A Basic Overview of Limited Practice in the Canadian Medical Radiation Technology Landscape

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The ability to understand and respond to emerging trends in Medical Radiation Technology (MRT) practice is a necessity for the profession in Canada. In its 2015-18 strategic plan, the Canadian Association of Medical Radiation Technologists (CAMRT) identified the establishment of a strategy to address evolving practice trends (including limited practice) as a key priority.[1] The first step in the development of this strategy consists of information gathering from all corners of the country, which culminates in this paper.

The purpose of this paper is to:

1. Identify and define limited practice roles that are currently practiced in Canada;
2. Elaborate on the history of how and why these roles were developed;
3. Denote the entry to practice educational standards for these roles;
4. Explore the current and future regulated status for those practicing within a limited scope;
5. Provide an overview of the scope of practice for those practicing in a limited practice capacity;
6. Recommend potential actions to be taken by the CAMRT Board of Directors regarding the future direction of the association in relation to limited practice.

To note, it is not within the scope of this paper to:

1. Perform a direct analysis of limited practice roles practiced in international jurisdictions.
2. Explore limited practice in other healthcare professions. For example: nurses providing x-ray services in remote communities.

Methodology

The following methodology was used to collect information and compile it for this paper:

1. A survey was conducted with the CAMRT Board of Directors, within which Directors were asked about their opinions and insights into the current status of limited practice in Canada and internationally. The results of this survey provided the context for the paper and the items to be discussed within it.

2. A survey was conducted with our Provincial Partner Organizations, within which members of those organizations were asked what limited practice roles were currently being practiced within their jurisdiction and current regulatory status for these limited practice roles. The results of this survey provided information regarding the distribution and regulation of limited practice practitioners across the country.

3. A broad review of the literature was undertaken related to the topic of limited practice roles in the MRT profession in Canada and the broader international community.

4. Eighteen key informant interviews were conducted to gather additional information related to limited practice roles both within Canada and internationally. These interviews included regulators, limited practice educators and employers.

The Current State of Limited MRT Practice Roles in Canada

Formalized limited practice roles in Canada consist of Combined Laboratory and X-Ray Technologists (CLXTs) and Basic Radiological Technicians (BRTs). This section will define the CLXT and BRT roles, provide a historical overview, and discuss the practice environment, regulation and distribution of these practitioners.

Combined Laboratory and X-Ray Technologists

Definition of a CLXT

Below is a definition of CLXT from the Northern Alberta Institute of Technology (NAIT):

"The Combined Laboratory and X-Ray Technologists are trained in both medical laboratory and X-ray disciplines, so that they are able to serve in rural community hospitals or health care centres. On completion of their training, graduates are able to perform medical laboratory procedures, diagnostic radiographic procedures and electrocardiograms. Students also receive training on computers and information systems in the medical laboratory and diagnostic imaging departments."[2]

History of the CLXT Profession

The History of CLXTs in Alberta

The CLXT profession in Alberta was designed to service rural settings and small community hospitals.

The Combined Laboratory and X-Ray Technology Program was initiated in 1954 by the Alberta Department of Health. The objective of the program at the outset was to train technicians to serve small community hospitals with 15 to 60 beds. The program was unique in that students were able to perform basic radiography as well as basic lab procedures and ECG's[3].

Over the years, the program has moved from institution to institution. Its current home is at the Medical Sciences Program at the Northern Alberta Institute of Technology (NAIT). The program itself has also changed significantly over the years, and it is currently offered as a two-year diploma program.

The Alberta Society of Certified Combined Technicians (ASCCT) was formed in 1969, and in 2006, the CLXT in Alberta formed the Alberta College of Combined Laboratory and X-Ray Technologists (ACCLXT).

The History of CLXTs in Saskatchewan

The CLXT role in Saskatchewan also developed in response to the need for x-ray and laboratory services in rural locations. Due to the lower volume of work in these locations it was not warranted to hire both a qualified laboratory and X-ray technician[4].

In the 1940s, the Division of Hospital Administration and Standards, Saskatchewan Department of Public Health initiated the development of an introductory course for "Combined Technicians". The course was developed in cooperation with the Division of Laboratories, the Department of Education and two Federal Agencies – the Department of Veterans Affairs and the Canadian Vocational Training Program[4].

The first class commenced in 1946, the tuition was free and the students were provided 3 months' training in x-ray and 3 months' training in the lab. This first program graduated at least 19 and, by 1964, there were 256 combined technicians that had graduated from the program.

The program has also moved around in Saskatchewan, with a move to its current home at the Saskatchewan Polytechnic (formerly known as the Saskatchewan Institute of Applied Science and Technologies) in 1965. In 2004, a curriculum validation took place and the content of the program changed dramatically, increasing the program length from one year to two years.

The Saskatchewan Association of Combined Laboratory and X-ray Technicians (SACLXT) formed in 1987 when it became apparent that a formal method of information sharing, continued education and structure was needed[4].

History of the CLXTs in Manitoba

In the mid-2000s, Red River College developed programing to address a need for the cross training of MRTs and MLTs to fulfill service needs in rural Manitoba[i1]. CLXTs in Manitoba differ significantly from their Alberta and Saskatchewan counterparts. To access the cross training program within Red River College, applicants must be certified as either Medical Radiation Technologists with CAMRT or Medical Laboratory Technologists with CSMLS. Upon completion, CLXTs in this province will carry the title of MRT(X) or MLT(X)[i1].

History of CLXTs in Newfoundland and Labrador

CLXTs in NL were developed to fill needs and process similar to those in Manitoba, with the significant difference that cross training is only available to certified MLTs. Upon completion of the X-Ray Skills for Medical Laboratory Technologists program at the College of the North Atlantic, MLTs become CLXTs[5].

Currently, CLXTs are not represented by a professional body in NL, although those performing the roles must be registered with the laboratory college within the province. As MRTs move towards regulation in NL, the MRT portion of the CLXTs work will be included within the MRT college once it is proclaimed. A provincial scope of practice has been developed for CLXTs and will be implemented with the introduction of the college.

CLXTs at the National Level

The Canadian Society for Combined Lab and X-Ray Technologists has recently been formed. Very little information is available about the organization. Currently, it has only an active Facebook page. The goals of the organization, as per the Facebook page is to “advocate, promote and protect the profession of CLXTs in Canada”. They established their inaugural Board of Directors at their first ever AGM in October 2016[6].

CLXTs in Practice

CLXTs Scope of Practice in X-ray

From analysis of the entry to practice programs and from discussions with several key informant interviews, CLXTs are performing the vast majority of radiological technology procedures that an MRT practicing as a general duty x-ray technologist would perform[i2]. Depending upon the facility, CLXTs can work equally in both the lab and x-ray modalities. However, many CLXTs will often specialize in one modality or the other. This often occurs in the private setting[i2].

The main reason for employers choosing a CLXT over an MRT generally has to do with the distribution of work within the facility. Most often in rural settings there is not enough work to justify a full time MRT and/or MLT, or the work is not complex enough to utilize the full scope of an MRT’s or MLT’s practice[i3]. CLXTs can also cover call for both lab and x-ray services. Initial thoughts may have pointed to cost savings; however, in all public health settings the cost of hiring a CLXT is the same as an MRT or MLT. This may not be the case within the private sector.

Regulation of CLXTs

Through the survey of the Provincial Partner Organizations it was determined that only CLXTs in Alberta are currently regulated. This was confirmed though a number of key informant interviews.

CLXTs in Alberta are regulated under the Alberta Health Professions Act[7]. The Alberta College of Combined X-ray and Laboratory Technologists (ACCXLT), established in 2006, certifies it's registrants through an online, competency based (200 question, 3 hour) multiple choice certification examination built from the ACCLXT competency profile[8]. Registration with the college is mandatory and professional liability insurance (PLI) is required. ACCLXT does offer PLI as a member benefit.

When jurisdictions where limited practice roles exist were asked "Will limited practice roles be regulated in the future?", only one of the six responding organizations (Newfoundland) distinctly stated that their CLXTs would be regulated. The timing of this regulation is in step with the regulation of MRTs in that province.

Responses from the other jurisdictions indicated that it would be highly unlikely that limited practice roles would become regulated within their province.

Distribution of CLXTs

Practicing CLXTs can be found in BC, AB, SK, MB, PE, NL and within the territories. See Figure #1, page 7.

CLXTs are generally employed in rural healthcare facilities within all jurisdictions. A small percentage of CXLTs are working within private clinics in larger centers[i2,i3,i4,i5,]. Precise numbers of CLXTs across Canadian jurisdictions are difficult to obtain because data on this profession are not uniformly collected.

The most reliable numbers come from Alberta, where there is a regulatory college with mandatory registration. Currently, the Alberta college has 550 active registrants[i2]. Saskatchewan has a provincial association with approximately 365 members[4], but membership with the association is not mandatory. It is suggested that the true number is closer to 550, similar to Alberta[i2,i6]. Current estimates cite approximately 105 MLT(X) and MRT(X) employed in Manitoba. It is estimated that there are 6 CLXTs in Prince Edward Island[i7] and approximately 40 in Newfoundland and Labrador. CLXT practice does exist in British Columbia and the Territories, but even approximate numbers are difficult to obtain in these jurisdictions.

From these numbers, an estimated total for CLXTs across the country is somewhere between 1,250 and 1,400.

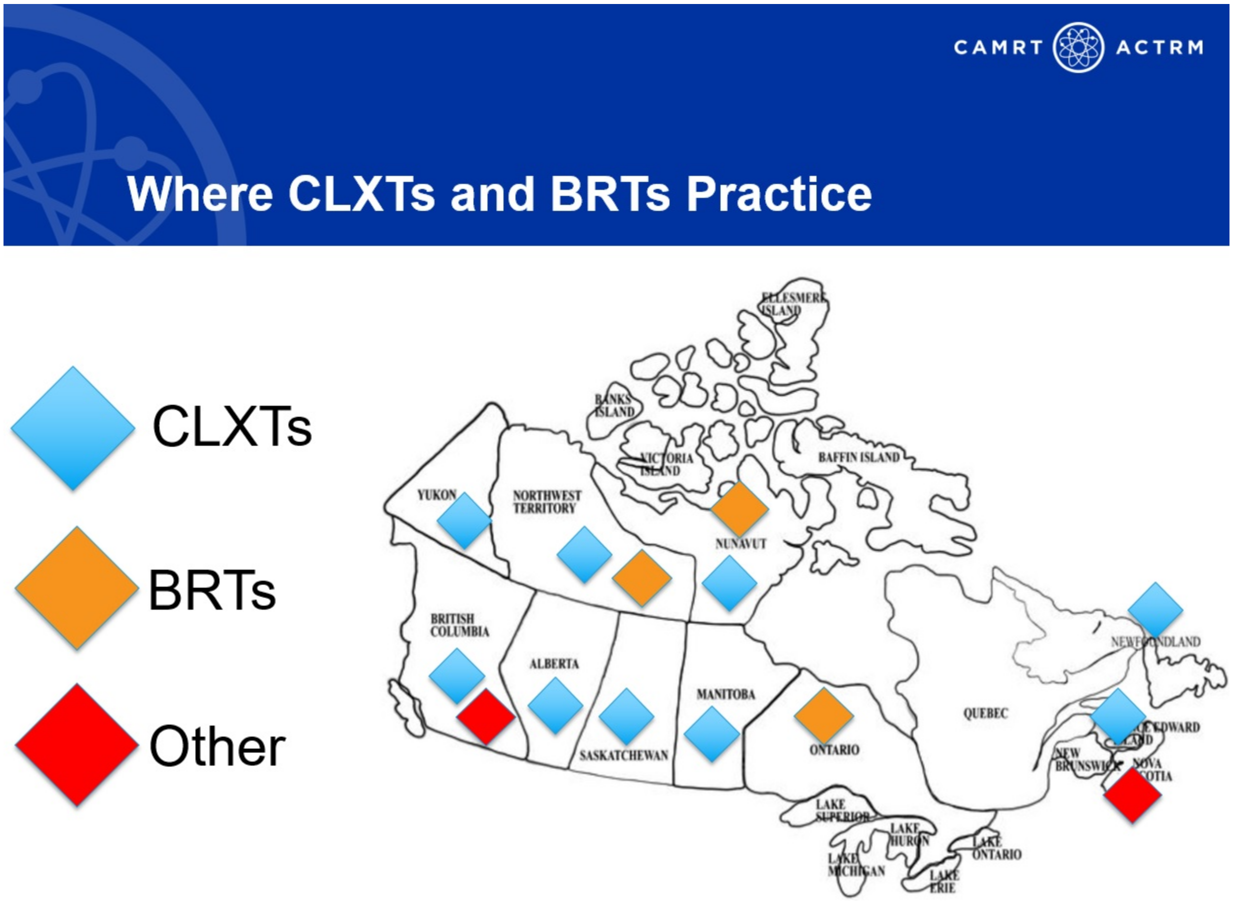

Figure #1 - Distribution of Limited Practice Practitioners

**** The “Other” category comprises individuals who work in MRT facilities without completing Canadian MRT Certification. MRTs in British Columbia are not currently regulated and there are internationally trained MRTs working in private institutions with a limited scope. In Nova Scotia, facilities with less than 25 beds can hire non-MRTs to perform X-rays. Currently, there is only one in the province.*[i8]***

Basic Radiological Technicians

Definition of Basic Radiological Technicians

Below is a definition of BRT from the Oshki-Pimache-O-Win Educational and Training Institute (OSHKI):

“The Basic Radiological Technician is a community based program for First Nations people in remote communities to perform basic x-ray examinations of the upper and lower limbs, shoulder and the chest in a safe, professional manner. Upon graduation the student will be a caring, efficient, knowledgeable health professional able to provide a high level of patient care. The program is designed to assist in the goal of First Nations people taking control of their own health needs.” [9]

History of the BRT Profession

The need for the basic radiological technician program was identified in the 1980s and gathered interest within First Nations Communities. Turnover for medical staff in the First Nations Communities was, and continues to be, a significant issue[6]. In order to have consistency in healthcare delivery, it was determined that training a member of the community to perform basic x-rays would be beneficial to the populations' health[9].

With significant support from the federal government and Mohawk McMaster, the BRT program was developed in 1990 by Dr. Dermot McLaughlin and a dedicated group of seven technologists. This group has developed and/or updated program materials and delivered the program throughout the years[10].

The program remained with Mohawk McMaster until approximately 2008[i9] , when it was transferred to the Oshki-Pimanche-O-Win Education and Training Institute where the program is still delivered today.

BRTs are eligible for Limited Practice Membership with the Ontario Association of Medical Radiation Sciences (OAMRS) (formerly OAMRT) and the CAMRT[i10]. Memberships were paid for by the government in 2002, and in that year there were 24 BRT members. OAMRS has provided a number of member services for the BRT community, including the development of a BRT society, a separate website and a discussion board. Uptake on these materials was limited and when the membership dues were no longer paid by the government, the BRTs stopped being members of OAMRS/CAMRT. Although Limited Practice Membership is currently offered by OAMRS/CAMRT, there are no current BRT members[i10].

BRTs in Practice

Where They are Employed

BRTs work strictly within nursing stations in First Nations Communities within Ontario and the Territories. This program is run in accordance with, and to promote, the goal of First Nations People taking care of their own health needs[10, i10].

BRTs Scope of Practice

BRTs perform a very limited set of x-ray procedures, including examinations of the chest, upper extremities, shoulder girdle and the lower extremities[7]. They work strictly with portable equipment, and wet film processing is still commonplace. Work volumes often vary, making it difficult for many BRTs to maintain their competence over time[i9]. This makes the bi-annual program reviews very important to ensure consistency over time. Graduates of the BRT program often progress to be trainers for future students in the program[10].

Regulation of BRTs

The BRTs are not currently regulated in any jurisdiction and their practice is limited to First Nations Communities.

Distribution of BRTs

The BRTs are a much smaller group than the CLXTs. Currently, there are 51 BRTs practicing within 18 First Nations Communities in Ontario[i9]. There are BRTs practicing within the territories, but precise numbers are difficult to obtain because there has been no official BRT program available within those jurisdictions for the last 8-10 years[i10]. See Figure #1, page 7.

Limited Practice Educational Programs

This section will discuss entry to practice educational programs for the CLXTs and BRTs.

CLXT Entry to Practice Programs

There are currently four CLXT educational programs in Canada: Northern Alberta Institute of Technology (NAIT), Saskatchewan Polytechnic (SP), Red River College (RRC) in Manitoba and the College of the North Atlantic (CONA) in Newfoundland.

The NAIT and SP are similar to MRT programs. Both have admission criteria similar to those for the MRT programs[11,12], and provide students with an overview of both professions within a similar program length. To note, however, both the didactic and clinical education time is significantly reduced when directly compared to MRT programming.

In Manitoba, the Red River College (RRC) MRT(X) and MLT(X) programs require applicants to be certified MRTs or MLTs to access their program curriculum[13,14]. While in Newfoundland, the College of the North Atlantic (CONA) X-Ray Skill Program requires candidates to be registered Medical Laboratory Technologists in order to be admitted to the program[5]. Both programs offer much shorter didactic and clinical experience within the respective field post certification when compared to either MRT or MLT educational programs.

Please see Figure 2 illustrating differences in program length.

Figure #2 - CLXT Program Comparison Chart

Program Name	Entry Criteria	Education Delivery						
		MRT Didactic	MRT Clinic	TOTAL MRT Education	MLT Didactic	MLT Clinical	TOTAL MLT Education	Total Training
NAIT MRT Program	Same as the CLXT Program	30 weeks	60 weeks	90 weeks	N/A	N/A	N/A	90 weeks
NAIT CLXT Program	Same as the MRT Program	19 weeks	20 weeks	39 weeks	19 weeks	20 weeks	39 weeks	78 weeks
Sask Poly MRT Program	Same as the CLXT program	41 weeks	49 weeks	90 weeks	N/A	N/A	N/A	90 weeks
Sask Poly CLXT Program	Same as the MRT Program	25 weeks	15½ weeks	40½ weeks	25 weeks	12½ weeks	37½ weeks	80 weeks
Red River MLT(X) Program	Must be a certified MLT	8 weeks	17 weeks	24 weeks	N/A	N/A	N/A	24 weeks
Red River MRT(X) Program	Must be a certified MRT	N/A	N/A	N/A	8 weeks	17 weeks	24 weeks	24 weeks
CONA LX Program	Must be a certified MLT		23 weeks (7 simulated, 16 clinical placement)		N/A	N/A	N/A	

<u>Notes</u>:

1) With regards to MRT didactic and clinical education, there is a significant time difference between the MRT and CLXT programs.
2) Due to this discrepancy, employers noted that CLXTs were not as prepared as MRTs to enter the workplace and needed additional MRT orientation time.

Basic Radiological Technician Program

The BRT educational program consists of 7 weeks of training that is dispersed over a 14-18 month period. Training is delivered in phases. Along with the initial training BRTs are required to take a 3 day refresher program every 2 years to be allowed to perform x-ray examinations within their First Nations Communities. There are no minimum admissions criteria, however applicants must be formally recommended to take the training program by the Community Health Director, Community Nurse in Charge or the Chief of the Council.

It is important to note that the BRT program is not nearly as rigorous as any of the CLXT Programs, however the BRTs do provide an essential service within their communities.

The Future of CLXT Practice

Two significant areas where CLXTs would like to expand their practice are mammography and CT[i2,i3,i6].

CLXTs are having difficulty moving into mammography due to the Canadian Association of Radiologist (CAR) Mammography Accreditation Program standards which currently require MRT certification for performance of mammography examinations. CLXTs have approached CAR regarding CLXTs performing mammography examinations, and CAR has started the process required to investigate this request[i11].

Due to tight regulations around injection of contrast media, CLXTs are not currently able to perform CT in Alberta, and will not be able to do so until the regulations are changed. The Alberta College of CLXTs is currently working with their government to open up these regulations in order to have this included as advanced competencies within their scope of practice[i2].

Currently, the Alberta College of CLXTs is reviewing the SP program for substantial similarity to its own[i2]. With the formation of a national CLXT body, the construction of a national competency profile for the profession would seem to be a natural progression.

Conclusion

With between 1,300 and 1,450 employed in limited practice roles within the Canadian landscape, BRTs and CLXTs are well established and provide safe and effective care related to their respective scopes of practice.

CLXTs are skilled professionals that provide hybrid services across x-ray and lab services in rural communities, community hospitals and clinics. Their scope of practice covers the vast majority of MRT competencies, reinforcing the need for CAMRT to recognize their contribution to the healthcare system. Standardization of practice standards, education and nomenclature would be valuable for the CLXT community to ensure consistency across jurisdictions and to ensure safety standards for the patient populations they serve.

BRTs serve a limited, but essential role within their First Nations Communities by providing access to x-ray services; and also play an integral role by assisting First Nations Communities in taking charge of their own healthcare needs. There are many First Nations Communities and other remote locations within Canada that would benefit from having this type of limited scope professional within their community.

References

1) CAMRT Strategic Plan: Medical Radiation Technologists: Essential Partners in Quality Care (2015-2018). Available at: http://www.camrt.ca/wp-content/uploads/2014/10/CAMRT_Strategic_Plan_2015_Final.pdf. Accessed: May 24, 2016.

2) NAIT: A leading polytechnic committed to student success. Programs and courses. Available at: http://www.nait.ca/78406.htm. Accessed: May 24, 2016.

3) Alberta College of Combined Laboratory and X-ray Technologists. History of the college. Available at: http://www.acclxt.com/index.php/about-us/history-of-the-college. Accessed: May 24, 2016.

4) Saskatchewan Association of Combined Laboratory & X-ray Technicians. Available at: http://saclxt.ca/about/. Accessed: May 24, 2016.

5) College of the North Atlantic. X-ray skills for Medical Laboratory Technologists. Available at: http://www.cna.nl.ca/programs-courses/Show-Program-Details.aspx?program=135. Accessed: May 24, 2016.

6) Canadian Society of Combined Laboratory & X-ray Technologist. Available at: https://www.facebook.com/CSCLXT/. Accessed: May 24, 2016.

7) Combined Laboratory and X-ray Technologists Profession Regulation, Alta Reg. 224/2005. Current version: Dec 16, 2005. http://www.canlii.org/en/ab/laws/regu/alta-reg-224-2005/latest/alta-reg-224-2005.html. Accessed: May 24, 2016.

8) Alberta College of Combined Laboratory and X-ray Technologists. 2016 Provincial Handbook. Available at: http://www.acclxt.com/images/forms/2016%20Exam%20Application%20Package%20Final.pdf. Accessed: May 24, 2016.

9) Oshki-Pimache-O-Win Education & Training Institute. Basic Radiological Technician. Available at: http://www.oshki.ca/basic-radiological-technician. Accessed: May 24, 2016.

10) Scherer J. *Basic Radiological Technicians Positioning Manual*, 3rd ed, Oshki-Pimache-O-Win Institute, 2013.

11) Saskatchewan Polytechnic: Admission Requirements. Available at: http://saskpolytech.ca/admissions/admission-requirements/admission-requirements.aspx. Accessed: May 24, 2016.

12) NAIT: A leading polytechnic committed to student success. How to Apply. Available at: http://www.nait.ca/78398.htm. Accessed: May 24, 2016.

13) Graham, T. (2015). Medical Laboratory Technologist Cross-Training [Program syllabus]. Department of Allied Health Services, Red River College, Winnipeg, MB.

14) Giesbrect, B., Skubisz, C. (2015). Medical Radiologic Technologist Cross Trained MRT (X) [Program syllabus]. Department of Allied Health Services, Red River College, Winnipeg, MB.

Key Informant Interviews:

i1) B. Younger, personal communication, August 8, 2016

i2) L. Arndt, personal communication, May 12, 2016

i3) B. McKinnon, personal communication, May 16, 2016

i4) G. Astle, personal communication, April 27, 2016

i5) R. Viray, personal communication, April 28, 2016

i6) T. Brown, personal communication, April 26, 2016

i7) G. MacPherson, personal communication, April 26, 2016

i8) J. Avery, personal communication, April 28, 2016

i9) J. Scherer, personal communication, May 10, 2016

i10) G. Toffner, personal communication, May 13, 2016

i11) A. Nelson, personal communication, May 24, 2016

Key Informant Interviews, not referenced:

1) C. Beardmore, personal communication, May 23, 2016
2) C. Cernohohous, personal communication, May 16, 2016
3) K. Hilsenteger, personal communication, April 26, 2016
4) T. Schlitter, personal communication, May 20, 2016
5) P. Tyagi, personal communication, April 25, 2016
6) L. Watson, personal communication, May 16, 2016
7) N. Woznitza, personal communication, May 18, 2016