

HPRAC

HEALTH PROFESSIONS REGULATORY ADVISORY COUNCIL

ADVICE TO THE MINISTER OF HEALTH AND LONG-TERM CARE

**Medical Imaging – Regulation of
Diagnostic Sonographers and
MRI Technologists, and
Expansion of Medical Radiation
Technologists' Scope of
Practice**

September 2000

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Executive Summary

Introduction

On February 19, 1999, the Minister of Health and Long-Term Care (MOHTLC) referred the following issues to the Health Professions Regulatory Advisory Council (HPRAC):

1. Regulation of diagnostic ultrasound (sonography).
2. Regulation of Magnetic Resonance Imaging (MRI)
3. Expansion of the controlled acts authorized to the profession of medical radiation technology.

Specifically, HPRAC was asked for advice on:

1. whether there is sufficient concern for risk of harm to the public to warrant regulation of the performance of diagnostic sonography and MRI within the system of the controlled acts under the *Regulated Health Professions Act, 1991* (RHPA), and if so,
2. whether diagnostic sonographers and MRI technologists should be regulated as separate professions under the RHPA, or included within the scope of practice and authorized acts of the profession of medical radiation technology, or through other means
3. whether the controlled acts authorized to Medical Radiation Technologists should be expanded to include putting an instrument, hand or finger beyond the labia majora, the opening of the urethra, and the larynx.

Process

The College of Medical Radiation Technologists of Ontario (CMRTO), the Ontario Association of Medical Radiation Technologists (OAMRT) and the Ontario Society of Diagnostic Medical Sonographers (OSDMS) are considered to be the applicants in this referral. In May 1999, HPRAC asked the CMRTO, the OAMRT and the OSDMS to respond to the document "Request for Regulation under the *Regulated Health Professions Act, 1991*". In August 1999, HPRAC asked the CMRTO and the OAMRT to respond to the document "Request for a Change in Scope of Practice under the *Regulated Health Professions Act, 1991*".

On November 15, 1999 HPRAC circulated a letter to its mailing list of over 750 individuals and organizations inviting them to participate in HPRAC's review of the medical imaging referral. This mailing list includes all individuals and organizations that have participated in previous referral processes. In addition, notice about this referral and the invitation to participate was published in a number of newspapers and on HPRAC's website. Twenty-four people responded to the invitation to participate in the review. All participants received a copy of the applicants' submissions and were asked to provide comments. Eight respondents provided comments.

HPRAC reviewed the applicants' and respondents' submissions against the criteria for regulation contained in the *Request for Regulation* document and the principles contained in the *Request for a Change in Scope of Practice* document. HPRAC reviewed the regulatory regimes in other jurisdictions as well as the work of the Health Professions Legislative Review (HPLR) from 1982 to 1986.

Findings

The criteria for regulation of professions under the *Regulated Health Professions Act, 1991* were convincingly met in the case of diagnostic sonographers and were met to a great extent in the case of MRI technologists. The criteria for expansion of scope of practice for medical radiation technologists were also met to a great extent.

Recommendations

Diagnostic Sonographers

HPRAC recommends that:

1. Diagnostic Sonographers be regulated under the RHPA and be regulated as part of the profession of medical radiation technology governed by the CMRTO. HPRAC acknowledges that the college will change its name to reflect the inclusion of the new members.
2. The title for diagnostic sonographer members of the college be “Medical Imaging Technologist – Sonography”.
3. As a priority, the CMRTO develop a means to evaluate current diagnostic sonographers for entry to practice to effect a short transition period.
4. Diagnostic sonographers be given access to the following controlled acts:
 - i. Applying sound waves for diagnostic ultrasound
 - ii. Administering substances by injection or inhalation
 - iii. Putting an instrument, hand or finger beyond the anal verge and labia majora

MRI Technologists

1. MRI technologists be regulated under the RHPA and be regulated as part of the profession of medical radiation technology governed by the CMRTO. HRPAC acknowledges that the college will change its name to reflect the inclusion of the new members.
2. The title for MRI technologists be “Medical Imaging Technologist – Magnetic Resonance Imaging”.
3. MRI technologists be given access to the following controlled acts:
 - i. applying electromagnetism for magnetic resonance imaging
 - ii. administering substances by injection or inhalation.

4. As a priority, the CMRTO develop a means to evaluate current MRI technologists for entry to practice to effect a short transition period.

Scope of Practice

1. The scope of practice for all members of the CMRTO be:

The practice of medical imaging technology and radiation therapy is the use of ionizing radiation, soundwaves, electromagnetism and other forms of energy prescribed under subsection 12(2) to produce diagnostic images and data, the evaluation of the technical sufficiency of the images and data and the therapeutic application of ionizing radiation.

- 2(1). The *Medical Radiation Technology Act, 1991* authorize the same set of controlled acts to all members of the College as follows:

- i. taking blood samples from veins
- ii. administering substances by injection or inhalation
- iii. tattooing
- iv. putting an instrument, hand or finger
 - a) beyond the larynx
 - b) beyond the labia majora
 - c) beyond the opening of the urethra
 - d) beyond the anal verge
 - e) into an artificial opening into the body
- v. applying soundwaves for diagnostic ultrasound
- vi. applying electromagnetism for MRI

- 2(2). The authority to put an instrument, hand or finger beyond the opening of the urethra should not be granted until the CMRTO ensures that the educational program includes the competent performance of catheterization. Existing practitioners should not be allowed to perform this act until they demonstrate competency in performing this procedure.

3. That the following restrictions be placed on the performance of the authorized acts:

- i. an authorized act can only be performed in the course of practising the profession
- ii. an authorized act can only be performed on the order of a physician and, in the case of those controlled acts which midwives and registered nurses in the extended class are authorized to order, on the order of a midwife or registered nurse in the extended class

4. Ontario Regulation 107/96 made under the RHPA be amended so that applying soundwaves for diagnostic ultrasound and applying electromagnetism for MRI are no longer exempted from subsection 27 (1) of the RHPA.

ACRONYM REFERENCE LIST

CAMRT - Canadian Association of Medical Radiation Technologists

CMRTO - College of Medical Radiation Technologists of Ontario

CPSO – College of Physicians and Surgeons of Ontario

HPLR – Health Professions Legislative Review

IHF – Independent Health Facility

MRI – Magnetic Resonance Imaging

OAMRT – Ontario Association of Medical Radiation Technologists

OSDMS – Ontario Society of Diagnostic Medical Sonographers

RHPA – Regulated Health Professions Act, 1991

1. INTRODUCTION & BACKGROUND

Introduction

This report is in response to the Ministerial referral dated February 19, 1999 regarding the regulation of diagnostic sonographers and MRI technologists and a proposed expansion in the scope of practice of medical radiation technology to include the following controlled acts: putting an instrument, hand or finger beyond the labia majora, the opening of the urethra, and the larynx. (see Appendix A).

The Minister's Referral Letter

HPRAC approached this referral by considering the factors identified in the Minister's referral letter.

The Minister asks HPRAC to consider the following in applying the criteria for determining whether to regulate sonography under the RHPA:

- the potential risk of harm such as that associated with invasive procedures, and the potential for sexual abuses that may result from the intimate nature of procedures;
- the potential risk of harm associated with the sonographers role in assessing the images for diagnostic purposes; and
- the sufficiency of the existing regulatory controls to ensure ongoing protection of the public and quality of care.

In considering how sonography should best be regulated in order to protect people from harm, the Minister asked HPRAC to consider:

- the commonalties and differences in the body of knowledge and training between sonography and medical radiation technology, and
- the options of: establishing under the RHPA a separate profession regulated by a separate regulatory college; a separate profession regulated by the College of Medical Radiation Technologists of Ontario (CMRTO); sonography regulated as part of the profession of medical radiation technology under the *Medical Radiation Technology Act, 1991* and/or the *Healing Arts Radiation and Protection Act*.

The Minister also asks HPRAC to provide advice on the scope of practice and controlled acts that would need to be authorized to the profession in order for sonographers to carry out their scope of practice if HPRAC's advice is to regulate sonography.

In considering the question of regulation of MRI, the Minister asks HPRAC to consider:

- the potential risk of harm to the public resulting from the technology and its operation, and
- the sufficiency of existing regulatory controls to ensure ongoing protection of the public and quality of care.

If HPRAC's advice is to regulate MRI under the *Medical Radiation Technology Act, 1991* the Minister asks HPRAC to provide advice on what additional controlled acts should be authorized to the profession of medical radiation technology for MRI.

The letter also asks HPRAC to provide advice on whether there is a need to better protect the public by expanding the controlled acts authorized to medical radiation technology to allow these procedures to be performed on the profession's own authority in association with a diagnostic or therapeutic use of ionizing radiation, in order to remove the requirement for delegation.

The report is divided into five sections. This section provides an introduction to the referral and background on the current status of regulation of diagnostic sonographers and MRI technologists and the current scope of practice of medical radiation technologists.

Section 2 outlines the approach taken by the Health Professions Regulatory Advisory Council (HPRAC) to analyze these issues. This includes reviewing the regulatory status of diagnostic sonographers and MRI technologists in other jurisdictions as well as the scope of practice of medical radiation technologists in other jurisdictions, reviewing the work of the Health Professions Legislative Review (HPLR), and seeking input from interested parties.

Section 3 outlines the applicants' requests for regulation and expansion of the controlled acts authorized to medical radiation technologists. Section 4 outlines HPRAC's analysis of all three medical imaging issues and Section 5 outlines HPRAC's recommendations.

Background

Sonographers are health care professionals who employ high frequency soundwaves (ultrasound) to produce diagnostic images which are correlated with the patient's physical condition and other related data. The images are then interpreted by a physician with specific training in ultrasound to render a diagnosis. Sonographers are employed by hospitals, independent health facilities (IHF's), research labs, educational institutions and the commercial industry. Some of these facilities operate mobile clinics, particularly in the North. In Ontario, sonographers are unregulated.¹ Ontario has two educational institutions that offer diagnostic ultrasound programs: Mohawk College of Applied Arts and Technology and the Michener Institute of Applied Health Sciences.²

Magnetic Resonance Imaging (MRI) Technologists are health care professionals who use imaging technology that provides detailed images of the human body using electromagnetism and radiofrequency waves. The services of MRI technologists are required in all settings where MRI equipment is used.³ They are employed only in imaging departments in public hospitals or in research and development facilities.⁴ The Michener Institute for Applied Health Sciences houses the only accredited training program in Ontario for MRI.⁵ In Ontario, MRI technologists are currently not regulated health professionals.

The following is the scope of practice of medical radiation technology in Ontario as set out in the *Medical Radiation Technology Act, 1991*:

¹ Submission to HPRAC from the College of Medical Radiation Technologists of Ontario (CMRTO) and the Ontario Society of Diagnostic Medical Sonographers, p. 10

² CMRTO/OSDMS submission, p. 79 and 80

³ CMRTO submission, p. 8

⁴ CMRTO submission, p. 11

⁵ CMRTO submission, p. 49

The practice of medical radiation technology is the use of ionizing radiation and other forms of energy prescribed under subsection 12 (2) to produce diagnostic images and tests, the evaluation of the technical sufficiency of the images and tests, and the therapeutic application of ionizing radiation.

In the course of engaging in the practice of medical radiation technology, a member is authorized, subject to the terms, conditions and limitations imposed on his or her certificate of registration, to perform the following:

- 1. Taking blood samples from veins.*
- 2. Administering substances by injection or inhalation.*
- 3. Administering contrast media through or into the rectum or an artificial opening into the body.*
- 4. Tattooing.*

The *Medical Radiation Technology Act, 1991* also sets out additional requirements for the authorized acts. A medical radiation technologist can only perform an authorized act if the procedure is ordered by a member of the College of Physicians and Surgeons of Ontario.

There are a number of controlled acts that medical radiation technologists currently perform under delegation. These are: putting an instrument, hand or finger beyond the labia majora; beyond the opening of the urethra, and beyond the larynx.

Under subsection 27 (2) of the *Regulated Health Professions Act, 1991* (RHPA), applying or ordering the application of a form of energy prescribed by the regulations is a controlled act.⁶ Ontario Regulation 107/96 sets out the forms of energy which are prescribed as controlled acts. Included in this list are: electromagnetism for magnetic resonance imaging and soundwaves for diagnostic ultrasound.⁷ Section 7 of the regulation sets out exemptions to the controlled acts provision of the RHPA. Specifically, it provides that:

- A person is exempt from subsection 27(1) of the Act for the purpose of,*
- (a) applying soundwaves for diagnostic ultrasound if the application is ordered by a member of the College of Physicians and Surgeons of Ontario;*
 - (b) applying soundwaves for pregnancy diagnostic ultrasound if the application is ordered by a member of the College of Midwives of Ontario;*
 - (c) applying electromagnetism for magnetic resonance imaging in a public hospital if the application is ordered by a member of the College of Physicians and Surgeons of Ontario...*

Under the *Nursing Act, 1991* registered nurses in the extended class can also order diagnostic ultrasound.

As stated in the referral letter, because of the provisions in Ontario Regulation 107/96 people who perform sonography and MRI do not have to be members of a regulated health profession.

⁶ Paragraph 7 of Subsection 27 (2) of the RHPA.

⁷ Ontario Regulation 107/96, Section 1, Paragraph 2 and subparagraph 3.i.

2. HPRAC'S APPROACH

In May 1999, HPRAC asked the College of Medical Radiation Technologists of Ontario (CMRTO), the Ontario Association of Medical Radiation Technologists (OAMRT) and the Ontario Society of Diagnostic Medical Sonographers (OSDMS) to respond to the document *Request for Regulation under the Regulated Health Professions Act, 1991*. In August 1999, HPRAC asked the CMRTO and the OAMRT to respond to the document *Request for a Change in Scope of Practice under the Regulated Health Professions Act, 1991*.

The CMRTO and the OSDMS submitted an application regarding the regulation of diagnostic medical sonographers under the RHPA. The CMRTO and the OAMRT submitted applications regarding the regulation of MRI technologists under the RHPA. The CMRTO and the OAMRT also submitted applications regarding to the expansion of controlled acts authorized to medical radiation technologists. CMRTO, OAMRT and OSDMS are considered to be the applicants in this referral.

In order to determine whether sonography and/or MRI should be regulated under the RHPA, the Advisory Council considered the criteria HPRAC developed for deciding the threshold question of whether to regulate a profession under the RHPA. These criteria are found in the *Request for Regulation* document. The criteria are also helpful in addressing issues pertaining to a profession's scope of practice. HPRAC's nine criteria for regulation under the RHPA are:

CRITERIA	DESCRIPTION
1. Relevance to the Minister of Health and Long-Term Care	A substantial portion of the profession's members are engaged in activities that are under the jurisdiction of the Minister of Health and Long-Term Care and the primary objective of the treatments/services they provide is the promotion or restoration of health.
2. Risk of Harm	A substantial risk of physical, emotional or mental harm to individual patients/clients arises in the practice of the profession.
3. Sufficiency of Supervision	A significant number of practitioners of this profession do not have the quality of their performance monitored effectively, either by supervisors in regulated institutions, by supervisors who are themselves regulated professionals, or by regulated professions who assign this profession's services.
4. Alternative Regulatory Mechanism	The profession is not already regulated effectively or will not soon be regulated effectively under some other regulatory mechanism.

5. Body of Knowledge	The members of this profession must call upon a distinctive, systematic body of knowledge in assessing, treating or serving their patients/clients. The core activities performed by members of this profession must be discernible as a clear and integrated whole and must be broadly accepted as such within the profession.
6. Educational Requirements for Entry to Practice	To enter the practice of the profession, the practitioner must successfully complete a post-secondary program offered by a recognized educational institution. The educational program must be available in Canada. Governing bodies may register individuals from other jurisdictions with equivalent training, in compliance with the entry to practice regulation.
7. Leadership's Ability to Favour the Public Interest	The profession's leadership has shown that it will distinguish between the public interest and the profession's self-interest and in self-regulating will favour the former over the latter.
8. Likelihood of Compliance	The members of this profession support self-regulation for themselves with sufficient numbers and commitment that widespread compliance is likely.
9. Sufficiency of Membership Size and Willingness to Contribute	The practitioners of the profession are sufficiently numerous to staff all committees of a governing body with committed members and are willing to accept the full cost of regulation. At the same time, the profession must be able to maintain a separate professional association.

In considering whether the proposed additional controlled acts should be authorized to medical radiation technologists, HPRAC considered the applicants' submissions that answered the questions set out in the document *Request for a Change in Scope of Practice under the RHPA*. HPRAC's criteria for assessing a profession's application for a change in scope of practice are: protection from harm; quality care; accountability; accessibility, equity and equality. These are also the fundamental principles of the RHPA.

Work of the Health Professions Legislative Review (HPLR)

HPRAC reviewed the work of the HPLR with respect to the regulation of sonography (the other two referral issues were not considered by HPLR) including the relevant files, working documents and submissions to the Review that were at HPRAC's disposal.

Review of Other Jurisdictions

HPRAC contacted all Canadian provincial ministries of health to determine the regulatory status of diagnostic sonographers and MRI technologists in these jurisdictions. To determine the current scope of practice of medical radiation technologists across Canada, HPRAC spoke with the College of Medical Radiation Technologists of Ontario and looked at the national competencies provided by the Canadian Association of Medical Radiation Technologists.

HPRAC researched the regulatory status of diagnostic sonographers and MRI technologists in the United States through Internet searches and contact with American Registry of Radiologic Technologists.

Views of Stakeholders

HPRAC offered a wide range of groups and individuals an opportunity to express their views on the three referral issues.

On November 15, 1999 HPRAC circulated a letter to its mailing list of over 750 individuals and organizations, who have participated in previous referrals, inviting them to participate in HPRAC's review of the medical imaging referral (see appendix B). HPRAC also posted information on its website inviting participation in the referral. A news release was issued by HPRAC on December 2, 1999 and a newspaper advertisement appeared in the Globe and Mail and Toronto Star on December 18, 1999. Twenty-four people responded to the invitation to participate in the review. All participants received a copy of the applicants' submissions and were specifically invited to critique, comment on, or provide additional information to the applicants' submissions. Eight respondents provided comments on the applicants' submissions. To ensure a fair and transparent process, all participants were required to circulate their comments to each other and to the applicants. A list of applicants and respondents is attached in appendix C.

3. THE APPLICANTS' REQUEST

The CMRTO and the OSDMS submitted an application regarding the regulation of diagnostic medical sonographers under the RHPA. The CMRTO and the OAMRT submitted applications regarding the regulation of MRI technologists under the RHPA. The CMRTO and the OAMRT also submitted applications regarding the expansion of controlled acts authorized to medical radiation technologists.

The CMRTO proposed that in the interest of the protection of the public of Ontario, diagnostic medical sonographers and MRI technologists become regulated with medical radiation technologists under one regulatory college. The CMRTO also proposed the following:

- that the name of the CMRTO be changed to the College of Medical Imaging Technologists and Radiation Therapists of Ontario
- the specialties regulated under the college would be: radiography, nuclear medicine, sonography, magnetic resonance imaging, and radiation therapy
- the titles of the members of the college for each of the specialties be:
 - Medical Imaging Technologist – Radiography
 - Medical Imaging Technologist – Nuclear Medicine
 - Medical Imaging Technologist – Sonography
 - Medical Imaging Technologist – Magnetic Resonance Imaging
 - Radiation Therapist
- that the scope of practice statement for the college be:

“The practice of medical imaging technology and radiation therapy is the use of ionizing radiation, soundwaves, electromagnetism and other forms of energy prescribed under subsection 12 (2) to produce diagnostic images and data, the evaluation of the technical sufficiency of the images and the data, the assessment of the condition of the individual, the images and data, and the therapeutic application of ionizing radiation.”

- that there be one set of controlled acts authorized to members of the College of Medical Imaging Technologists and Radiation Therapists of Ontario and that those authorized acts be:
 1. Taking blood samples from veins
 2. Administering substances by injection or inhalation
 3. Tattooing
 4. Putting an instrument, hand, or finger
 - i. beyond the larynx
 - ii. beyond the labia majora
 - iii. beyond the opening of the urethra
 - iv. beyond the anal verge
 - v. into an artificial opening into the body

5. Applying soundwaves for diagnostic ultrasound
 6. Applying electromagnetism for magnetic resonance imaging⁸
- that the following restrictions be placed upon the performance of authorized acts:
1. An authorized act can only be done in the course of practising the profession
 2. An authorized act can only be done on the order of a physician and in the case of those controlled acts which midwives and registered nurses of the extended class are authorized to order, on the order of a midwife or registered nurse of the extended class
- that Ontario Regulation 107/96 made under the RHPA be amended so that applying soundwaves for diagnostic ultrasound and applying electromagnetism for magnetic resonance imaging no longer be exempt from subsection 27 (1) of the RHPA.

The CMRTO identifies three principal rationales in the support of the regulation of diagnostic medical sonographers and magnetic resonance imaging technologists:

- ❖ The current regulatory environment is not effective in regulating the performance of diagnostic ultrasound and magnetic resonance imaging;
- ❖ There is a serious risk of harm to the public from the use of these technologies by unregulated practitioners; and
- ❖ Without the regulation of diagnostic sonographers and MRI technologists, there is no method of ensuring the competence of practitioners through required educational programs or certification examinations.⁹

The OAMRT's application supports the regulation of MRI technologists. Their application notes that the unique nature of magnetic resonance presents special imaging, patient care and safety requirements. In its application requesting an expansion of the controlled acts authorized to medical radiation technologists, the OAMRT states that it believes "that by expanding the controlled acts authorized to Medical Radiation Technology to be performed in the profession's own authority, in association with a diagnostic or therapeutic use of ionizing radiation serves the public interest and better protects them".¹⁰ The OAMRT notes that the request for change:

1. Meets the spirit of the RHPA
2. Provides the public with choice concerning access to services

⁸ The current set of controlled acts authorized to members of the CMRTO is:

1. Taking blood samples from veins.
2. Administering substances by injection or inhalation.
3. Administering contrast media through or into the rectum or an artificial opening into the body.
4. Tattooing.

⁹ CMRTO's Executive Summary, page 32-33

¹⁰ OAMRT's Submission re: Change in Scope of Practice, page 3.

3. Protects the public
4. Legitimizes what the profession already does
5. Provides economies of scale
6. Confirms the trust physicians have already placed on MRTs
7. Mirrors standards of practice of the profession nationally and internationally
8. Recognizes the education foundation and potential of MRTs
9. Is within the envelope of the Scope of Practice Statement
10. Allows for future changes to the profession¹¹

The Association also notes that the authorization of the three additional controlled acts will be prudent due to the request for the inclusion of diagnostic medical sonographers and MRI technologists to be regulated under the RHPA as members of the CMRTO.

¹¹ OAMRT's Submission to HPRAC, Request for a Change in Scope of Practice, page 3.

4. HPRAC's ANALYSIS

4.1 The Health Professions Legislative Review

In November 1982, the Minister of Health announced the creation of the Health Professions Legislation Review (Review). Part of the Review's mandate was to make recommendations to the Minister with respect to which health professions should be regulated. In September 1983, the Review circulated a first Topics Paper that invited responses to questions on a variety of topics including, what professions should be considered for regulation. The Ontario Society of Diagnostic Medical Sonographers (OSDMS) responded to this paper. The Review analyzed this submission and sent detailed follow-up questions to the OSDMS as well as all other participants.

In September 1984, the Minister of Health's initial decision as to which professions would not be regulated was announced. At the same time, a list of the 39 health professions for which regulation was still being considered was released. Diagnostic sonographers were among the professions still being considered for regulation. During summer 1985 a final series of questions was posed concerning the ability of the 39 professions on the list to meet the criteria for self-regulation. In April 1986, the Minister announced the final list of 24 professions that would be granted the right to govern themselves pursuant to statute. Diagnostic sonographers were not included on this list. HPLR documents provide that regulation is not necessary as the criteria 2 (risk of harm), 3 (supervision) and 9 (numbers) were not met.

In correspondence to Debbie Havill (OSDMS Chairperson Self-Regulation Committee), Alan Schwartz (Review Coordinator) wrote that harm associated with interpreting ultrasound was considered by the Review. However, the review considered that the interpretation of the image remains the ultimate responsibility of the ordering practitioner and, as such, any harm associated with misinterpretation is mitigated by supervision. (see letter attached in Appendix D)

HPLR considered ionizing radiation to be a separate profession, in terms of the risk of harm and nature of practice, from diagnostic sonography and therefore considered the regulation of medical radiation technology and diagnostic sonography separately. HPRAC notes the overlap in membership of medical radiation technologists and diagnostic sonographers and also the similarities in knowledge between the two professions. As well, the submission of OSDMS and CMRTO demonstrates the role diagnostic sonographers play in the more broader context of medical imaging.

4.2 Review of Other Jurisdictions

Regulation of Diagnostic Sonographers in Canada

Based on HPRAC's review of other jurisdictions as presented below, it is noted that none of the provinces that responded to HPRAC currently regulate diagnostic sonographers. However, New Brunswick and Quebec will be introducing legislation to regulate diagnostic sonographers.

New Brunswick

Regulation is being pursued in the form of a private member's bill in the New Brunswick Legislature.

Newfoundland

Diagnostic sonographers are not a regulated profession.

Nova Scotia

Diagnostic sonographers are not a regulated profession.

Quebec

Currently, the "ordre" (similar to a regulatory college in Ontario) in Quebec regulates medical radiation technologists. Almost all diagnostic sonographers (and MRI technicians) are registered in the "ordre". However, the requirement to be registered in the "ordre" is not written in the legislation. The "ordre" is negotiating with the government to amend the legislation to include such a requirement. The Registrar of the "ordre" anticipates that the legislation will be amended in the Fall legislative session.

British Columbia

An application has been received by the B.C. Health Professions Council from the Medical Radiation Technologists regarding designations of professions. The application does not include diagnostic sonographers. However, the Council may ask the Minister whether the issue of regulation of diagnostic sonographers should be considered in its review.

Alberta

The *Health Professions Act* (HPA) was passed April 1, 1999. Ultrasound imaging has been identified as a "restricted activity" in the HPA. However, nothing in the HPA compels diagnostic sonographers to be a regulated profession. The Alberta Diagnostic Sonographers' Association will be applying for regulation within the next few months. As the legislation currently stands, diagnostic sonographers will have to be referenced in the physicians' regulations as the Act currently requires regulated professions to make regulations regarding how they will supervise unauthorized practitioners.

Saskatchewan

Diagnostic sonographers are not a regulated profession in Saskatchewan.

Regulation of Diagnostic Sonographers in the United States

The joint CMRTO/OSDMS submission states that there are no regulation/licensure laws governing ultrasound in the United States.¹² HPRAC also researched this matter and came to the same conclusion.

Regulation of MRI Technologists in Canada

Based on HPRAC's review of other jurisdictions as presented below, it is noted that none of the provinces that responded to HPRAC currently regulate MRI technologists. However, Alberta and Quebec will be introducing legislation to regulate MRI technologists.

Alberta

In Alberta, the *Health Professions Act* was passed on April 1, 1999. The legislation includes the protected title of "registered technologist magnetic resonance". Amendments are being drafted to the current *Health Disciplines Act* to include MRI technologists with medical radiation technologists. This amendment will be sent out for stakeholder consultation.

Quebec

Currently, an "ordre" (similar to a regulatory college in Ontario) in Quebec regulates medical radiation technologists. Almost all MRI technicians and diagnostic sonographers are registered with the "ordre". However, the requirement to be registered in the "ordre" is not written in the legislation. The "ordre" is negotiating with the government to amend the legislation to include such a requirement. The Registrar of the "ordre" anticipates that the legislation will be amended in the Fall 2000 legislative session.

British Columbia

An application has been received by the B.C. Health Professions Council from medical radiation technologists regarding designation of the profession. The application includes MRI technologists. The Council will start its review of the application around November/December 2000.

Saskatchewan

MRI technologists are not a regulated profession.

New Brunswick

MRI technologists are not a regulated profession.

Nova Scotia

MRI technologists are not a regulated profession.

¹² CMRTO/OSDMS submission, p. 57

Newfoundland

MRI technologists are not a regulated profession.

Regulation of MRI Technologists in the United States

The joint CMRTO submission states that there are no regulation/licensure laws governing MRI in the United States.¹³ HPRAC also researched this issue and came to the same conclusion. There is draft federal legislation, the *Consumer Assurance of Radiologic Excellence Act*, which is likely to be introduced in the Fall session of Congress. This Act would establish educational and credentialing standards for personnel who deliver radiation therapy and perform all types of medical imaging examinations with the exception of sonography and echocardiography.

See Appendix E for charts setting out the regulatory status of sonography and MRI technology in Canada.

4.3 The Views of Stakeholders

While 24 individuals and groups expressed a desire to participate in this referral, a total of eight written submissions were received. Below is a summary of the arguments in relation to the regulation of MRI technologists and diagnostic sonographers, as well as, the expansion of medical radiation technologists' scope of practice.

There was no opposition to the regulation of diagnostic sonographers, MRI technologists and expansion of the scope of practice for medical radiation technologists. The reasons for support include:

- self-regulation is not only necessary but that it is a natural step in the evolution of the profession
- the occupational profile of diagnostic medical sonography is continually expanding due to ongoing technological advancements and increased awareness of the tasks and duties of the profession.
- the performance of diagnostic sonography and MRI constitutes medical interventions that must be done according to accepted standards which can only be enforced if all diagnostic imaging examinations are performed by duly qualified individuals accountable to a professional college, such as the CMRTO
- in order to assure the standard of the examination performed, the controlled acts authorized to medical radiation technologists should be expanded
- there is sufficient concern for risk of harm to the public to warrant the regulation of the performance of diagnostic sonography and MRI within the system of controlled acts under the order of a physician
- a poorly done ultrasound may create difficulty on the part of the physician in attaining a proper diagnosis
- MRI is the most complex imaging modality that demands a thorough specialized knowledge and properly trained technologists

¹³ CMRTO submission , p. 40

- the risks associated with MRI are well documented

Notwithstanding the broad support for the proposals, there were some concerns expressed about particular aspects of the proposals:

The Cardiology Technologists Association of Ontario stated that echocardiography is not recognized in the joint CMRTO/OSDMS submission. Upon meeting with the applicants, HPRAC was told that echocardiography is a form of sonography and is included in their submission. In fact, two people on the committee who prepared their submission are involved in echocardiography.

The Ontario Association of Radiologists (OAR) recommends that the scope of practice statement should be modified to reflect that the scope is subject to the “authority of the trained imaging physician”. OAR also states that the performance of diagnostic ultrasound or MRI as an authorized act should be carried out on the order and under the direct supervision of imaging physicians. HPRAC notes that the current legislative provision requiring an order from a physician remains unchanged. The applicants’ request does not propose to change or remove this requirement.

The Chinese Medicine and Acupuncture Association of Canada states that changing the professional titles of diagnostic sonographers, MRI technologists and medical radiation technologists may cause some confusion for the public. HPRAC notes that only medical radiation technologists will be required to change their titles as diagnostic sonographers and MRI technologists are currently not regulated and as such are not required legislatively to use a certain title. As well, the change in title for medical radiation technologists is a minor change and should not cause confusion for the public.

A summary of each of the participant’s respective positions can be found in Appendix F.

4.4 Criteria for Regulation – Diagnostic Sonography

1. Relevance to the Minister of Health and Long-Term Care

In order to meet this criterion a substantial portion of the profession's members must be engaged in activities that are under the jurisdiction of the Minister of Health and Long-Term Care and the primary objective of the treatments/services they provide is in the promotion or restoration of health.

The CMRTO/OSDMS submission meets this criterion. Ultrasound examinations are publicly funded. Diagnostic ultrasound is critical to all levels of health care: primary, secondary and tertiary care. It is an aid to medical diagnosis. The submission states that it is estimated that there are between 2,000 and 2,800 diagnostic sonographers providing direct patient services in Ontario.¹⁴ This number is an estimate because of the fact that some diagnostic sonographers work part-time and some work at more than one facility.

2. Risk of Harm

A substantial risk of physical, emotional or mental harm to individual patients/clients arises in the practice of the profession.

This criterion is met based on information in the CMRTO/OSDMS submission. The submission states that there are a number of risks. These include:

(1) Risks associated with the findings of the examination

- (i) inaccurate or incomplete information in recorded images and data: the production of poor quality images may result in an error in diagnosis, which may have serious consequences for the patient
- (ii) failure to correlate all relevant data with sonographic findings: ultrasound procedures are most accurately completed in conjunction with all other relevant data such as laboratory test data, patient's physical condition and previous procedures

(2) Risks associated with the performance of the examination

- (i) infection: risk of infection comes from the direct contact of the diagnostic sonographer's hand, the transducer and other equipment with the patient's skin and, in some cases, mucous membranes
- (ii) patient contact and the issue of sexual abuse: the diagnostic sonographer comes into direct contact with the patient's skin; very sensitive areas of the patient's body may remain uncovered for the duration of the examination; the diagnostic sonographer must often ask very personal and sensitive questions in taking the patient's clinical history; with transvaginal and transrectal examinations, the transducer is inserted into the vagina or rectum and manipulated to produce the required diagnostic images

¹⁴ CMRTO/OSDMS submission, p. 15

- (iii) biological effects of ultrasound: ultrasound units are capable of exceeding the recommended intensities of the clinical “safe zone”
- (3) Risks associated with the performance of controlled acts
- (i) transvaginal and transrectal examinations: risk of harm from improperly performed intracavitary ultrasound is high. A patient can be endangered in the following ways: patient injury and latex sensitivities, as well as the risks of infection and sexual misconduct mentioned above. HPRAC notes that transvaginal and transrectal examinations were not frequently done by sonographers during the period of the HPLR.
 - (ii) administering substances by injection¹⁵

Examples of poor performance have been discovered and documented by the College of Physicians and Surgeons of Ontario (CPSO) during assessments of Independent Health Facilities (IHF). The CPSO, in its submission to HPRAC, states that “the CPSO, in its quality assessment activities of IHFs on behalf of the Ministry of Health and Long-Term Care, is aware of examples of actual harm to patients as a result of unregulated sonography”.¹⁶ HPRAC also received information from the Independent Health Facilities Program of the Ministry of Health and Long-Term Care which set out examples of incidents relating to sonography.

The applicants adequately answered the question: how will self-regulation decrease the substantial risk of harm of your profession’s treatment/services to patients/clients? Their submission states that currently there are no formal education requirements for a person to become a diagnostic sonographer. There are also currently no mandatory certification exams. The CMRTO/OSDMS state that entry to practice requirements that will include formal educational training and certification exams will ensure that a diagnostic sonographer has the proper training.¹⁷ The registration process of the college will prevent individuals who are not fully qualified from being a member of the college. As with all other regulated health professionals, diagnostic sonographers will have to follow standards of practice developed by the college, diagnostic sonographers who are not practising at the expected levels of competency will be subject to disciplinary action, diagnostic sonographers will have to participate in a quality assurance program and they will have to use a protected title.

3. Sufficiency of Supervision

A significant number of practitioners do not have the quality of their performance monitored effectively.

This criterion is met. Diagnostic sonographers are not directly supervised. The interpreting physician most often has contact only with the hard copy images or videotape produced by the diagnostic sonographer.¹⁸ The Diagnostic Imaging Facility Standards published by the CPSO provide that “a diagnostic imaging physician is available for consultation with the technologists/diagnostic sonographer on a case-by-case basis. Ideally, the imaging physician is

¹⁵ CMRTO/OSDMS submission, p. 29-39

¹⁶ CPSO submission to HPRAC, March 21, 2000

¹⁷ CMRTO/OSDMS submission to HPRAC, p. 43

¹⁸ CMRTO/OSDMS submission to HPRAC, p. 48-49

on-site and available to participate in the examination when required".¹⁹ As indicated above, the assessment of IHFs is carried out by the CPSO. HPRAC notes that the CPSO supports the regulation of diagnostic sonographers.

4. Alternative Regulatory Mechanism

The profession is not already regulated effectively or will not soon be regulated effectively under some other regulatory mechanism.

This criterion is met. Although there currently is some form of regulation regarding the application of soundwaves, it is not the most effective form of regulation. The profession is regulated **indirectly** by the following regulations and legislation: the application of soundwaves is exempted under the Ontario Regulation 107/96 provided that the diagnostic ultrasound has been ordered by a member of the CPSO or for certain examinations a member of the College of Midwives of Ontario. Section 4 (2) of Ontario Regulation 57/92 under the *Independent Health Facilities Act* requires every licensee to ensure that the persons who provide services in the IHF are qualified, according to generally accepted professional standards, to provide those services. Section 34 of the *Public Hospitals Act* provides that responsibility for the quality of diagnosis, care and treatment provided to the in-patients and out-patients of the hospital rests with the medical advisory committee. The operation and effective control or involvement of the medical advisory committee can vary however, from hospital to hospital.

The CPSO's Facility Standards for Diagnostic Imaging provide that diagnostic sonographers have two years of approved training in a health care discipline. The preferable area is radiography with one further year of training in sonography in an approved college or institution. HPRAC notes that a mandatory requirement to have completed training in sonography is absent from this standard. Such a requirement would increase quality and safety of practice.

5. Body of Knowledge

The members of the profession must call upon a distinctive, systematic body of knowledge. The core activities performed must be discernible as a clear and integrated whole and must be broadly accepted as such within the profession.

This criterion is met.

The 1987 Guidelines for the Safe Use of Ultrasound published by the federal Environmental Health Directorate, Health Protection Branch provide that there are many different diagnostic ultrasound applications. The most important and widespread are those in obstetrics and cardiology. Other frequent uses include gynecological and abdominal examinations. In addition, there are urological, vascular, breast, eye and thyroid ultrasound examinations. The 1987 Guidelines state that the benefits, and hence the validity, of diagnostic ultrasound are well established when clinical indications are present.

¹⁹ Independent Health Facilities, Clinical Practice Parameters & Facility Standards, Diagnostic Imaging Facility Standards, First Edition, February 1995

The CMRTO/OSDMS submission describes in great detail the core body of knowledge of the profession. The submission also sets out the proposed scope of practice for diagnostic sonographers and explains how the scope relates to the body of knowledge

The diagnostic sonographer practises within the proposed scope of practice by integrating the core body of knowledge and applying it in the appropriate context to his or her practice. The use of high frequency soundwaves and their interactions with body tissue is the fundamental principle upon which the production of ultrasound images and data is based. The diagnostic sonographer's knowledge base in this area comes from education in the physics of sound and of fluid dynamics and to a lesser extent in the biological effects and safety of ultrasound. The knowledge base required to evaluate the technical sufficiency of the images and data is acquired through education in the following subjects: physics of sound and of fluid dynamics; instrumentation of ultrasound systems; image production, display and storage; procedural and examination techniques; clinical applications; and quality assurance. Anatomy and physiology, embryology, pathophysiology and pathology supplement the knowledge base in this area so the diagnostic sonographer is able to recognize normal, abnormal and artifactual patterns of structure and function.²⁰

The CMRTO/OSDMS submission proposes a number of controlled acts that should be authorized to diagnostic sonographers. They are:

i. Applying soundwaves for diagnostic ultrasound (Controlled Act 7)

The submission states that one third of the core body of knowledge is directly related to the application of soundwaves i.e., physics of ultrasound, biological effects and safety, instrumentation of various ultrasound systems, image production display and storage, quality control. These topics form a substantial portion of the curricula of Mohawk College's and the Michener Institute's sonography programs.²¹

ii. Putting an instrument, hand or finger beyond the labia majora and beyond the anal verge (Controlled Act 6)

Part of the core body of knowledge pertinent to these intracavitary procedures is human anatomy and physiology. There are additional subjects related to these acts set out in the submission. Mohawk College's and Michener Institute's sonography programs have incorporated transvaginal and transrectal ultrasound into their respective curricula.²²

iii. Administering substances by injection or inhalation (Controlled Act 5)

Some diagnostic sonographers currently administer substances by injection when they administer echo enhancement agents. Because the introduction of echo enhancement agents onto the market is so recent, this aspect of ultrasound is not yet a prominent part of the diagnostic sonographer's core body of knowledge. Educational preparation is provided by introductory lectures on echo enhancement agents in Mohawk's and Michener's curricula.²³ The submission notes that

²⁰ CMRTO/OSDMS submission, p. 68-69

²¹ CMRTO/OSDMS submission, p. 71

²² CMRTO/OSDMS submission, p. 72-73

²³ CMRTO/OSDMS submission, p. 74-75

diagnostic sonographers should only perform an authorized act on the order of a physician, or in some cases, a midwife or a registered nurse in the extended class.

6. Educational Requirements for Entry to Practice

To enter the practice of the profession, the practitioner must successfully complete a post-secondary program offered by a recognized educational institution. The program must be offered in Canada.

This criterion is met. Ontario has two educational institutions that offer diagnostic ultrasound programs: Mohawk College of Applied Arts and Technology and the Michener Institute for Applied Health Sciences. Appendix 5 of the CMRTO/OSDMS submission includes curricula from Michener and Mohawk as well as other institutions in Canada that offer courses in diagnostic ultrasound. Both Mohawk and Michener are recognized educational institutions. The diagnostic ultrasound program is a post-secondary program.

The submission notes that there may be approximately 1,000-1,800 diagnostic sonographers currently practising in Ontario who have not received any educational training specific to diagnostic ultrasound.²⁴ Given this situation, HPRAC is of the view that it would be a priority for the CMRTO to develop a means to assess current diagnostic sonographers in a relatively short transition period.

The submission also addresses this situation and states that there will be a need to address the issue of registering diagnostic sonographers who have no formal training, have not successfully completed the American Registry of Diagnostic Medical Sonographers (ARDMS) exam or are not current with the ARDMS registry. Mechanisms include: provisional or temporary certificates of registration; requirement to work under supervision; or a requirement to successfully complete a college approved examination within a set period of time.²⁵

7. Leadership's Ability to Favour the Public Interest

The profession's leadership has shown that it will distinguish between the public interest and the profession's self-interest and in self-regulating will favour the former over the latter.

This criterion is met. The CMRTO/OSMDS submission as a whole demonstrates that these bodies hold the interest of the public over the interest of the professional. The proposals contained in the submission aim to decrease the risk of harm to the public by regulating the profession of sonography. The CMRTO as an existing regulatory body is mandated by the RHPA to serve and protect the public interest. The OSDMS has encouraged the regulation of diagnostic sonographers over many years as evidenced by their initial application to HPLR. The OSDMS Membership Information pamphlet states that "the main objectives are to become an information network for diagnostic sonographers to help its members to advance their knowledge in ultrasound and related issues. The Society promotes continuing education and meetings and Education Day conferences in which diagnostic sonographers can accumulate CME credits".

8. Likelihood of Compliance

²⁴ CMRTO/OSDMS submission, p. 85

²⁵ CMRTO/OSDMS submission, p. 102

The members of the profession support self-regulation for themselves with sufficient members and commitment that widespread compliance is likely.

This criterion is met. The OSDMS polled its membership in 1997. The results of the poll indicated that the membership supported the need for regulation of the profession as a specialty of the CMRTO.²⁶ The submission outlines in detail the consultation with diagnostic sonographers and stakeholders including medical radiation technologists regarding the regulation of diagnostic sonographers by CMRTO and OSMDS.²⁷ In a meeting with the CMRTO, the Registrar indicated to HPRAC that there is support in general; however, there are some individuals who have expressed concerns that, should diagnostic sonographers become regulated under the RHPA, there will be higher costs for them in terms of membership fees. They have also expressed fears of losing their jobs if they do not become members of the College, once regulated.

9. Sufficiency of Membership Size and Willingness to Contribute

The practitioners of the profession are sufficiently numerous to staff all committees of a governing body and are willing to accept the full cost of regulation. At the same time, the profession must be able to maintain a separate professional association.

This criterion is met. CMRTO/OSDMS estimate that there are between 2,000-2,800 diagnostic sonographers practising in Ontario. The CMRTO has reviewed the expense of adding diagnostic ultrasound to the college and has developed a fee structure to accommodate the change. Annual registration (membership fees) for diagnostic sonographers would be the same as for other CMRTO members. For the first three to five years following regulation, the application fee for diagnostic sonographers to join the college would be approximately \$150 to \$200. The application fee is a one time only expense relating to the cost of the college evaluating a person for entry into the profession. After this time, the application fee for all specialties would be the same. The current application fee is \$50. The OSDMS would continue to be a separate professional association subsequent to regulation.

HPRAC notes that there is a significant overlap in knowledge between medical radiation technologists and diagnostic sonographers, and that a number of sonographers are already members of the CMRTO. These observations together with a fee structure proposed above suggest that regulating sonographers under the CMRTC is the most efficient scenario.

In HPRAC's view all nine criteria for regulation have been convincingly met.

HPRAC recommends that:

- 1. Diagnostic Sonographers be regulated under the RHPA and be regulated as part of the profession of medial radiation technology governed by the CMRTO. HPRAC acknowledges that the college will change its name to reflect the inclusion of new members.*
- 2. The title for diagnostic sonographer members of the college be "Medical Imaging Technologist – Sonography".*
- 3. As a priority, the CMRTO develop a means to evaluate current diagnostic sonographers for entry to practice to effect a short transition period.*

²⁶ CMRTO/OSDMS submission, p. 111

²⁷ CMRTO/OSDMS submission, p. 112

4. Diagnostic sonographers be given access to the following controlled acts:

- iv. Applying sound waves for diagnostic ultrasound**
- v. administering substances by injection or inhalation**
- vi. inserting an instrument, hand or finger beyond the anal verge and labia majora**

4.5 Criteria for Regulation – Magnetic Resonance Imaging

1. Relevance to the Minister of Health and Long-Term Care

In order to meet this criterion a substantial portion of the profession's members must be engaged in activities that are under the jurisdiction of the Minister of Health and Long-Term Care and the primary objective of the treatments/services they provide is in the promotion or restoration of health.

This criterion is met. There are approximately 100 to 120 MRI technologists practising in Ontario. The duties of MRI technologists are performed on equipment whose location is limited to designated hospitals by regulations under the *Public Hospitals Act*. Interpretation of MRI exams is publicly funded through fee for service billing. HPRAC notes that the 2000 Ontario Budget, under Investing in Health Care, provides for \$1 million for the treatment of tuberculosis for persons not covered by medical insurance **and for equipment to double the enrolment of MRI technologists at the Michener Institute**. The promotion or restoration of health is the primary objective of MRI technology. MRI images guide the decision making of the physician in providing high quality diagnoses and treatment of individual patients. Images are used by researchers in furthering understanding of the workings of the human body. By helping to improve patient outcomes overall, the services provided by MRI technologists contribute ultimately to raising the collective performance of the medical professions.²⁸

2. Risk of Harm

A substantial risk of physical, emotional or mental harm to individual patients/clients arises in the practice of the profession.

This criterion is met. An important determinant of image quality in MRI is the technologist's knowledge of the principles and applications of the technology. The MRI technologist controls the parameters (each of which affects scan quality or pathology made visible), checks the images, evaluates any artifacts (a feature which appears in an image which is not present in the imaged object) or unexpected disease process occurring during patient examination and makes changes where necessary to ensure the production of a quality image which covers an adequate area for the desired diagnosis.²⁹ An improperly performed MRI scan could cause a risk of harm to the patient. A patient is exposed to three types of electromagnetic radiation which is potentially harmful. There are risks associated with the performance of the exam i.e., hearing loss, effects on implants and pacemakers, burns, patient anxiety and claustrophobia, biological effects, patient contact and sexual abuse, and allergic reactions. Risks associated with the MR environment include: projectile effect, cryogen "boil-off", effects on pacemakers and other medical devices.³⁰ The CMRTO submission describes these risks in detail; however Table 1 provides some explanation of the risks of harm. Both the CMRTO and OAMRT submit that regulating MRI technologists will ensure that they are appropriately trained to practise MRI. MRI technologists

²⁸ CMRTO submission, p. 9

²⁹ CMRTO submission, p. 14

³⁰ CMRTO submission, p.22-26

would be required to adhere to standards of practice guidelines that will give improved guidance for those performing magnetic resonance. Regulation would also ensure that MRI technologists participate in a quality assurance program. They would also be subject to a complaints and discipline process.

POTENTIAL RISK	EXPLANATION OF RISK
1. Hearing Loss	The rapid alteration of currents within the gradient coils in the presence of a strong magnetic field causes vibration of the coils and/or the adjacent conductors which produces a banging noise of between 65 and 95 decibels depending on the scanner and how it is being operated. This may cause reversible hearing loss in patients or even produce permanent hearing impairment in those particularly susceptible to the damaging effects of loud noises.
2. Effects on implants and pacemakers	Patients who have ferrous metal surgical clips placed internally on major blood vessels in the body or the brain, are in serious risk of death from MR scanners. Death can occur from internal bleeding when the magnetic field dislodges or causes the surgical clip to tear the blood vessels. Certain ferrous pigments in tattoos can interact with electromagnetic fields and create transient skin irritations or cutaneous swelling. Cardiac pacemakers, cochlear implants or neural stimulators may malfunction in the presence of comparatively weak magnetic fields.
3. Burns	Radiofrequency pulses may induce electrical currents within tissues and electrical conductors. These can result in burns when an electrical conductor is present within the magnet bore inadvertently creating a circuit during imaging. Heating of metallic objects is another source of risk. Metal implants may heat and damage surrounding tissues. Contact between the patient's skin and the bore of the MRI unit could cause localized heating or burns.
4. Patient Anxiety and claustrophobia	Some patients experience claustrophobia, anxiety and emotional distress before or during MRI. These problems which are usually transient result from one or more of the following: restrictive dimensions of the MRI scanner, the duration of the exam, etc.
5. Biological Effects	There are conflicting and controversial results concerning potential biological effects of static magnetic fields.
6. Allergic Reactions	Contrast agents are administered intravenously in MRI exams to clearly define certain tumors and diseases. There is some risk of reactions, both comparatively mild or even true anaphylactic reactions to the contrast agent.
7. Projectile effect	Metal objects may be drawn to the machine thus turning ordinary articles into projectiles. This missile effect can pose a significant risk to the patient inside the MRI system and/or anyone who is in the path of the object that is attracted by the magnetic field.
8. Cryogen "boil-off"	Superconducting system cryogenics (liquid helium and liquid nitrogen) may escape from the scanner into the scan room leading to asphyxiation and/or frostbite if there is prolonged exposure to the gas. The escaping gas could also increase the pressure within the room to a point where it is difficult to open a door that opens to the outside.

3. Sufficiency of Supervision

A significant number of practitioners do not have the quality of their performance monitored effectively.

HPRAC cannot conclude that current supervision is either sufficient or insufficient. At present, MRIs are always performed in public hospitals. However, MRI technologists often work independently, and interaction between the technologists and the physician is minimal at times, especially when a technologist works the evening shift. The CMRTO and the OAMRT submit that MRI technologists perform the controlled acts of “administering a substance by injection or inhalation” and “putting an instrument, hand or finger beyond the anal verge” under delegation.³¹ Supervision is not required to perform controlled acts under delegation.

4. Alternative Regulatory Mechanism

The profession is not already regulated effectively or will not soon be regulated effectively under some other regulatory mechanism.

Although HPRAC cannot conclude that the profession is not already regulated effectively, it is of the view that regulation under the RHPA would be more effective than the status quo. There currently exists some form of regulation regarding the application of electromagnetism; however, it is not the most effective form of regulation. The profession is regulated **indirectly** by the following regulations and legislation: Ontario Regulation 107/96 under the RHPA exempts the application of electromagnetism for magnetic resonance imaging in a public hospital from the controlled act provisions of the RHPA provided that the application has been ordered by a member of the CPSO. However, as noted above, the sufficiency of supervision by a physician is debatable. Section 34 of the *Public Hospitals Act* provides that responsibility for the quality of diagnosis, care and treatment provided to the patients and out-patients of the hospital rests with the medical advisory committee (MAC). The operation and effective control or involvement of the MAC can vary however from hospital to hospital. Many MRI technologists are members of the CMRTO however, they are only accountable to the college for their practice of medical radiation technology, not MRI. Membership in the college is currently voluntary for those who perform MRI technology.

5. Body of Knowledge

The members of the profession must call upon a distinctive, systematic body of knowledge. The core activities performed must be discernible as a clear and integrated whole and must be broadly accepted as such within the profession.

This criterion is met. The CMRTO submission describes in great detail the core body of knowledge of the profession. The submission also sets out the proposed scope of practice for MRI technologists and explains how the scope relates to the body of knowledge.

The core body of knowledge required for the practice of MRI emphasizes both the production of images and tests and the evaluation of the technical sufficiency of the images and tests. The use

³¹ CMRTO submission, p. 33, OAMRT submission, Criterion #3

of electromagnetism and radiofrequency energy and their interactions with body tissues is the fundamental principle upon which the production of a MRI images and data is based. The MRI technologist's knowledge base in this area comes from education in the physics of magnetism and radiofrequency energy and the biological effects and safety of MRI. The knowledge base required to evaluate the technical sufficiency of the images and data is acquired through education in the following subjects: the physics of magnetism and radiofrequency energy; the instrumentation of MRI systems; image production, pulse sequences; display and storage; procedural and examination techniques; clinical applications; and quality control. Anatomy and physiology, pathophysiology and pathology supplement the knowledge base in this area so that the MRI technologist is able to recognize normal, abnormal and artifactual patterns of structure and function and their appearance using specific pulse sequences.³²

6. Educational Requirements for Entry to Practice

To enter the practice of the profession, the practitioner must successfully complete a post-secondary program offered by a recognized educational institution. The program must be offered in Canada.

This criterion is met. The Michener Institute for Applied Health Sciences has the only accredited training program in Ontario for MRI. Appendix 5 of the CMRTO submission includes curricula from Michener as well as other institutions in Canada that offer courses in MRI. Appendix G of the OAMRT submission also contains curricula. Michener is a recognized educational institution and its MRI program is a post-secondary program. The program uses the modules from the Canadian Association of Medical Radiation Technologists' (CAMRT) certification examination in MRI as its basis and prepares students to write the CAMRT examination.³³ As stated previously in this report, the 2000 Ontario Budget proposes to invest money for equipment to double the enrolment of MRI technologists at the Michener Institute.

The CMRTO submission notes that there may be approximately 88 MRI technologists (out of 100 to 120) currently practising in Ontario who have not received any formal educational training specific to MRI. Most of these individuals have successfully completed a CMRTO approved program in medical radiation technology and have completed on-the-job training specific to MRI.³⁴ Given this situation, HPRAC is of the view that it would be a priority for the CMRTO to develop a means to assess current MRI technologists for registration in a relatively short transition period.

The submission also addresses this situation and states that there will be a need to address the issue of registering MRI technologists who have no formal training in MRI or have not successfully completed the CAMRT exam. Mechanisms include: provisional or temporary certificates of registration; requirement to work under supervision; or a requirement to successfully complete the certification examinations within a set period of time.³⁵

7. Leadership's Ability to Favour the Public Interest

³² CMRTO submission, p. 43-44

³³ CMRTO submission, p. 49

³⁴ CMRTO submission, p. 53

³⁵ CMRTO submission, p. 67

The profession's leadership has shown that it will distinguish between the public interest and the profession's self-interest and in self-regulating will favour the former over the latter.

This criterion is met. The CMRTO and OAMRT submissions demonstrate that these bodies hold the interest of the public over the interest of the professional. The proposals contained in the submission aim to decrease the risk of harm to the public by regulating the profession of MRI technology. The CMRTO as an existing regulatory body is mandated by the RHPA to serve and protect the public interest. The CMRTO submission states that CAMRT is the only Canadian association that includes MRI technologists. It has succeeded in having the profession recognized as a separate health discipline with a certifying exam. CAMRT succeeded in including MRI in the conjoint process of accreditation with the Canadian Medical Association. Both steps indicate that the profession is concerned with protecting the public, at least through the training and identification of qualified practitioners.³⁶

8. Likelihood of Compliance

The members of the profession support self-regulation for themselves with sufficient members and commitment that widespread compliance is likely.

In a meeting with the CMRTO, the Registrar expressed to HPRAC that there is strong support for regulation amongst MRI technologists. In fact, as indicated earlier in this report, many MRI technologists are currently members of CMRTO. The OAMRT's submission states that, in conjunction with the CMRTO, focus groups were held across Ontario. Some people expressed concerns over financing of the college, but overall were in agreement with the concept of self-regulation. Concerns raised at these meetings included: costs of registration with the CMRTO, educational requirements, accountability of CMRTO to members, payment of dues to college that protects the public and does little for the technologist, entry to practice standards, standards of practice development, proof of competency, and portability of credentials.³⁷

9. Sufficiency of Membership Size and Willingness to Contribute

The practitioners of the profession are sufficiently numerous to staff all committees of a governing body and are willing to accept the full cost of regulation. At the same time, the profession must be able to maintain a separate professional association

According to the submissions, there are between 100 and 120 MRI technologists practising in Ontario. It would be extremely difficult if not impossible for 120 practitioners to support a separate college without government assistance. However, with governance of MRI technologists within an existing college, the number is sufficient. The CMRTO has reviewed the expense of adding MRI technology to the college and has developed a fee structure to accommodate the change. Annual registration (membership fees) for MRI technologists would be the same as for other CMRTO members. For the first 3 to 5 years following regulation, the application fee for MRI technologists to join the college would be approximately \$150 to \$200. The application fee is a one time only expense relating to the cost of the college evaluating a person for membership. After this time, the application fee for all specialties would be the same.

³⁶ CMRTO submission, p. 70

³⁷ OAMRT submission, Criterion #8

The current application fee is \$50. The OAMRT would continue to be a professional association subsequent to regulation.

Although the criteria “sufficiency of supervision” and “alternative regulatory mechanism” are not conclusively met, HPRAC is of the view that the majority of criteria including “risk of harm” are met and therefore MRI technologists should be regulated under the RHPA.

HPRAC recommends that,

- 1. MRI technologists be regulated under the RHPA and be regulated as part of the profession of medical radiation technology governed by the CMRTO. HRPAC acknowledges that the college will change its name to reflect the inclusion of new members.*
- 2. The title for MRI technologists be “Medical Imaging Technologist – Magnetic Resonance Imaging”.*
- 3. MRI technologists be given access to the following controlled acts:*
 - iii. applying electromagnetism for magnetic resonance imaging*
 - iv. administering substances by injection or inhalation.*
- 4. As a priority, the CMRTO develop a means to evaluate current MRI technologists for entry to practice to effect a short transition period.*

4.6 Expansion of Medical Radiation Technologists' Scope of Practice

ADDITIONAL AUTHORIZED ACTS

As stated earlier, the controlled acts currently authorized to medical radiation technologists are:

1. Taking blood samples from veins.
2. Administering substances by injection or inhalation.
3. **Administering contrast media through or into the rectum or an artificial opening into the body.**
4. Tattooing.

The proposed list of controlled acts to be authorized to medical radiation technologists as set out in the applications are:

1. Taking blood samples from veins
2. Administering substances by injection or inhalation
3. Tattooing
4. **Putting an instrument, hand, or finger**
 - i. **beyond the larynx**
 - ii. **beyond the labia majora**
 - iii. **beyond the opening of the urethra**
 - iv. **beyond the anal verge**
 - v. **into an artificial opening into the body**
5. **Applying soundwaves for diagnostic ultrasound**
6. **Applying electromagnetism for magnetic resonance imaging**

HPRAC notes that “administering contrast media through or into the rectum or an artificial opening into the body” has been replaced with “putting an instrument, hand or finger beyond the anal verge” and “into an artificial opening into the body”. This takes into account the act of administering contrast media through the rectum or an artificial opening into the body. In addition, it would allow diagnostic sonographers to insert a transducer into the rectum to provide clear images of the prostate gland. Currently, diagnostic sonographers perform this controlled act under delegation.

As stated earlier in the report, Ontario Regulation 107/96 currently exempts persons from the controlled act provisions of the RHPA for the purpose of applying soundwaves for diagnostic ultrasound if the application is ordered by a member of the CPSO, or for the purpose of applying soundwaves for pregnancy diagnostic ultrasound or pelvic diagnostic ultrasound if the application is ordered by a member of the College of Midwives of Ontario. A person is also exempt from the controlled act provisions of the RHPA for the purpose of applying electromagnetism for magnetic resonance imaging in a public hospital if the application is ordered by a member of the CPSO. These exemptions for applying soundwaves for diagnostic ultrasound and electromagnetism for magnetic resonance imaging place the regulatory control for the application of these forms of energy on the person who is ordering the examination. It is HPRAC's view that this is not sufficient to ensure the protection of the public.

The applicants propose to remove these exemptions. They therefore propose that applying soundwaves for diagnostic ultrasound and applying electromagnetism for magnetic resonance imaging become controlled acts. The proposal goes on to state that these controlled acts be authorized to members of the CMRTO. HPRAC is of the view that, given the training and education of diagnostic sonographers and MRI technologists as described in the applications as well as the current practice of diagnostic sonographers and MRI technologists, it does not make sense to exempt them from the controlled act provisions of the RHPA. As previously discussed, diagnostic sonography and MRI technology meet the criteria for regulation. These professions have a body of knowledge and sufficient training. The professionals performing diagnostic sonography and MRI technology should be directly accountable for the competent performance of their profession. HPRAC therefore agrees that these exemptions should be removed from Ontario Regulation 107/96.

The CMRTO and OAMRT responded to the document entitled "Request for A Change in Scope of Practice under the RHPA". The additional authorized acts that are addressed in these submissions are:

1. Putting an instrument, hand or finger beyond the labia majora (controlled act 6): for example, demonstrating the position of the cervix and vagina for patients undergoing radiation therapy for cervical or endometrial cancer.
2. Putting an instrument, hand or finger beyond the larynx (controlled act 6): for example, relieving airway obstruction caused by tracheotomies.
3. Putting an instrument, hand or finger beyond the opening of the urethra (controlled act 6): for example, the insertion of urinary catheters to demonstrate the backwards flow of urine from the bladder into the kidneys.

As indicated earlier, HPRAC considered the submissions in terms of the principles set out in the Change in Scope of Practice document. The principles are set out below as well as the applicants' responses.

Criterion #1 – Protection from Harm

Both the CMRTO's and OAMRT's submissions state that the additional authorized acts are necessary to perform certain imaging studies or radiation therapy procedures and that these acts are integral to the practice of medical radiation technology. The expansion of authorized acts will permit procedures that are currently performed by medical radiation therapists to be performed on the basis of direct legislative authority without the need for the performance of these acts to be

delegated to them by another regulated health professional. Decisions to delegate are made by individual practitioners or alternatively there may be a protocol for delegation which does not necessarily ensure that individual competencies are assessed in relation to the act that is being delegated. There is better public protection when individual competencies are assessed. If these controlled acts were authorized to medical radiation technologists, the protection of the public would be enhanced because the CMRTO would develop and enforce standards of practice. The public would not be relying solely on delegation processes and quality control mechanisms of particular facilities.

Criterion #2 – Quality of Care

The submissions describe in detail the education and training medical radiation technologists receive relating to the additional controlled acts.

Putting an instrument, hand or finger beyond the labia majora – procedure: insertion of a vaginal marker. All students enrolled in a radiation therapy educational program participate in a program based on the curriculum guide of CAMRT. On completion of the program, graduates must pass a certification exam. Insertion of a vaginal marker is an essential component of the simulation procedure and is included in the clinical radiation therapy section of the curriculum guide. The competent performance of this procedure is set out as a requirement for all students prior to graduation.³⁸

Putting an instrument, hand or finger beyond the larynx – procedure: tracheal suctioning. The Patient Care section of the radiation therapy curriculum guide includes a number of requirements related to tracheal suctioning. The competent performance of this procedure is set out as a requirement for all students prior to graduation.³⁹

Putting an instrument, hand or finger beyond the opening of the urethra – procedure: insertion of a catheter through the urethra into the bladder and injection of contrast media through or into the urethra. Medical radiation technologists obtain the knowledge of the urinary tract anatomy and the knowledge and skill of the aseptic technique used for these procedures in their educational program. Medical radiation technologists do not acquire the practical technique for urinary catheterization in their educational program. However, the knowledge base that is taught and tested in the educational program relating to urinary tract anatomy and aseptic technique equips medical radiation technologists with the knowledge to handle the main risks associated with the procedure – introduction of infection and abnormalities.⁴⁰ To be consistent with the other two controlled acts and given the concerns for protection of the public HPRAC has a concern that the competent performance of this procedure is not a part of the educational program. Therefore, HPRAC is of the view that the authority to perform this controlled act should not be granted until the CMRTO ensures that the educational program includes the competent performance of catheterization. In addition, existing practitioners should not be allowed to perform this act until they demonstrate competency in performing catheterization.

To become a member of the CMRTO, an individual is assessed by the college to determine if the entry to practice requirements are met. This means that all members of the CMRTO have met a certain level of competency. In addition, members of the CMRTO are required to participate in

³⁸ CMRTO submission, p. 12-14, OAMRT submission, p. 35-36

³⁹ CMRTO submission, p. 14-15, OAMRT submission, p. 29-30

⁴⁰ CMRTO submission, p. 16-18, OAMRT submission, p. 31-34

the college's quality assurance program which is a means of ensuring that members maintain and improve their competencies.

Criterion #3 – Accountability

As stated above under Criterion #1 – Protection from Harm, the above controlled acts are currently being performed under delegation. In delegation, the person who delegates has the overall responsibility for the delegation but not for the actual performance of the act. Removing delegation and allowing medical radiation technologists to perform the controlled acts on their own authority, places responsibility for the performance of the act on the medical radiation technologists who performs the act. Members would be directly accountable to patients through the college for the performance of an act. The college uses its statutory authority to develop and enforce standards of practice.

Delegation should not be used for activities that are integral to a profession's practice. The profession of medical radiation technology has been changing since the introduction of the *Medical Radiation Technology Act, 1991* and as such technologists have been performing on a regular basis the controlled acts CMRTO and OAMRT are proposing to be authorized to medical radiation technologists. Procedures involving these controlled acts are part of a medical radiation technologist's practice in all Canadian jurisdictions and, consequently, the national competencies for medical radiation technologists include the competencies related to these additional controlled acts.

Currently, authorized acts can only be performed by medical radiation technologists if they are ordered by a physician. The proposal to expand the authorized acts does not seek to change this condition.

Criterion #4 – Accessibility

Accessibility is not affected where acts are currently performed under delegation. There may be isolated instances where an act is not performed in a timely manner while awaiting a delegation.

Criterion #5 – Equity

The principle of equity includes the notions of procedural fairness for all individuals involved in the regulatory process (patients and professionals). This criterion is not applicable to this proposed expansion in scope of practice.

Criterion #6 – Equality

Equality of regulatory obligations among health care professionals is in the public interest. The legislative objective of equality can be seen in the RHPA by the application of a common regulatory framework to all professions, notwithstanding their differences in scope of practice or their overlapping scopes of practice. The RHPA treats all regulated health professions the same and obliges all governing colleges to adhere to the same corporate structure, purposes and procedures. At the present time, health professionals who put a hand/finger/instrument beyond the labia majora, larynx and opening of the urethra under delegation are not under the same regulatory obligations as other regulated health professionals who perform these controlled acts. They are not accountable directly to a college for this practice. Rather, only the delegator has some regulatory accountability. Thus, authorizing CMRTO members to do these controlled acts will increase the equality of regulatory obligations.

HPRAC is of the view that while expanding the scope of practice of Medical Radiation Technologists to include putting a hand/finger/instrument beyond the labia majora, larynx or opening of the urethra will not necessarily increase accessibility to health care, but it will reduce the risk of harm and increase quality of care, accountability and equality of regulatory obligations related to the performance of these acts. Further, since the healthcare activities of the professionals will essentially remain unchanged, apart from the accountability realignment, it is highly unlikely that costs to the health care system will be affected by this change in scope of practice.

HPRAC concludes that the relevant criteria are met to a great extent and thus the additional controlled acts should be authorized to medical radiation technologists. HPRAC notes that these acts can only be performed on the order of a physician or in some circumstances a midwife or nurse practitioner.

SCOPE OF PRACTICE STATEMENT

The current scope of practice statement for all members of the CMRTO is:

“The practice of medical radiation technology is the use of ionizing radiation and other forms of energy prescribed under subsection 12 (2) to produce diagnostic images and tests, the evaluation of the technical sufficiency of the images and tests, and the therapeutic application of ionizing radiation.”

The applicants' proposed scope of practice for all members of the CMRTO is:

“The practice of **medical imaging technology and radiation therapy** is the use of ionizing radiation, **soundwaves, electromagnetism** and other forms of energy prescribed under subsection 12(2) to produce diagnostic images and **data**, the evaluation of the technical sufficiency of the images and **data, the assessment of the condition of the individual, the images and data**, and the therapeutic application of ionizing radiation.”⁴¹

The major requested changes are:

1. Name change.
2. Inclusion of soundwaves and electromagnetism as additional specified forms of energy.
3. Change of “tests” to “data”.
4. Inclusion of the phrase “assessment of the condition of the individual, the images and the data”.

The name change and inclusion of soundwaves and electromagnetism are consistent with HPRAC's above recommendations to regulate sonographers and MRI technologists under the

⁴¹ The bolded text is additions/changes to the current scope of practice set out in the *Medical Radiation Technology Act, 1991*

CMRTO. The use of the word “data” instead of “tests” better reflects the actual information generated from the use of the specified forms of energy. Therefore, HPRAC has no difficulty with these three proposed changes.

HPRAC does not see any difference between the meaning of the following phrases of the proposed scope of practice statement: “the evaluation of the technical sufficiency of the images and data” and “the assessment of the condition of the ... images and data”. Therefore, the only real addition to the statement is the phrase “assessment of the condition of the individual”. HPRAC is of the view that “assessment of the condition of the individual” under the RHPA has a more comprehensive meaning than merely assessing for the technical requirements of an activity spelled out within the scope of practice. Therefore, HPRAC does not support inclusion of this phrase in the scope of practice statement.

HPRAC recommends that:

1. The scope of practice for all members of the CMRTO be:

the practice of medical imaging technology and radiation therapy is the use of ionizing radiation, soundwaves, electromagnetism and other forms of energy prescribed under subsection 12(2) to produce diagnostic images and data, the evaluation of the technical sufficiency of the images and data and the therapeutic application of ionizing radiation.

2(1). The Medical Radiation Technology Act authorize the same set of controlled acts to all members of the College as follows:

- i. taking blood samples from veins*
- ii. administering substances by injection or inhalation*
- iii. tattooing*
- iv. putting an instrument, hand or finger*
 - a) beyond the larynx*
 - b) beyond the labia majora*
 - c) beyond the opening of the urethra beyond the anal verge*
 - d) into an artificial opening into the body*
- v. applying soundwaves for diagnostic ultrasound*
- vi. applying electromagnetism for MRI*

2(2). The authority to put an instrument, hand or finger beyond the opening of the urethra should not be granted until the CMRTO ensures that the educational program includes the competent performance of catheterization. Existing practitioners should not be

allowed to perform this act until they demonstrate competency in performing this procedure.

3. *That the following restrictions be placed on the performance of the authorized acts:*
 - i. *an authorized act can only be performed in the course of practising the profession*
 - ii. *an authorized act can only be performed on the order of a physician and, in the case of those controlled acts which midwives and registered nurses in the extended class are authorized to order, on the order of a midwife or registered nurse in the extended class*
4. *Ontario Regulation 107/96 made under the RHPA be amended so that applying soundwaves for diagnostic ultrasound and applying electromagnetism for MRI are no longer exempted from subsection 27 (1) of the RHPA.*

APPENDICES

Appendix A: Minister's February 1999 Referral Letter

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Appendix D: 1986 letter from Alan Schwartz to Debbie Havill

Appendix E: Jurisdictional Charts

Appendix F: Summaries of the Views of Stakeholders

APPENDIX F – SUMMARY OF STAKEHOLDER VIEWS

Cardiology Technologists Association of Ontario (CTAO)

The Association comments only on the referral issue related to diagnostic medical sonographers. CTAO believes that echocardiography (a specialized cardiology diagnostic component) has not been recognized in the CMRTO's and OSDMS's submission. It is CTAO's position that any medical procedure that affects patient diagnosis should be regulated. The CTAO has made their own submission to the Minister of Health and Long-Term Care that includes echocardiography under their scope of practice. It is the CTAO's position that regulated cardiac sonographers should be formally certified and trained in all areas of cardiology to ensure patient safety and proper medical management. The Association notes that the statement that there are currently no formal requirements to become a sonographer in the submission is misleading. They state that in Ontario hospitals it is a common hiring requirement that applicants for cardiac sonography have certification from the American Registry of Diagnostic Cardiac Sonographers.

Canadian Society of Diagnostic Medical Sonographers (CSDMS)

CSDMS supports the CMRTO's and OSDMS's joint submission. The CSDMS states that the move towards self-regulation is not only necessary but that it is a natural step in the evolution of the profession. The Society states that the occupational profile of diagnostic medical sonography is continually expanding due to ongoing technological advancements and increased awareness of the tasks and duties of the profession.

Dr. Harald Stolberg, Clinical Professor, Radiology, McMaster University Medical Centre

Dr. Stolberg supports the regulation of sonography and MRI. He states that the performance of diagnostic sonography and MRI constitutes medical interventions that must be done according to accepted standards which can only be enforced if all diagnostic imaging examinations are performed by duly qualified individuals accountable to a professional college, such as the CMRTO. In addition, Dr. Stolberg states that in order to assure the standard of the examination performed, the controlled acts authorized to medical radiation technologists should be expanded.

Ontario Medical Association (OMA)

The OMA response was developed with input from its relevant specialty-specific sections and committees, and external contacts. The OMA agrees that diagnostic medical sonographers and MRI technologists should be regulated under the RHPA and have in their respective scopes of practice the performance of diagnostic sonography and MRI as an authorized act carried out on the order of a physician. The OMA notes that a poorly done ultrasound may create difficulty on the part of the physician in attaining a proper diagnosis. The OMA also notes that MRI is the most complex imaging modality that demands a thorough specialized knowledge and properly trained technologists. As well, the risks associated with MRI are well documented. For these reasons, the OMA agrees that there is sufficient concern for risk of harm to the public to warrant the regulation of the performance of diagnostic sonography and MRI within the system of controlled acts under the RHPA. The OMA states that if sonography and MRI are regulated it

will be important for the regulatory body to develop standards of practice for sonography and MRI. In addition, the appropriate accreditation mechanisms should be put into place to ensure the quality of diagnostic sonography and MRI delivered.

The OMA also agrees that the controlled acts authorized to medical radiation technologists should be expanded to include putting an instrument, hand or finger beyond the labia majora, the opening of the urethra, and the larynx to be carried out on the order of a physician.

Ontario Association of Radiologists (OAR)

The OAR agrees that diagnostic medical sonographers and MRI technologists should be regulated under the RHPA. The Association states that these professions should have in their respective scopes of practice the performance of diagnostic ultrasound or MRI as an authorized act carried out on the order and under the direct supervision of appropriately trained imaging physicians. The OAR also agrees that the controlled acts authorized to medical radiation technologists should be expanded to include putting an instrument, hand or finger beyond the labia majora, the opening of the urethra, and the larynx to be carried out on the order of a trained imaging physician. The OAR provide a number of recommendations including: all medical imaging technologists should fall under the same college; OAR concurs with the proposed name change to the College of Medical Imaging Technologists and Radiation Therapists of Ontario; supporting the recommended nomenclature to designate technologists by their specific training; criteria should be flexible to provide for the automatic inclusion of other technologists using imaging modalities/energy that are not currently available; the scope of practice statement should be modified to reflect that the scope is subject to the “authority of the trained imaging physician”.

College of Physicians and Surgeons of Ontario (CPSO)

The CPSO agrees that there is sufficient concern for risk of harm to the public to warrant regulation of the performance of diagnostic sonography and MRI within a system of controlled acts under the RHPA. The CPSO supports the CMRTO’s proposal that these professions be included within the scope of practice and authorized acts of the profession of medical radiation technology. The CPSO also agrees with CMRTO’s proposal that ultrasound will be a separate specialty certificate of registration. Because of the CPSO’s concern about potential harm, the CPSO also supports the proposal that the controlled acts authorized to medical radiation technologists should be expanded to include putting an instrument, hand or finger beyond the labia majora, the opening of the urethra, and the larynx.

Professional Practice Advisory Council of York County Hospital

Supports the regulation of diagnostic sonographers and MRI technologists as well as the change in scope of practice for medical radiation technologists.

Chinese Medicine and Acupuncture Association of Canada (CMAAC)

CMAAC submits that there is sufficient concern for risk of harm to the public to warrant regulation of the performance of diagnostic sonography and MRI within the system of controlled acts under the RHPA. The Association states that regulation will not only help to ensure the competence of the practitioners performing ultrasound and MRI examinations, but will also maintain a safe and consistent environment for public care. CMAAC agrees that the inclusion of diagnostic ultrasound and MRI as two additional specialties under the CMRTO will ensure that the same regulations will apply to all diagnostic imaging specialties and will provide a consistent

legislative framework under which to practise. The Association notes that changing the professional titles of diagnostic sonographers, MRI technologists and medical radiation technologists may cause some confusion for the public. CMAAC also agrees that the controlled acts authorized to medical radiation technologists should be expanded. They note that formal training for performing the additional acts should be incorporated into the medical radiation technology certification and training program.

APPENDIX E – JURISDICTIONAL CHARTS

REGULATION OF MRI TECHNOLOGISTS IN CANADA

Province	Regulation	Legislative Route
Alberta	Currently not regulated.	<p>HPA - Health Professions Act passed April 1st, 1999 (comes into effect in April of 2000). The legislation includes the protected title of "registered technologist magnetic resonance".</p> <p>Amendments are being drafted to the current Health Disciplines Act to include MRI technologists with medical radiation technologists. This amendment will be sent out for stakeholder consultation. Before the Act was transferred to Alberta Health, the decision was made to include their title under the HPA in anticipation of them becoming regulated. This will be confirmed through the consultation process.</p>
British Columbia	No regulation.	An application has been received by the Health Professions Council from the Medical Radiation Technologists regarding designation of professions. The application includes MRI technicians. The Council will start its review of the application around November/December, 2000.
Quebec	Currently, no regulation.	Currently, the "ordre" (similar to a regulatory college in Ontario) in Quebec regulates medical radiation technologists. Almost all MRI technicians (and sonographers) are registered in the ordre. However, the requirement to be registered in the ordre is not written in the legislation. The ordre is negotiating with the government to amend the legislation to include such a requirement. The Registrar of the ordre thinks that the legislation will be amended in the Fall legislative session.
New Brunswick	No regulation	
Nova Scotia	No regulation	
Newfoundland	No regulation	
Saskatchewan	No regulation	.

REGULATION OF DIAGNOSTIC SONOGRAPHERS IN CANADA

Province	Regulation	Legislative Route	Issues
New Brunswick	None	<p>Regulation is being pursued in the form of a private member's bill in this session of the New Brunswick Legislature.</p> <p>Once the bill goes to standing committee a copy of the bill can be requested from the Legislature.</p>	
Alberta	No regulation.	<p>HPA - Health Professions Act passed April 1st, 1999 (comes into effect in April of 2000)</p> <p>Ultrasound has been identified as a "restricted activity" in the HPA. However, nothing in the HPA compels them to be a regulated profession.</p> <p>The Alberta Diagnostic Sonographers' Association (ADSA) will be applying for regulation within the next few months.</p>	<p>Sonographers will have to be referenced in the physicians' regulations as professions are required to make regulations regarding how they will supervise unauthorized practitioners (i.e. practitioners who do not have direct authority to provide that particular restricted activity).</p>
British Columbia	No regulation.	<p>An application has been received by the Health Professions Council from the Medical Radiation Technologists regarding designation of professions. The application does not include sonographers (but it does include MRI technicians).</p>	<p>The Health Professions Council when it starts work on the Medical Radiation Technology application may go to the Minister to ask whether the issue of regulation of sonographers should be considered in its review.</p>

Quebec	Currently, no regulation.	Currently, the "ordre" (similar to a regulatory college in Ontario) in Quebec regulates medical radiation technologists. Almost all sonographers (and MRI technicians) are registered in the ordre. However, the requirement to be registered in the ordre is not written in the legislation. The ordre is negotiating with the government to amend legislation to include such a requirement. The Registrar of the ordre thinks that the legislation will be amended in the Fall legislative session.	
Nova Scotia	No regulation		
Newfoundland	No regulation		
Saskatchewan	No regulation.		

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