canada: 20,684

* Estimated on certification at age 20 and early retirement at age 55

Table 2. Training Program Positions Currently Available/Enrolled (February 2002)

Province	Number of training programs	Training positions available per year	Number of students enrolled
NF	1	27	20
NB	1E - 1F	26	20
NS	0	0	0
PEI	0	0	0
QC - E - F*	1 8*	40 382	40 274
ON	3	96	101
MB	1	25	20
SK	1	16	18
AB	3	66	65
BC	1	40	40
National - English	12	330	318
National - French	10	388	280

*One QC program (not included) in operation not currently accredited - graduates not CSMLS certified.

Table 3. National Training Positions – Outside of Quebec

Time frame	Training positions currently available per year *	Number of new graduates needed per year	Difference per year	Additional training positions needed over 5 years
Now - 2006	296	510	214	1070
2007 - 2011	296	599	303	1515
2012 - 2016	296	582	286	1430
2017 - 2021	296	481	185	925

part-time capacity one year after graduation, as compared to 12 per cent in the previous year's survey. In some provinces, such as British Columbia, 100 per cent of the graduates were working full time as medical laboratory technologists within a year.

Drastic cutbacks to training programs for general medical laboratory technologists have reduced the pool of new

graduates who will be available to replace those who will retire. Table 2 shows the number of training programs and positions available in each province.¹

Table 3 provides an estimate of the number of training positions outside of the province of Quebec that will be required to produce a sufficient number of graduates to replace those technolo-

gists who will retire over the next 15 years. As you can see, the number of training positions must be increased significantly to avert a shortage of medical laboratory technologists.

¹ New Graduates Employment Report: The Picture Continues to Improve, CJMLS 64:72-75, 2002

Table 4. National Training Positions – Quebec only

Time frame	Graduates available per year	Estimated number of new graduates needed per year
Now - 2006	422	97
2007 - 2011	422	143
2012 - 2016	422	168
2017 - 2021	422	90

While Table 4 suggests an oversupply of training positions in Quebec, the recent graduate employment report of 2000 graduates who were surveyed in the fall of 2001¹ indicates that there is a significantly improved uptake into the work force in Quebec. Assuming a willingness to travel, and suitable language skills, CSMLS certified Quebec grads will be in high demand throughout the rest of Canada.

Key issues

There are a number of factors which must be taken into consideration when developing a human resource plan for medical laboratory technology. These include:

The Changing Workplace

- An aging population with the potential of exponential increases in demands on the health care system. While some of the predictions about the impact on the health systems appear to be contradictory, we expect that diagnostic testing will increase whether in the hospital or outpatient scenario.
- New technologies and instrumentation have been introduced in the medical laboratory at an exponential rate in the last few decades – no other area of health care has seen as much an increase in the use of technology. The success of these changes has been the highly trained professionals operating these systems. Reports from the USA clearly evidence the negative impact on quality where lesser trained personnel are em-

ployed in this highly sophisticated workplace.²

- Increasing government regulations, quality assurance initiatives, along with more detailed record-keeping requirements, will require additional human resources.
- The impact of further health reform. Provincial governments are examining many different options for the future of their health care systems.
- Burnout and fatigue are already taking a toll on the current medical laboratory work force. Across Canada, there are already many reports of worker fatigue, with many current workers seeking reduced hours in the twilight of their careers. The fatigue factor has the potential to accelerate worker plans for retirement, possibly even before the predicted early exit time lines in this report. Shortages due to illness will result in higher overtime costs, as well as increased sick time benefit expenses.
- There are increasing pressures and stresses in the demand to do more with less, a souvenir of the health reform of the 1990s. There have already been media reports of the serious consequences of tasking shortcuts in the laboratory (CBC Disclosure, Feb 26, 2002), and the safety risks to the workers, along with a serious impact on the quality of work, will only increase as the crisis deepens.

Use of Appropriately Qualified Personnel

- The increased use of technology and laboratory assistants has been sug-

gested in the environmental scan as a possible solution to the human resource crisis in general medical laboratory technology. Unfortunately, the authors of this report failed to take into consideration the demographics of the current laboratory assistant work force in Canada, and HRDC data would suggest that they share a similar age profile to medical technologists. At the current time, there is not a human resource plan in place for laboratory assistants. As such, the supply of properly trained and qualified laboratory assistants is uncertain.

- There have been pressures in some sectors to solve the HR shortage by the reactivation of subject level certifications which would allow employers to use university degree science graduates for work in clinical laboratories. The experiences of the 1990s clearly demonstrated the **failure** of subject-specific certification in the face of the ever changing needs of the clinical laboratory of the new millennium. A move in this direction will be putting patient care at risk with workers who do not have the comprehensive understanding provided in the training of a general medical laboratory technologist, as well as being a disservice to the workers who are unable to meet future employment requirements.

2. The Physicians Office Laboratory Study, State of California. 1997.

Student recruitment and retention

- Careful consideration will need to be given to the clinical training requirements for medical laboratory technology students. The pressures and stresses of today's workplace require special support for the training of clinical phase students.
- It is essential that there be careful monitoring of student retention, with a focus on meeting the expected number of graduates during the next ten years. Special effort may be required by the training program to recruit a suitable number of students in view of the competition with many other professions affected by the exodus of the baby boomers from the work force. Medical laboratory technology is a very intense program

with a high risk of drop-out. It must also be noted that medical laboratory technology will be competing with many other health professions for potential students due to the general HR crisis in health care, and special efforts will be required to ensure that all possible training positions are filled.

- There is a need for careful monitoring of graduate employment, especially with a view to watching interprovincial mobility. Many other provinces will be facing serious HR shortages, and will be recruiting aggressively across Canada. Each province will need to offer competitive salaries if it is to avoid a "brain drain" to the rest of Canada. Medical laboratory technologist salaries must also be competitive with other health

professions in order to attract the calibre of personnel required to operate the highly complex laboratory of the next millennium.

- Problems will become more extreme in rural areas of Canada where there is a smaller HR pool. There are reports already of recruiting difficulties in rural areas in the western provinces. Special incentives may be required to attract students from these areas, or for graduates from metropolitan centres to move to work in the centres.
- Aggressive promotion to students to consider medical laboratory technology as a future career. Health professions will be competing amongst themselves for a limited pool of students, many of whom will be considering "dot com" careers.

CSMLS Medical Laboratory Human Resources Profile

Section 2: Provincial Subsections

Newfoundland Subsection

*Estimated current medical laboratory technologist work force in Newfoundland: 500 *
Retirement Predictions (based on average age of certification at 20 – retirement at 55)*

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions per year	Current enrollment
Now - 2006	75	15	15.0	27	20
2007 - 2011	86	17	17.2	27	
2012 - 2016	110	22	22.0	27	
2017 - 2021	79	16	16.0	27	

* data assumptions based on NLSLT 1999 survey results combined with CSMLS 2001 data

At the current time, it appears that Newfoundland is producing a sufficient number of graduates from their training program (approximately 20 per year) for the next ten years; however, this assumption is based on the total retention of graduates within the province.

Clearly there is an extremely high-risk situation evolving in the province if previous trends of moving elsewhere to find work continues. This is driven by the lack of full-time work opportunities as well as the less than competitive salaries currently being offered. New-

foundland graduates have regularly moved west to find work in provinces such as Saskatchewan and Alberta where salaries are 25 to 30 per cent higher. With the rapidly emerging shortages in the west, this trend should be expected to continue.

NF Recommendations

The following key points are presented for consideration of the future medical laboratory technologist HR needs in Newfoundland.

- Careful monitoring of student retention, with a focus on meeting the expected number of graduates during the next ten years. Special effort may be required by the training program to recruit a suitable number of students in view of the competition with many other professions affected by

the exodus of the baby boomers from the work force.

- Careful monitoring of graduate movement. The delay in activating a training program in Nova Scotia may put a direct draw on the Newfoundland HR pool. Many other provinces will be facing serious HR shortages, and will be recruiting aggressively across Canada. Newfoundland must offer competitive salaries if it is to avoid a “brain drain” to the rest of Canada.

- There have been recent reports of difficulties in finding replacements for retiring combined technicians in rural areas, as cross trained properly qualified personnel are not available to replace the vacating positions. Careful consideration must be given to the expectations of rural areas in the levels of services they can provide, and the qualifications of the personnel employed to provide these services.

Nova Scotia Subsection

Estimated current medical laboratory technologist work force in Nova Scotia: 837

Retirement Predictions (based on average age of certification at 20 – retirement at 55)

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year	Current enrollment (NB Program)
Now - 2006	110	22	13.1	0	4
2007 - 2011	188	38	22.4	0	
2012 - 2016	204	41	24.3	0	
2017 - 2021	174	35	20.7	0	

Nova Scotia is in the most precarious position of all the provinces with 60% of its work force due to retire by 2016. Urgent action is required to avert a crisis in the province.

NS Recommendations

Nova Scotia must move **immediately** to reestablish medical laboratory technologists training in the province:

- Nova Scotia is already going to be playing catch up, if and when it

opens a training program. Even if a program were launched by fall of 2002, graduates would not be available for the work force until 2005, (three-year college program) or 2006 (four-year university program) by which time there would be almost 90-110 empty positions in Nova Scotia laboratories. The current Nova Scotia policy of purchasing seats in the New Brunswick program has not been a viable option, with a number of NS students failing to return to the province.

- Careful consideration will need to be given to the clinical training requirements for medical laboratory technology students. Nova Scotia previously had simulated clinical training as an alternate approach; however, it is strongly recommended that consideration be given to actual clinical placement of students. Appropriate resources and education will be required to ensure the success of this activity.

New Brunswick Subsection

Estimated current medical laboratory technologist work force in New Brunswick: 600

Retirement Predictions (based on average age of certification at 20 – retirement at 55)

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year	Current enrollment
Now - 2006	70	14	11.7	26	20
2007 - 2011	100	20	16.7	26	
2012 - 2016	108	22	18.0	26	
2017 - 2021	96	20	16.0	26	

NB Recommendations

The following key points are presented for consideration of the future medical laboratory technologist HR needs in New Brunswick:

- Based on the current planned program enrollment, New Brunswick is one of the best placed provinces for future medical laboratory technologist HR needs. It is essential that there be careful monitoring of stu-

dent retention, with a focus on meeting the expected number of graduates during the next ten years. Special effort may be required by the training program to recruit a suitable number of students in view of the competition with many other professions affected by the exodus of the baby boomers from the work force.

- There is a need for careful monitoring of graduate employment, especially with a view to watching inter-

provincial mobility. Many other provinces will be facing serious HR shortages, and will be recruiting aggressively across Canada. New Brunswick must offer competitive salaries if it is to avoid a “brain drain” to the rest of Canada. Medical laboratory technologist salaries must also be competitive with other health professions in order to attract the calibre of personnel required to operate the highly complex laboratory of the next millennium.

Prince Edward Island Subsection

Estimated current medical laboratory technologist work force in PEI: 125

Retirement Predictions (based on average age of certification at 20 – retirement at 55)

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year
Now - 2006	32	6	25.6	0
2007 - 2011	23	5	18.4	0
2012 - 2016	23	5	18.4	0
2017 - 2021	14	3	11.2	0

Prince Edward Island is in a difficult position as it would not appear to have sufficient demand to justify a training program and is therefore currently reliant on the resources of neighbouring Atlantic provinces. With a pending

shortage in neighbouring provinces, PEI will likely have difficulty replacing empty positions. Problems will become more extreme in rural areas of PEI where there is virtually no surplus HR pool. Special incentives may be re-

quired to attract students from these areas, or for graduates from metropolitan centres to move to work in the rural locations. The lack of diagnostic services could threaten the viability of rural health care services.

PEI Recommendations

Several issues are provided for consideration in addressing future training enrollment in PEI:

- Negotiating with New Brunswick for at least five additional seats to be added to their program to accommodate students from PEI. Some type of

special admissions program through the PEI government may be indicated, along with possible tuition assistance for prospective PEI students.

- The development of a clinical phase training site at the Queen Elizabeth Hospital in Charlottetown to enhance student retention in PEI. Addi-

tional staffing resources will likely be required to fulfill this task.

- Possible negotiation with other training programs (especially Nova Scotia if they are able to start their program in the near future) to provide clinical training in PEI to prospective future employees.

Quebec Subsection

Estimated current medical laboratory technologist work force 5000

Retirement Predictions (based on average age of certification at 20 – retirement at 55)

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year	Current enrollment
Now - 2006	485	97	9.7	368	297
2007 - 2011	714	143	14.3	368	
2012 - 2016	841	168	16.8	368	
2017 - 2021	449	90	9.0	368	

At the current time, it appears that Quebec is adequately supplied with medical laboratory technology graduates, with an estimated 350+ students currently enrolled in medical laboratory technology training programs.

- English-speaking Quebec graduates will have many opportunities for mobility across the rest of Canada due to the HR shortages in most provinces. This may affect the ability of English-speaking institutions in Quebec to retain qualified personnel.

also the rest of Canada, and may affect the availability of qualified personnel in Quebec if the expected interprovincial recruitment occurs.

QC Concerns

Several key issues need to be monitored:

- The time slot 2012 to 2016 has the largest exit rate not in Quebec, but

Ontario Subsection

Estimated active work force in Ontario based on CMLTO data: 6600

Retirement Predictions (based on average age of certification at 20 – retirement at 55)

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year	Current enrollment
Now - 2006	960	192	14.5	96	101
2007 - 2011	1380	276	20.9	96	
2012 - 2016	1251	250	18.9	96	
2017 - 2021	1056	211	16.0	96	

At the current time, there are only three accredited medical laboratory technologist training programs in Ontario, with an approved potential enrollment of approximately 100 students. Despite the number of positions available, the current enrollment only saw 42 students achieving professional certification in 2001, 43 in 2000, and 55 in 1999 – this is far below the actual needs.

Key Issues

Several key issues need to be considered when examining the response to the HR concerns in Ontario:

- There is a serious lack of training programs in Northern Ontario. Where there were previously four programs (Canadore, Cambrian, Thunder Bay and Lakehead University), there are now none. Recruit-

ment to the north has been an ongoing problem for the health professions, and best success will result from reestablishing at least one training centre in the north. If priority is not given to this issue, the HR situation in the north will clearly compromise the quality of patient care.

- Consideration should be given to opening at least one other new medical laboratory technology training program in Ontario. The current programs serve specific geographic zones, and consideration should be given to establishing clinical positions in regions not currently involved with student MLT training.

ON Recommendations

- Immediate action to increase the current enrollments to approved capacity.

- Immediate establishment of a training program in Northern Ontario to meet this region's special needs.
- **Immediate addition** of suitable number of training positions to achieve at least 175 qualified practitioners per year, scaling up to 250 qualified new practitioners per year by the year 2010. This is a conservative estimate, and the number of initial training slots should be increased to account for program attrition.

Manitoba Subsection

Estimated current work force in Manitoba: 1180

Retirement Predictions (based on average age of certification at 20 – retirement at 55)

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year	Current enrollment
Now - 2006	242	48	20.5	25	20
2007 - 2011	196	39	16.6	25	
2012 - 2016	188	38	15.9	25	
2017 - 2021	150	30	15.3	25	

While Manitoba reopened its training program in the fall of 2001, current enrollment numbers suggest that they will experience serious shortages within the next two to three years.

MB Recommendations

Several key issues need to be considered:

- Serious effort must be made to fill every available training position. Medical laboratory technology will be competing with many other programs for eligible students. In addition,

serious consideration should be given to increasing the current enrollment to respond to the shortages which are already occurring in Manitoba.

- Student retention and success rates must be monitored very carefully and appropriate corrective actions taken to ensure maximum output from the program.
- There will be increasing pressures to use laboratory assistants and it is critical to ensure that they do not work beyond their scope of training. These individuals are currently not certified

at either the provincial or national levels, and therefore do not possess the professional ethos which would discourage them from working beyond their scope of training. This will be an issue which will need to be monitored by the MSMLT as there is no professional regulatory body present in Manitoba to protect the public from employers who may in desperation resort to hiring non-qualified workers to do medical laboratory testing.

Saskatchewan Subsection

Estimated current medical laboratory technologist work force in Saskatchewan: 967

(SSMLT March 2002)

Retirement Predictions (based on average age of certification at 20 – retirement at 55)

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year	Current enrollment
Now - 2006	158	32	16.4	16	18
2007 - 2011	187	37	19.4	16	
2012 - 2016	222	44	23.0	16	
2017 - 2021	140	28	14.5	16	

SK Recommendations

- While student enrollment was increased to an intake every year at the SIAST Kelsey program, the above numbers indicate that class size must be almost doubled from the current 16 per year if the future demands are to be addressed.
- Serious study must be given to the time period 2012 to 2016. If the ex-

pected attrition of the next ten years materializes, there is sufficient time now to increase enrollment to address the increased attrition of this time period.

- There will be increasing pressures to use laboratory assistants and it is critical to ensure that they do not work beyond their scope of training. These individuals are currently not certified

at either the provincial or national levels, and therefore do not possess the professional ethos which would discourage them from working beyond their scope of training. This will be an issue which will need to be monitored by the SSMLT, the professional regulatory body for medical laboratory technologists in Saskatchewan.

Alberta Subsection

Estimated current medical laboratory technologist work force in Alberta: 1760

Retirement Predictions (based on average age of certification at 20 – retirement at 55)

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year	Current enrollment
Now - 2006	230	46	13.1	66	65
2007 - 2011	298	60	16.9	66	
2012 - 2016	255	51	14.5	66	
2017 - 2021	273	54	15.5	66	

AB Recommendations

The following key points are presented for consideration of the future medical laboratory technologist HR needs in Alberta:

- Student enrollment was increased with the reactivation of the SAIT program in Calgary, with subsequent approval of additional training slots in other programs. Careful monitor-

ing of student attrition is recommended to ensure that sufficient numbers of students are completing the program to meet the needs of the workplace.

- Serious study must be given to the time period 2007 to 2011. Alberta appears to be hitting a crunch at about the same time as Ontario and may have serious recruiting challenges in this time period.

- Careful consideration will need to be given to the clinical training requirements for medical laboratory technology students. The pressures and stresses of today's workplace require special support for the training of clinical phase students. The health reform in Alberta has had a significant impact on the workplace resource to support students in the clinical phase of their training and

needs to be monitored carefully, with possible additional resource to be considered.

- The metropolitan areas of Alberta already have a high utilization of laboratory assistants, and it is critical to ensure that they do not work beyond their scope of training. The ACMLT

monitors the training of laboratory assistants in Alberta; however, laboratory assistants are currently not evaluated through certification exams at either the provincial or national levels. Concern exists that they may not possess the professional ethos which would discourage

them from working beyond their scope of training. This will be an issue which will need to be monitored by the professional regulatory body for medical laboratory technologists in Alberta.

British Columbia Subsection

Estimated current medical laboratory technologist work force in British Columbia: 3200

Retirement Predictions (based on average age of certification at 20 – retirement at 55)

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year	Current enrollment
Now - 2006	651	130	20.3	40	40
2007 - 2011	509	102	15.9	40	
2012 - 2016	518	104	16.2	40	
2017 - 2021	407	81	12.7	40	

British Columbia has one of the most serious HR situations in the supply of qualified graduates. The program at BCIT only reopened in the fall of 1999, and with an enrollment of 40 students has the potential to meet only less than half of the ongoing needs of BC for qualified medical laboratory technologists. Strong consideration should be given to the addition of a second training program in British Columbia as they will not be able to rely on importing technologists from other parts of the country as has been past practice in view of the overall national aspect of the HR crisis in medical laboratory technology.

BC Recommendations

The following key points are presented for consideration of the future medical laboratory technologist HR needs in

British Columbia:

- The shortage in BC will be an ongoing problem for the next 15 years and student enrollment must be addressed urgently. The addition of a second program for training BC students is strongly recommended.
- Careful consideration will need to be given to the clinical training requirements for medical laboratory technology students. The pressures and stresses of today's workplace require special support for the training of clinical phase students. The health reform in British Columbia has had an impact on the workplace resource to support students in the clinical phase of training and needs to be monitored carefully, with possible additional resource to be considered.

- It is essential that there be careful monitoring of student recruitment. Special effort may be required by the training program to recruit a suitable number of students in view of the competition with many other professions affected by the exodus of the baby boomers from the work force.
- The metropolitan areas of British Columbia already have a high utilization of lab assistants and it is critical to ensure that they work within their scope of training. This will be an issue which will need to be carefully monitored by the new professional regulatory body which may include laboratory assistants.

Section 3: Specialty Areas

CSMLS also offers two specialty certifications. Cytotechnology, which is the study of cells for the detection of cancer, is a growing area with the increased diagnostic utilization of fine needle aspirate techniques and an increased emphasis on women's health (PAP smears). Clinical Genetics, which is the study of chromosomes, DNA and RNA from the cells of body fluids and tissues to diagnose genetic diseases, has ex-

ploded with the advent of the new molecular diagnostic tools available as a result of evolving technologies.

The previous edition of this study did not examine issues related to HR supply for the areas of cytotechnology or clinical genetics. There have been anecdotal reports of shortages in both of these areas in the current workplace, but again there is no national database to confirm

these issues. The demise of the workload reporting systems across Canada has also resulted in the lack of national data on the true clinical workload and trends in these areas. The need to gather specific information about these specialty areas must be included in any national initiatives to establish a health human resources database.

Cytotechnology Predictions: Based on current membership of 459 cytotechnologists

Time frame	Total number of eligible retirements *	Eligible retirements per year	Percentage of total work force	Training positions available per year	Current enrollment
Now - 2006	57	11	12.4	58	48
2007 - 2011	51	10	11.1	58	
2012 - 2016	82	16	17.8	58	
2017 - 2021	56	11	12.2	58	

In most cases, cytotechnology programs were less affected by the educational program reductions of the 1990s, generally because they were quite small to begin with. A major difficulty in predicting the future needs is the trend of the specialty disciplines to lapse CSMLS membership after national certification has been achieved. Based on CSMLS data, we estimate that the above numbers represent approximately 60 per cent of the current cytotechnology workforce.

Based on the current number of training positions across Canada, it would appear that we are currently training sufficient numbers of students to meet future retirement needs. However, this does not take into consideration any increased demands for cytotechnologists caused by an increased focus on women's health or by the expanding role of the cytotechnologist working in

specialty areas such as fine needle aspirates. There are already a number of regional shortages in the current supply of cytotechnologists and future retirements will create an even further burden in these areas. Concerns have been expressed by many sources in regard to the proper workload in this specialty area, and there is a serious need to reaffirm the importance of workload monitoring and measurement in this area of practice. Close cooperation between employers and training programs will be needed to ensure future student enrollments are meeting regional needs.

Recommendations

- Consultation with employers to determine the additional number of cytotechnologists needed to be trained to meet the needs of the regions, with close heed to the future

retirement predictions for additional placements, especially in the 2012 to 2016 time slot.

- Inclusion of this specialty area in a national health human resources databank.
- Promotion of cytotechnology training as a specialty discipline to ensure that available training positions are filled.
- Monitoring of clinical workloads as indicated by changes in patterns of practice and evolving trends in health care, and planning future HR needs with these considerations.
- Redevelopment/updating of the workload measurement systems to provide data to help employers with future HR planning.

Clinical Genetics/Cytogenetics Data

Examination of CSMLS database on clinical genetics and cytogenetics technologists suggests that the human resources supply issues in this new area will not be seriously impacted by retirements in the next 10 years, as this is a relatively “young” area of the profession (certification was established in 1974), with a majority of practitioners qualifying in the last 15 years.

A major difficulty in predicting the future needs in this area is the trend of the specialty disciplines to lapse CSMLS membership after national certification has been achieved. Based on CSMLS data, we estimate that approximately 50 per cent of those who have been certified in this specialty area have dropped CSMLS membership.

Current training programs for clinical genetics have excellent feedback on the ability of their graduates to meet employers expectations, and they have indicated a willingness to train more clinical genetics students if the financ-

ing is provided. The Michener program recently launched their program by distance education, further enhancing the opportunities for student enrollment. Close cooperation between training programs and employers will be required to ascertain the true enrollment needs for this rapidly growing specialty area.

The Canadian College of Medical Geneticists has been lobbying the CSMLS for several years to fragment the clinical genetics competency profile to meet their demand to certify university-degreed molecular biology grads, as CCMG expects a growing utilization of specialty molecular techniques in the rapidly evolving field of genetics. This action is **not** being considered at this time as **this is not a body of knowledge**, but simply a technique for laboratory analysis. Confusing this evolving technology issue with this national HR crisis is inappropriate.

Recommendations

- Training programs will need to communicate with potential employers to ascertain enrollment numbers and future employer needs.
- Future growth in testing must be accompanied by proportional support for didactic and clinical training of properly qualified medical laboratory personnel—quick fixes with partial certification without a true body of knowledge will not meet the long-term needs of practitioners or employers.
- The small numbers and apparent lack of support from the practitioners would suggest that CSMLS should carefully monitor the long-term viability of this specialty certification. Discussions with provincial regulatory bodies and employers about the future of this certification should be considered.

Section 4: Final Recommendations

The data provided in Sections 1 and 2 of this report clearly indicate the need to rebuild the education system for general medical laboratory science across Canada.

- **Urgent action** is required in Nova Scotia to establish a training program for general medical laboratory science.
- Priority must also be assigned to opening additional training programs in Ontario and British Columbia.
- British Columbia, Saskatchewan and Manitoba must at least double their current program outputs if serious situations are to be averted.
- Newfoundland and PEI will likely be seriously impacted by actions in neighbouring provinces, and must take positive steps to secure their future human resource supply.

- Quebec, New Brunswick and possibly Alberta appear to be producing a sufficient number of graduates to replace those who will exit the work force over the next 15 years. However, this does not take into account the increased demand for medical laboratory services created by Canada’s aging population. Care must also be taken to ensure that the supply is not affected by “magnet institutions” that attract away well qualified workers with attractive salaries and job opportunities.

In 2001, the Canadian Society for Medical Laboratory Science called on the Advisory Committee on Health Human Resources to take immediate action on three of the report recommendations contained within the Environmental Scan.

- Establishment of a national data base to identify the scope of the problem and define the short- and long-term needs.
- Coordination and sharing of labour market information to help determine accurate projections at least three to five years in advance.
- Coordination and sharing of educational program information to ensure that a sufficient number of positions are available to train future medical laboratory technologists.

To date, we have not been provided with any information which would suggest that action has been taken on any of these recommendations.

Call for a National Health Human Resource Plan

Additional training program positions will only be of use if there are students to fill the slots. It is a concern that not all programs are currently full; priority must be assigned to future career recruitment for all the health professions including medical laboratory science. We need to ensure that we have the right students in the right programs – it is in the best interest of all the health professions to work cooperatively in this regard. ***This is a repeat call for a joint national health professions recruitment initiative*** – the future of Canadian health care depends on it.

Special incentives may be required to attract graduates to rural areas which will be seriously impacted by the shortages. Tuition assistance or some other type of special student support may be required to ensure an adequate number of students remain in the system until graduation – student attrition rates in many areas are a concern, and we need to ensure that economics is not contributing to this.

Graduates must also be assured of finding full-time employment upon graduation. The casualization of the work force in the health reform action of the

1990s must be undone if employers expect to be able to recruit for their future needs – there will be too many other attractive opportunities to continue the part-time and casual employment route for entry into the work force. Salaries will need to remain balanced across the country to avoid “raiding” medical laboratory technologists from one province to another.

