

**SUPPLY AND DEMAND STUDY OF
MEDICAL RADIATION TECHNOLOGISTS IN CANADA**

**THE CANADIAN ASSOCIATION OF
MEDICAL RADIATION TECHNOLOGISTS**

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The opinions and interpretations in this publication are those of the author
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Canada 

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1 INTRODUCTION

In the summer of 2006, the Canadian Association of Medical Radiation Technologists (CAMRT) completed a supply and demand study of the medical radiation technology (MRT) workforce in Canada. This study was done in order to create a picture of the current labour market conditions for MRTs in Canada. The work was completed within the framework of a project funded by the Government of Canada's Foreign Credential Recognition Program entitled: *A Situational Analysis and Recommendations for Internationally Educated Medical Radiation Technologists*.

The medical radiation technology profession is comprised of four disciplines of practitioners: radiological technologists, nuclear medicine technologists, magnetic resonance technologists, and radiation therapists. This study collected general supply information for the four MRT disciplines from existing national and provincial databases. Information on the demand for MRTs across Canada was not available, so CAMRT conducted the first demand survey for MRTs in diagnostic imaging departments and cancer centres across Canada.

This report provides details on the methodology of the study, data limitations, and the key findings.

2 LABOUR MARKET SUPPLY DATA

To capture a picture of the current MRT labour force, membership demographic information from the national professional association (CAMRT) and the three MRT regulatory bodies (the Alberta College of Medical Diagnostic and Therapeutic Technologists, the College of Medical Radiation Technologists of Ontario, and L'Ordre des technologues en radiologie du Quebec) was collected as of December 31, 2005.

Overall there are just over 16,000 MRTs that are qualified to work in Canada. Table 1 shows the age and gender of the MRTs across Canada's ten provinces in percentage form.

In general, Canada's workforce has been shown to be aging and the medical radiation technology profession is no exception. As indicated in Table 1, 35% of the MRTs eligible to work in Canada are 45 years of age or older.

The supply data in Table 1 can also be broken down by discipline. Table 2 shows the number of radiological technologists (RTRs), radiation therapists (RTTs), nuclear medicine technologists (RTNMs), and magnetic resonance technologists (RTMRs) who were registered to practice in Canada as of December 31, 2005. In comparison to other MRT disciplines, radiological technologists have a larger cohort that is over 45 years of age (46%). Magnetic resonance technologists show a similar trend (32%) but this is to be expected, as magnetic resonance technology is currently a second-entry discipline (i.e. they must be certified in one of the other three disciplines before they can begin the education program and become certified as a magnetic resonance technologist). However, the situation for magnetic resonance technology may soon change as programs for entry-level programs are under development. Notwithstanding the development of these new programs, the MRT profession as a whole, and especially the

radiological technology and magnetic resonance technology disciplines, will soon start to feel the impact of increasing retirements.

TABLE 1: MEDICAL RADIATION TECHNOLOGIST SUPPLY DATA (AT DEC. 31, 2005)

Occupational Demographics	Provinces										
	Canada	NL	PE	NB	NS	QC	ON	MB	SK	AB	BC
Number of technologists registered as full practice members and eligible to work	16,011	287	72	498	525	4,139	5,939	613	453	1,667	1,818
Age distribution (%)	%	%	%	%	%	%	%	%	%	%	%
Ages 24 and under	8	6	3	7	3	10	4	2	5	5	4
Ages 25-34	23	26	24	28	15	23	24	14	19	20	23
Ages 35-44	27	21	21	30	32	26	32	27	26	25	31
Ages 45-54	23	31	24	19	28	30	27	28	21	27	27
Ages 55-64	11	10	13	11	15	11	12	17	13	12	14
Ages 65 and over	0.5	0	1	0	0.6	0.4	0.7	0.7	1	1	0.4
Unknown Age	8	6	15	4	7	0.1	0	10	14	9	1
Male/female distribution (%)	%	%	%	%	%	%	%	%	%	%	%
Percentage Males	18	31	10	12	14	15	20	20	23	17	20
Percentage Females	82	69	90	88	86	85	80	80	77	83	80

TABLE 2: MEDICAL RADIATION TECHNOLOGIST SUPPLY DATA BY DISCIPLINE (AT DEC. 31, 2005)

	RTR	RTT	RTNM	RTMR
Number of technologists registered as full practice members and eligible to work in Canada	11,905	1,777	1,711	618
Age distribution (%)	%	%	%	%
Ages 24 and under	5	8	5	1
Ages 25-34	19	37	28	25
Ages 35-44	27	33	36	40
Ages 45-54	30	17	24	28
Ages 55-64	15	3	5	4
Ages 65 and over	1	0	0.1	0
Unknown Age	2	3	2	3
Male/female distribution (%)	%	%	%	%
Percentage Males	16	20	25	29
Percentage Females	84	80	75	71

Another factor that impacts the supply of MRTs in the workforce is that 82% that are eligible to work are female (Table 1). Females have been shown to have different work patterns than males. It has been suggested that women require more balanced work arrangements and with the addition of longer “maternity leave benefits, additional staff will need to be hired to replace those on leave, possibly affecting the supply of health professionals, such as MRTs.¹”

¹ *Medical Imaging In Canada*. Canadian Institute of Health Information: 2004.

Compared to the other disciplines, radiological technologists have the highest percentage (84%) of females eligible to participate in the workforce (Table 2). Thus, issues specific to a female workforce as mentioned above will affect this discipline even more.

An additional concern for the supply of the MRT workforce was studied by the Canadian Institute for Health Information. They report that the number of MRTs per 100,000 population has been relatively stable between 1993 and 2003². This is a concern because there has been growth in the types of imaging equipment used in Canada (e.g. magnetic resonance imaging and computed tomography) along with the number of imaging exams performed each year and thus we may not have enough professionals to properly meet this increasing demand.

In sum, many factors point towards a shortage in the supply of MRTs in Canada. The workforce is aging, there are issues relative to the continuous evolution of technologies and multi-modality imaging, the role of technologists is ever-evolving as these new technologies emerge, and in a profession that is dominantly female, the desire for balanced work arrangements and longer maternity leaves all lead to a need for an increase in the supply of MRTs. As a large percentage of the workforce is over the age of 45, the number of Canadian educated new MRTs certified to work in Canada (approximately 600 each year) may not be enough to meet the ever increasing demands of an aging Canadian population.

3 LABOUR MARKET DEMAND DATA

3.1 DEMAND SURVEY FOR MEDICAL RADIATION TECHNOLOGISTS

To capture a picture of the current demand for MRTs in the Canadian workplace, a demand survey was sent to managers of diagnostic imaging (DI) departments and cancer centres across Canada. This was the first Canadian-wide collection of demand information for MRTs.

Items for the demand survey were based on similar surveys used in the United States and in Ontario as well as input from a steering committee (which included the CAMRT, the three MRT regulatory bodies, and the Michener Institute) and provincial MRT manager associations. The survey contained 37 items and was designed to collect information on the current vacancy rates for radiological technologists, nuclear medicine technologists, magnetic resonance technologists, and radiation therapists (Appendix A). The survey was also designed to collect more specific information on what managers believed were the reasons behind unfilled vacancies, the forecasting of retirement and future needs, recruitment and retention issues, and data related specifically to internationally educated MRTs in the workplace. The survey was divided into the following sections:

- Section A: Facility Demographics
- Section B: Staffing
- Section C: Forecasting Retirement and Future Needs
- Section D: Recruitment and Retention
- Section E: Internationally Educated Medical Radiation Technologists

² *Medical Imaging in Canada*. Canadian Institute of Health Information: 2004.

In February 2006, paper-based surveys were mailed to managers of all identified DI departments (664) and cancer centers (39) in Canada. Between February and May 2006, numerous reminder notices and additional survey copies were sent to those who had not yet responded at the time. Surveys were collected and analyzed in July 2006 using SumQuest Survey Software.

3.2 RESPONSE RATE

As of July 1, 2006, 47% (309/664) of diagnostic imaging department managers (Table 3) and 64% (25/39) of cancer centre managers (Table 4) had responded to the survey. The responses from DI department managers were representative of the ten provinces while the responses from cancer centre managers failed to represent Alberta or Prince Edward Island.

TABLE 3: DIAGNOSTIC IMAGING DEPARTMENTS' DEMAND SURVEY RESPONSE RATE

Province	# Surveys sent	# Surveys received	% Surveys sent	% Surveys received
BC	86	37	13%	12%
AB	64	34	10%	11%
SK	48	24	7%	8%
MB	36	25	5%	8%
ON	194	84	29%	27%
QC	127	57	19%	18%
BNB	31	13	5%	4%
NS	42	15	6%	5%
PE	7	3	1%	1%
NL	23	10	3%	3%
YT	1	0	0.1%	0%
NT	4	2	0.5%	1%
NU	1	0	0.1%	0%
Unknown	0	5		2%
Total	664	309		47%

TABLE 4: CANCER CENTRES' DEMAND SURVEY RESPONSE RATE

Province	# Surveys sent	# Surveys received	% Surveys sent	% Surveys received
BC	5	5	13%	20%
AB	2	0	5%	0%
SK	2	1	5%	4%
MB	1	1	3%	4%
ON	12	8	31%	32%
QC	11	5	28%	20%
NB	2	2	5%	8%
NS	2	2	5%	8%
PE	1	0	3%	0%
NL	1	1	3%	4%
Total	39	25		64%

3.3 DATA LIMITATIONS

The survey had a response rate of 47% (n=664) from diagnostic imaging department managers however, the majority of these respondents (59%) indicated their facility was based in a rural area. As such, the responses are skewed toward the experiences of rural facilities.

In addition, the questions in Section C of the survey on forecasting future needs and retirements were not well answered. While 60% of respondents indicated that they did indeed collect this type of information at their facility, very few chose to respond with their specific numbers. As such, no conclusions can be drawn from this data.

3.4 DEMAND SURVEY RESULTS

Respondents from diagnostic imaging departments indicated that they employed radiological technologists, nuclear medicine technologists, and magnetic resonance technologists. Respondents from cancer centres employed radiation therapists. As the two groups of managers employ people in different MRT disciplines and manage facilities where different work is performed, their survey results will be looked at separately. This will highlight any demand issues that may be specific to the type of facility.

Survey results for both DI departments and cancer centres will be provided in the order that the questions were asked on the original survey (Appendix A).

3.4.1 DIAGNOSTIC IMAGING DEPARTMENTS

Section A: Facility Demographics

Type of Facility

78% of respondents indicated they were managers of a community hospital, 12% a regional hospital group, 8% a university hospital, and 1% a federal hospital.

Location of Facility

59% of responding managers classified their diagnostic imaging departments as rural (a town or municipality outside the commuting zone of centres with a population of 10,000 or more) while 41% indicated they represented a diagnostic imaging department in an urban community.

Radiology Services Provided in the Facility

Managers were asked to indicate all of the radiology services that their facilities provided. Table 5 shows their responses.

When asked to specify what ‘other’ radiology services were provided, managers listed sonography, echocardiography, provincial breast screening program, ultrasound, and reporting of overseas radiology exams via teleradiology.

**TABLE 5: RADIOLOGY SERVICES PROVIDED IN
DIAGNOSTIC IMAGING DEPARTMENTS**

Radiology Services Provided In The Diagnostic Imaging Department	%
Radiography	100
Sonography	74
Fluoroscopy	66
Mammography	44
Computer Tomography	43
PACS Administration	42
Interventional	24
Nuclear Medicine	23
Bone Mineral Densitometry	22
Magnetic Resonance	17
Cardiology	15
Angiography	14
Other	8
Dosimetry	6
Radiation Therapy	3
Positron Emission Tomography	3
Brachytherapy	2

Title of Individual Completing the Survey

46% of respondents indicated their title was Department/Facility Manager or Director, 35% had the title of Chief Technologist, and 19% had another title. Other titles included Supervisor of Diagnostic Services, Senior Technologist, Regional Manager Diagnostic Services, Clinical Coordinator, Team Leader, Technical Specialist, Professional Leader, and Working Supervisor.

Professional Designations of Individual Completing the Survey

Respondents were asked to indicate all of the professional designations they held. The majority (85%) were found to be radiological technologists (Table 6). The other designations specified by responding managers included Sonographer, Advanced Certification Radiography (ACR), Combined Laboratory and X-ray Technologist (CLXT), Physiotherapist, Radiation Protection Officer, and Bachelors of Health Administration.

**TABLE 6: PROFESSIONAL DESIGNATIONS OF MANAGERS OF
DIAGNOSTIC IMAGING DEPARTMENTS**

Professional Designations	%
Radiological Technologist	85
Other	28
Medical laboratory Technologist	5
Magnetic Resonance Technologist	4
Nuclear Medicine Technologist	3
Master of Health Administration	2
Radiation Therapist	1
MBA	1

Number of Exams By Modality Performed in 2004/2005

To get an idea of the work done in the diagnostic imaging departments, managers were asked to provide the number of X-ray, mammography, magnetic resonance, nuclear medicine, computed tomography, and bone densitometry exams that were performed in the 2004/2005 fiscal year (Table 7).

TABLE 7: NUMBER OF EXAMS PERFORMED BY MODALITY IN DI DEPARTMENTS IN 2004/2005

# of X-ray Exams in 2004/2005 Fiscal Year	%	# of Mammography Exams in 2004/2005 Fiscal Year	%
Under 5000	27	1 to 999	18
5,000 to 9,999	19	1,000 to 1,999	16
10,000 to 14,999	12	2,000 to 2,999	15
15,000 to 19,999	5	3,000 to 3,999	16
20,000 to 29,999	10	4,000 to 4,999	6
30,000 to 39,999	10	5,000 to 5,999	10
40,000 to 49,999	6	6,000 to 9,999	15
50,000 to 99,999	11	10,000 or More	6
100,000 or More	3	*103 respondents	
*299 respondents		# of Computed Tomography Exams in 2004/2005 Fiscal Year	%
		1 to 4,999	24
		5,000 to 9,999	36
		10,000 to 19,999	33
		20,000 or More	8
		*101 respondents	
# of Nuclear Medicine Exams in 2004/2005 Fiscal Year	%	# of Magnetic Resonance Exams in 2004/2005 Fiscal Year	%
1 to 4,999	45	1 to 1,999	16
5,000 to 9,999	30	2,000 to 3,999	30
10,000 or More	26	4,000 to 5,999	21
*54 respondents		6,000 to 7,999	16
		8,000 to 9,999	10
		10,000 or More	8
		*39 respondents	
# of Bone Densitometry Exams in 2004/2005 Fiscal Year	%		
1 to 999	25		
1,000 to 1,999	29		
2,000 to 2,999	25		
3,000 to 3,999	10		
4,000 or More	11		
*48 respondents			

Section B: Staffing

Vacancy Rates

Managers were asked to indicate how many permanent full-time, permanent part-time, casual, and contract positions they had budgeted for radiological technologists, nuclear medicine technologists, and magnetic resonance technologists. They were also asked how many of these positions were vacant at the current time. The following formula was used to determine vacancy rates:

Number of vacant positions / Number of total positions X 100%

Example: [# FT Vacancies / (# FT Head Count + # FT Vacancies)] x 100%

To get the national and provincial average vacancy rates the survey combined the vacancy rate for full time and part time positions (Table 8). Casual staff were excluded.

TABLE 8: NATIONAL AND PROVINCIAL VACANCY RATES FOR RADIOLOGICAL, NUCLEAR MEDICINE, AND MAGNETIC RESONANCE TECHNOLOGISTS IN DI DEPARTMENTS (SPRING 2006)

Province/Territory	RTR	RTR	RTR	RTNM	RTNM	RTNM	RTMR	RTMR	RTMR
	Total Positions Reported	Total Vacancies Reported	Vacancy Rate	Total Positions Reported	Total Vacancies Reported	Vacancy Rate	Total Positions Reported	Total Vacancies Reported	Vacancy Rate
Alberta	265	21	8%	22	1	5%	28	2	7%
British Columbia	260	27	10%	17	0	0%	5	0	0%
Manitoba	215	9	4%	15	2	13%	11	3	27%
New Brunswick	114	3	3%	28	1	4%	5	0	0%
Newfoundland & Labrador	104	22	21%	5	0	0%	2	0	0%
Nova Scotia	112	16	14%	11	0	0%	2	0	0%
Northwest Territories	7	1	14%	0	0	0%	0	0	0%
Ontario	705	38	5%	58	4	7%	29	2	7%
Prince Edward Island	29	0	0%	4	0	0%	2	0	0%
Quebec	888	63	7%	113	2	2%	21	3	14%
Saskatchewan	164	13	8%	14	1	7%	17	0	0%
Canadian Total	2863	213	7%	287	11	4%	122	10	8%

Table 8 lists the total permanent full-time and part-time positions and vacancies reported per province along with the calculated provincial vacancy rate. The vacancy rate across Canada for radiological technologists (RTRs) is 7%, for nuclear medicine technologists (RTNMs) is 4% and for magnetic resonance technologists (RTMRs) is 8%. Note that some provinces and territories have vacancy rates well above these Canadian averages. For instance, the vacancy rate for radiological technologists is 21% in Newfoundland and Labrador, 14% in Nova Scotia, and 14% in the Northwest Territories. The vacancy rate for nuclear medicine technologists is 13% in Manitoba and 7% in Ontario and Saskatchewan. And finally the vacancy rate for magnetic resonance technologists is 27% in Manitoba and 14% in Quebec.

Underfilled Positions

An underfilled position is defined as a position that is currently being filled by someone at a lower level than the requirements set out for the job (i.e. cases where workforce shortages require the position to temporarily be filled by someone not having the full complement of knowledge, skills, and abilities required for the position, as the organization tries to recruit an individual that meets the full scope of requirements).

Respondents from DI departments indicated that underfilling positions is not a common practice for medical radiation technologist jobs. 87% of managers said that they did not have any underfilled positions, 9% had one underfilled position, 3% had 2 underfilled positions, and only 1% had 3 underfilled positions.

A Decrease in Budgeted Positions

43 respondents indicated that budgeted MRT positions had decreased in their facility since January 1, 2005. Managers gave the following reasons for why they believe there was a decrease (respondents could choose more than one answer):

- 37% Other
- 28% Overall department or facility budget declined, forcing downsizing
- 19% Formerly budgeted positions were so difficult to fill they were dropped from the budget
- 16% Conversion to digital technology
- 7% Average # of hours worked/week by MRTs increased, so # of positions needed decreased
- 5% Patient demand declined
- 2% # of Patients processed/hour by each MRT increased, so # of positions needed decreased

Those who chose 'other' specified reasons such as no applications for vacant positions, a radiologist shortage, a budget not done locally but by a Regional Health Authority, and internal staff transferring positions due to scheduling preferences.

An Increase in Budgeted Positions

105 respondents indicated that budgeted MRT positions had increased in their facility since January 1, 2005. Managers gave the following reasons for why they believe there was an increase (respondents could choose more than one answer):

- 63% Patient demand increased
- 35% Other
- 23% Overall department or facility budget increased making it possible to add more positions
- 4% Average # of hours worked/week by MRTs decreased, so # of positions needed to handle workload decreased

Those who chose 'other' specified reasons such as new modality, increase in hours of service, changed positions to full-time rather than casual in order to try to recruit more MRTs, and provincial wait time initiatives.

Consequences of a Workforce Shortage

175 respondents indicated that they had experienced the following consequences of a workforce shortage (respondents could choose more than one answer):

- 73% Increased patient wait time for procedures
- 37% Cancelled procedures
- 31% Decreased patient satisfaction
- 31% Increased patient complaints
- 24% Plans to stop offering a service

- 22% Other
- 18% Reduced number of staffed diagnostic units
- 9% Discontinued MRT educational programs
- 7% Curtailed plans for acquiring new technology
- 5% Curtailed plans for facility expansion

Other implications listed included changing some positions from MRTs to Combined Laboratory/X-ray Technologists, burnout, stress, an increase in overtime to fill shifts, problems when trying to accommodate vacation and sick leave, and inability to implement an evening shift.

Section C: Forecasting Retirement and Future Staff Needs

While 60% of managers indicated that they do forecast upcoming staff retirement and future staffing needs, very few chose to provide specific numbers. As such, no conclusions could be drawn for this section.

Section D: Recruitment and Retention

Average Length of Employment

Managers were asked to indicate how the average length of employment for their facilities’ radiological technologists (RTRs), nuclear medicine technologists (RTNMs) and magnetic resonance technologists (RTMRs) had changed in the past year. As shown in Table 9, the majority of respondents indicated that the average lengths of employment had remained the same for the three disciplines of medical radiation technologists.

TABLE 9: AVERAGE LENGTH OF EMPLOYMENT FOR RADIOLOGICAL, NUCLEAR MEDICINE, AND MAGNETIC RESONANCE TECHNOLOGISTS IN DI DEPARTMENTS 2004/05

Average Length of Employment	RTR	RTNM	RTMR
Number of respondents	260	57	38
	%	%	%
Much lower	3	2	3
Lower	15	9	13
About the Same	65	79	68
Higher	12	5	13
Much Higher	4	5	3

Turnover Rate

Managers were asked to indicate their annual turnover rate for their last fiscal year (2004/2005). 115 respondents indicated the following annual turnover rates for medical radiation technologists:

- 67% 0% annual turnover
- 10% 1-5% annual turnover
- 8% 6-10% annual turnover
- 7% 15-20% annual turnover
- 6% 21% or more annual turnover

Managers were also asked to indicate how the turnover rate for radiological technologists, nuclear medicine technologists, and magnetic resonance technologists had changed over the previous year. As shown in Table 10, the majority of managers indicated that turnover rates had remained the same.

TABLE 10: TURNOVER RATE FOR RADIOLOGICAL, NUCLEAR MEDICINE, AND MAGNETIC RESONANCE TECHNOLOGISTS IN DI DEPARTMENTS SINCE 2004/2005

Turnover Rate	RTR	RTNM	RTMR
Number of respondents	256	56	38
	%	%	%
Much lower	7	7	11
Lower	10	4	11
About the Same	60	82	61
Higher	21	4	13
Much Higher	3	4	5

Average Time to Fill A Position

The time to fill a position is defined as the number of days between the requisition posting date and the successful candidate’s employment/payroll start date (including weekends and holidays). More specifically, it includes all days from the initial requisition posting date and any re-posting and additional interview time to the final successful candidate’s start date.

Managers were asked to indicate the average time to fill a position for radiological technologists (RTRs), nuclear medicine technologists (RTNMs) and magnetic resonance technologists (RTMRs).

TABLE 11: AVERAGE TIME TO FILL A MRT POSITION IN A DI DEPARTMENT

Average Time to Fill A Position	RTR	RTNM	RTMR
Number of respondents	220	43	35
	%	%	%
Less than 30 days	38	47	51
31-60 days	21	16	26
61-90 days	9	5	6
More than 90 days	32	33	17

When asked what the impacts were on existing staff due to extended times needed to fill positions, the following answers were given by 121 respondents:

- 59% Use of overtime
- 39% Increased use of casual staff
- 36% Increased use of part-time staff
- 35% Underfill
- 21% Other
- 12% Skill mix changes

Other impacts on existing staff included increased staff fatigue and the need to reschedule vacation time.

Section E: Internationally Educated Medical Radiation Technologists

As the demand survey was part of a larger project focused on internationally educated medical radiation technologists (IEMRTs) it included questions asking managers about their experiences in hiring and integrating IEMRTs into their workplaces. 94% of responding managers said they would consider hiring IEMRTs at their workplace. Only 3% indicated they were not interested in hiring IEMRTs and 4% were unsure or indicated it was not in their control.

When asked if they had IEMRTs currently working for them, respondents indicated employing only 50 radiological technologists and 1 magnetic resonance technologist. The majority of these IEMRTs were from the United Kingdom, USA, South Africa, Australia, India, and Hong Kong. Further to this, managers who employed IEMRTs were asked if they would consider hiring more and 78% responded yes, 11% said yes but would prefer to hire Canadians first, and 10% were unsure.

Managers were also asked what barriers they experienced when both hiring and integrating IEMRTs into their workplace. Table 5 shows their responses.

TABLE 12: BARRIERS TO HIRING/INTEGRATING IEMRTS ACCORDING TO EMPLOYERS

Barriers to:	a) Hiring	b) Integrating
Language	38%	28%
Immigration/Time/Money	25%	9%
Cultural differences	10%	25%
Skill Transference	29%	20%
No barriers	5%	19%
Misc.	7%	5%

Many employers feel that language is the main barrier to both hiring and integrating IEMRTs into the workforce (38% and 28% respectively). Therefore, profession or workplace specific language is an area to focus on in IEMRT support programs and should be an important part of the language requirements to access the certification exams.

3.4.2 Cancer Centres

Section A: Facility Demographics

Type of Facility

All of the respondents were managers of cancer centres and in addition, 24% indicated they were part of a larger university hospital.

Location of Facility

100% of respondents indicated their facility was in an urban area.

Radiology Services Provided in the Facility

Managers were asked to indicate all of the radiology services that were provided specifically in their cancer centre (Table 13). Note that those belonging to a larger hospital network may have indicated the radiology services provided throughout the hospital as well.

TABLE 13: RADIOLOGY SERVICES PROVIDED IN CANCER CENTRES

Radiology Services Provided In Your Cancer Centre	%
Radiation Therapy	91
Dosimetry	81
Brachytherapy	71
Radiography	43
Computer Tomography	43
Mammography	33
Fluoroscopy	33
Magnetic Resonance	33
Cardiology	29
Angiography	29
Interventional	29
Nuclear Medicine	29
Positron Emission Tomography	29
PACS Administration	29
Sonography	24
Bone Mineral Densitometry	10
Other	10

When asked to specify what other radiology services were provided, managers listed conventional simulators.

Title of Individual Completing the Survey

86% of respondents indicated their title was Department/Facility Manager or Director, 5% had the title of Chief Technologist, and 10% had another title. Other titles included Administrative Coordinator, Medical Imaging and PPP.

Professional Designations of Individual Completing the Survey

The majority of responding managers from cancer centres were radiation therapists (91%). Table 14 shows their other designations.

TABLE 14: PROFESSIONAL DESIGNATIONS OF CANCER CENTRE MANAGERS

Professional Designations	%
Radiation Therapist	91
Other	19
Radiological Technologist	10
Registered Nurse	5
Nuclear Medicine Technologist	5
Master of Health Administration	5

The other designations specified by responding managers included CT, BSc, MSc, CMD, and CHM.

Number of Exams By Modality Performed in 2004/2005

To get an idea of the work done in the cancer centres, managers were asked to provide the number of new patients along with the number of radiation therapy and brachytherapy visits in the 2004/2005 fiscal year (Table 15).

TABLE 15: NUMBER OF NEW PATIENTS AND RADIATION THERAPY AND BRACHYTHERAPY VISITS IN CANCER CENTRES IN 2004/2005

# Radiation Therapy Visits in 2004/2005 Fiscal Year	%	# Brachytherapy visits in 2004/2005 Fiscal Year	%
1 to 9,999	13	1 to 99	40
10,000 to 19,999	20	100 to 199	0
20,000 to 29,999	20	200 to 299	20
30,000 to 39,999	13	300 to 399	20
40,000 to 49,999	13	400 to 499	7
50,000 to 59,999	13	500 or More	13
60,000 or more	7	*14 respondents	
* 15 respondents			
# of New Patients in 2004/2005 Fiscal Year	%		
1 to 999	13		
1,000 to 1,999	44		
2,000 to 2,999	19		
3,000 to 3,999	13		
4,000 to 4,999	0		
5,000 to 5,999	6		
*15 respondents			

Section B: Staffing

Vacancy Rates

Managers were asked to indicate how many permanent full-time, permanent part-time, casual, and contract positions they had budgeted for radiation therapists. They were also asked how many of these positions were vacant at the current time. The following formula was used to determine vacancy rates:

$$\text{Number of vacant positions} / \text{Number of total positions} \times 100\%$$

To get the national and provincial average vacancy rates the survey combined the vacancy rate for full time and part time positions. Casual staff were excluded.

**TABLE 16: NATIONAL AND PROVINCIAL VACANCY RATES FOR RADIATION THERAPISTS
(SPRING 2006)**

Province/Territory	RTT	RTT	RTT
	Total Positions Reported	Total Vacancies Reported	Vacancy Rate
Alberta	67	0	0%
British Columbia	233	0	0%
Manitoba	58	0	0%
New Brunswick	34	2	6%
Newfoundland & Labrador	21	0	0%
Nova Scotia	45	0	0%
Northwest Territories	0	0	0%
Ontario	348	15	4%
Prince Edward Island	0	0	0%
Quebec	204	12	6%
Saskatchewan	25	0	0%
Canadian Total	1035	29	3%

Table 16 lists the total permanent full-time and part-time positions and vacancies reported per province along with the calculated provincial vacancy rate. The vacancy rate across Canada for radiation therapists (RTTs) is 3%. Note that many provinces have a 0% vacancy rate while others are slightly higher than the Canadian average including New Brunswick and Quebec at 6%.

Underfilled Positions

An underfilled position is defined as a position that is currently being filled by someone at a lower level than the requirements set out for the job (i.e. cases where workforce shortages require the position to temporarily be filled by someone not having the full complement of knowledge, skills, and abilities required for the position, as the organization tries to recruit an individual that meets the full scope of requirements).

Respondents indicated that underfilling positions is not a common practice for radiation therapist jobs. 13 managers said that they did not have any underfilled positions, 3 had one underfilled position, and 2 had two underfilled positions.

A Decrease in Budgeted Positions

5 respondents indicated that budgeted radiation therapist positions had decreased in their facility since January 1, 2005. Managers gave the following reasons for why they believe there was a decrease (respondents could choose more than one answer):

- 60% Overall department or facility budget declined, forcing downsizing
- 20% Patient demand declined
- 20% Other

The manager who chose 'other' specified that they were awaiting a replacement unit and then the position would be refilled.

An Increase in Budgeted Positions

8 respondents indicated that budgeted radiation therapist positions had increased in their facility since January 1, 2005. Managers gave the following reasons for why they believe there was an increase (respondents could choose more than one answer):

- 63% Patient demand increased
- 38% Other

Those who chose 'other' specified other reasons such as advanced treatment protocols which are more resource intensive, pre-hiring for the opening of another cancer centre, and new machines coming online.

Consequences of a Workforce Shortage

12 respondents indicated that they had experienced the following consequences of a workforce shortage (respondents could choose more than one answer):

- 43% Increased patient wait time for procedures
- 29% Plans to stop offering a service
- 14% Increased patient complaints
- 10% Cancelled procedures
- 5% Decreased patient satisfaction
- 5% Reduced number of staffed diagnostic units
- 5% Discontinued MRT educational programs
- 5% Curtailed plans for acquiring new technology
- 5% Curtailed plans for facility expansion

Section C: Forecasting Retirement and Future Needs

While 60% of managers indicated that they do forecast upcoming staff retirement and forecast future needs, very few chose to provide specific numbers. As such, no conclusions can be drawn for this section.

Section D: Recruitment and Retention

Average Length of Employment

Managers were asked to indicate how the average length of employment for radiation therapists in their facilities had changed in the past year. As shown in Table 17, the majority of respondents indicated that the average lengths of employment had remained the same.

**TABLE 17: AVERAGE LENGTH OF EMPLOYMENT FOR RADIATION THERAPISTS
SINCE 2004/2005**

Average Length of Employment	RTT
Number of respondents	19
	%
Much lower	5
Lower	11
About the Same	68
Higher	16
Much Higher	0

Turnover Rate

Managers were asked to indicate their annual turnover rate for their last fiscal year (2004/2005). 10 respondents indicated the following annual turnover rates for radiation therapists:

- 30% 0% annual turnover
- 50% 1-9% annual turnover
- 20% 10% or more annual turnover

Managers were also asked to indicate how the turnover rate for radiation therapists had changed over the previous year. As shown in Table 18, the majority of managers indicated that turnover rates had remained the same.

TABLE 18: TURNOVER RATE FOR RADIATION THERAPISTS SINCE 2004/2005

Turnover Rate	RTT
Number of respondents	20
	%
Much lower	0
Lower	20
About the Same	65
Higher	15
Much Higher	0

Average Time to Fill A Position

The time to fill a position is defined as the number of days between the requisition posting date and the successful candidate’s employment/payroll start date (including weekends and holidays). More specifically, it includes all days from the initial requisition posting date and any re-posting and additional interview time to the final successful candidate’s start date.

Managers were asked to indicate the average time to fill a radiation therapist position (Table 19).

TABLE 19: AVERAGE TIME TO FILL A RADIATION THERAPIST POSITION

Average Time to Fill A Position	RTT
Number of respondents	18
	%
Less than 30 days	33
31-60 days	22
61-90 days	22
More than 90 days	22

When asked what the impact were on existing staff due to extended times needed to fill positions, the following answers were given by 9 respondents:

- 39% Use of overtime
- 17% Underfill
- 17% Skill mix changes
- 11% Increased use of part-time staff
- 11% Other
- 6% Increased use of casual staff

Other impacts on existing staff included increased creative scheduling.

Section E: Internationally Educated Medical Radiation Technologists

As the demand survey was part of a larger project focused on internationally educated medical radiation technologists (IEMRTs) it included questions asking managers about their experiences in hiring and integrating IEMRTs into their workplaces. 98% of responding managers said they would consider hiring IEMRTs at their workplace. Only 2% were unsure or indicated it was not in their control.

When asked if they had IEMRTs currently working for them, respondents indicated employing 70 radiation therapists. The majority of these IEMRTs were from the United Kingdom, USA, South Africa, Australia, India, and Hong Kong. Further to this, managers who employed IEMRTs were asked if they would consider hiring more and 64% responded yes, 30% said yes but would prefer to hire Canadians first, and 9% were unsure.

Managers were asked what they considered to be the barriers to hiring internationally educated radiation therapists into the work place and gave the following responses (note that managers could choose more than one answer):

- 67% Immigration/Time/Money
- 27% Skill Transference
- 13% Language
- 7% Cultural differences

Managers were also asked what they considered to be the barriers to integrating internationally educated radiation therapists into the workplace and gave the following responses (note that managers could choose more than one answer):

36% Cultural/Religious Differences
21% Skill Transference
21% No barriers
14% Language

4 Conclusion

This study has brought together information from the national professional association, the three regulatory bodies, and managers of diagnostic imaging departments and cancer centres across Canada to create a picture of the current supply and demand for medical radiation technologists in Canada.

As shown in this report, many factors point towards a shortage in the supply of MRTs in Canada. An aging workforce, ever-changing technology, and predominately female workers all predict a need for an increase in the supply of MRTs.

Furthermore, vacancy rates, especially for radiological technologists (7%) and magnetic resonance technologists (8%), across Canada show a high demand for MRTs. Many managers of diagnostic imaging departments and cancer centres have had to increase the number of budgeted positions at their facilities to meet the increasing demand of an aging Canadian population. When they are not able to fill all of their budgeted positions, managers are left to deal with the following consequences of a workforce shortage: increased patient wait times, cancelled procedures, decreased patient satisfaction, plans to stop offering a specific service, etc.

Human resource shortages of MRTs in the Canadian workplace are expected to get worse as both the aging MRT workforce leads to increased retirements and the aging Canadian population demands more health services. Therefore it is very important to share the information collected in this study and continue to collect regular supply and demand information for MRTs in the Canadian health care system so informed human resource planning and forecasting is possible.

APPENDIX A: DEMAND SURVEY FOR MEDICAL RADIATION TECHNOLOGISTS
INSTRUCTIONS

1. To answer the survey questions, please check the appropriate box, fill in the blank space, or provide written comments in the space provided. If you require more room to answer a question or would like to provide additional information in order to clarify your response, please feel free to do so in the margins or on an additional page.
2. Acronyms used in this survey are defined below and definitions of terms used in the survey are listed on the back of this page.
3. Please answer all questions to the best of your ability. If it is not possible to answer the entire question, please fill in the information you have.
4. The results of this survey will be reported in aggregated form only; no individual responses will be identifiable.
5. Please do not remove the identification number on the survey questionnaire. It will be used only to monitor returns and prevent re-mailing of the survey to those individuals who have already responded. Your responses to the survey will remain anonymous.
6. A prepaid envelope has been included for returning the survey.
7. **Please complete and return the survey as soon as you are able before FRIDAY, MARCH 31, 2006. Thank you for your participation.**

Please send me a copy of the final report: Yes No

CONTACT INFORMATION

Name _____

Title _____

Organization _____

Mailing Address _____

Telephone _____ Fax _____

Email _____

This form will be separated from the survey upon receipt. Your contact information will be used only for the purposes of sharing information between radiology department/radiation therapy facility managers and the Canadian Association of Medical Radiation Technologists. For further information please see our Privacy Policy at www.camrt.ca.

ACRONYM GLOSSARY

BMD	Bone Mineral Densitometry
CT	Computed Tomography
MBA	Masters of Business Administration
MEG	Magnetoencephalographic Technology
MR	Magnetic Resonance
MRI	Magnetic Resonance Imaging
MRT	Medical Radiation Technologist (term includes members of all four disciplines)
PACS	Picture Archiving and Communication Systems
PET	Positron Emission Tomography

DEMAND SURVEY DEFINITIONS

CASUAL

A casual employee is defined as an employee working less than normal full-time hours (as defined by the facility) but not committed and does not commit to a regular schedule.

OVERTIME

Hours of work above the regularly scheduled or “normal” worked hours as set out in your organization’s collective agreement or organization policy.

SKILL MIX CHANGES

Implementing skill mix changes, investigating new ways to share responsibilities across other professional groups.

TIME TO FILL

The number of days between the requisition posting date and the successful candidate’s employment/payroll start date. Includes weekends and holidays. Includes all days from the initial requisition posting date and any re-posting and additional interview time to final successful candidate’s start date.

UNDER FILL

Positions that are currently being filled by someone at a lower level than the requirements set out for the position (i.e. cases where workforce shortages require the position to temporarily be filled by someone not having the full complement of knowledge, skills, and abilities required for the position, as the organization tries to recruit an individual that meets the full scope of requirements).

VACANCY

A position is defined as a vacancy if:

- it is newly created and/or unoccupied, or identified as becoming vacant in the near future (i.e. 2 months);
- the employer has taken active steps to fill the position, and is prepared to take more steps; and
- it is available for a suitable candidate, and open to people from outside the business or organization concerned, either immediately or in the near future after the necessary recruitment procedure.

‘Active steps to fill the position’ include advertising the vacancy in the media, on a public notice board or registering with a job centre or private employment agency and approaching, interviewing or selecting potential recruits.

Vacancies to include/exclude:

Include:

- Vacancies for currently occupied posts for which you have already been taking active steps to seek a replacement e.g. as a result of retirement, resignation, promotion.
- Vacancies for both full-time and part-time posts.
- Vacancies for permanent and fixed-term posts.
- Vacancies for casual staff employed to cover temporary absences e.g. maternity leave, long-term sickness.
- Vacancies with a long recruitment process e.g. graduate recruitment.
- Vacancies for newly created posts.

Exclude:

- Temporary absences where you intend to leave the post empty i.e. where employees will be returning from paid or unpaid leave.
- Vacancies due to re-organization within the organization i.e. if the vacancy does not become open to external applications.
- Unpaid or voluntary jobs.
- Vacancies for which a job offer has already been accepted.

DEMAND SURVEY FOR MEDICAL RADIATION TECHNOLOGISTS

SECTION A. FACILITY DEMOGRAPHICS

A1. Province or Territory

- | | | | | | | |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <input type="checkbox"/> BC | <input type="checkbox"/> SK | <input type="checkbox"/> ON | <input type="checkbox"/> NB | <input type="checkbox"/> PE | <input type="checkbox"/> YT | |
| <input type="checkbox"/> AB | <input type="checkbox"/> MB | <input type="checkbox"/> QC | <input type="checkbox"/> NS | <input type="checkbox"/> NL | <input type="checkbox"/> NT | <input type="checkbox"/> NU |

A2. Type of Facility

- | | | |
|---|---|---|
| <input type="checkbox"/> Community hospital | <input type="checkbox"/> University hospital | <input type="checkbox"/> Federal hospital |
| <input type="checkbox"/> Cancer centre | <input type="checkbox"/> Clinic (private lab) | <input type="checkbox"/> Other (please specify) _____ |

A3. Location of Facility

- Rural (a town or municipality outside the commuting zone of centres with a population of 10,000 or more)
- Urban

A4. Radiology Services Provided In Your Facility (Check all that apply)

Note: If your facility is a cancer centre, please only check the services provided in the cancer centre.

- | | | |
|--|--|---|
| <input type="checkbox"/> Radiography | <input type="checkbox"/> Radiation Therapy | <input type="checkbox"/> Magnetic Resonance |
| <input type="checkbox"/> Mammography | <input type="checkbox"/> Brachytherapy | <input type="checkbox"/> Positron Emission Tomography |
| <input type="checkbox"/> Cardiology | <input type="checkbox"/> Dosimetry | <input type="checkbox"/> Sonography |
| <input type="checkbox"/> Angiography | <input type="checkbox"/> Nuclear Medicine | <input type="checkbox"/> PACS Administration |
| <input type="checkbox"/> Interventional | <input type="checkbox"/> Bone Mineral Densitometry | <input type="checkbox"/> Other (please specify) _____ |
| <input type="checkbox"/> Fluoroscopy | | |
| <input type="checkbox"/> Computed Tomography | | |

A5. Your Title

- | | | |
|--|---|--|
| <input type="checkbox"/> Department/Facility Manager or Director | <input type="checkbox"/> Chief Technologist | <input type="checkbox"/> Chief Therapist |
| <input type="checkbox"/> Other (please specify) _____ | | |

A6. Your Professional Designations (Check all that apply)

- | | | | |
|---|---|--|--|
| <input type="checkbox"/> Radiological Technologist | <input type="checkbox"/> Radiation Therapist | <input type="checkbox"/> Nuclear Medicine Technologist | <input type="checkbox"/> MR Technologist |
| <input type="checkbox"/> Registered Nurse | <input type="checkbox"/> Medical Physicist | <input type="checkbox"/> Medical Laboratory Technologist | <input type="checkbox"/> MBA |
| <input type="checkbox"/> Master Health Administration | <input type="checkbox"/> Other (please specify) _____ | | |

A7. Please Indicate Your Fiscal Year

- | | | |
|---|---|---|
| <input type="checkbox"/> April-March | <input type="checkbox"/> January-December | <input type="checkbox"/> September-August |
| <input type="checkbox"/> Other (please specify) _____ | | |

A8. If Your Facility Is A Radiology Department, Please Indicate The Number of Exams Done By Modality In Your Last Fiscal Year

- | | |
|-----------------------------------|------------------------------------|
| # X-ray exams: _____ | # Nuclear Medicine exams: _____ |
| # Mammography exams: _____ | # Computed Tomography exams: _____ |
| # Magnetic Resonance exams: _____ | # Bone Densitometry exams: _____ |

A9. If Your Facility Is A Cancer Centre, Please Indicate The Number of Visits In Your Last Fiscal Year

- | | |
|--|-------------------------------|
| # Radiation Therapy visits: _____ | # Brachytherapy visits: _____ |
| # of New Patients in Last Fiscal Year: _____ | |

SECTION B. STAFFING

B1. For each of the following medical radiation technology disciplines and their subspecialties, please provide the budgeted and vacant positions for your organization today and on January 1, 2005. Please provide the total number of positions and vacancies for each discipline and then from this total, indicate how many are working in the listed subspecialties.

Discipline: Radiological Technologist – Current Data

	2006 (Current)									
	Permanent Full-Time		Permanent Part-Time		Casual		Contract/Term		Other (specify below)	
	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies
Discipline:										
Radiological Technologist										
Subspecialties:										
Angiography										
BMD										
Cardiology										
CT										
CT/PET										
Interventional										
Mammography										
MRI										
PACS Administration										
Sonography										

If you have used the “Other” category, please specify the employment situation:

Discipline: Radiological Technologist – Data as at January 1, 2005

	As at January 1, 2005									
	Permanent Full-Time		Permanent Part-Time		Casual		Contract/Term		Other (specify below)	
	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies
Discipline:										
Radiological Technologist										
Subspecialties:										
Angiography										
BMD										
Cardiology										
CT										
CT/PET										
Interventional										
Mammography										
MRI										
PACS Administration										
Sonography										

If you have used the “Other” category, please specify the employment situation:

Discipline: Nuclear Medicine Technologist – Current Data

	2006 (Current)									
	Permanent Full-Time		Permanent Part-Time		Casual		Contract/Term		Other (specify below)	
	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies
Discipline:										
Nuclear Medicine Technologist										
Subspecialties:										
BMD										
Cardiology										
CT/PET										
MRI										
PACS Administration										
Sonography										

If you have used the “Other” category, please specify the employment situation:

Discipline: Nuclear Medicine Technologist – Data as at January 1, 2005

	As at January 1, 2005									
	Permanent Full-Time		Permanent Part-Time		Casual		Contract/Term		Other (specify below)	
	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies
Discipline:										
Nuclear Medicine Technologist										
Subspecialties:										
BMD										
Cardiology										
CT/PET										
MRI										
PACS Administration										
Sonography										

If you have used the “Other” category, please specify the employment situation:

Discipline: Magnetic Resonance (MR) Technologist – Current Data

	2006 (Current)									
	Permanent Full-Time		Permanent Part-Time		Casual		Contract/Term		Other (specify below)	
	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies
Discipline:										
MR Technologist										
Subspecialties:										
CT										
CT/PET										
Interventional										
MEG										
PACS Administration										
Sonography										

If you have used the “Other” category, please specify the employment situation:

Discipline: Magnetic Resonance (MR) Technologist – Data as at January 1, 2005

	As at January 1, 2005									
	Permanent Full-Time		Permanent Part-Time		Casual		Contract/Term		Other (specify below)	
	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies
Discipline:										
MR Technologist										
Subspecialties:										
CT										
CT/PET										
Interventional										
MEG										
PACS Administration										
Sonography										

If you have used the “Other” category, please specify the employment situation:

Discipline: Radiation Therapist – Current Data

	2006 (Current)									
	Permanent Full-Time		Permanent Part-Time		Casual		Contract		Other (specify below)	
	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies
Discipline:										
Radiation Therapist										
Subspecialties:										
Brachytherapy										
CT										
CT/PET										
CT-Sim										
Dosimetry										
Educator										
MRI										
PACS Administration										
Research - Clinical Trials										
Simulator										
Sonography										

If you have used the “Other” category, please specify the employment situation:

Discipline: Radiation Therapist – Data as at January 1, 2005

	As at January 1, 2005									
	Permanent Full-Time		Permanent Part-Time		Casual		Contract		Other (specify below)	
	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies	# Positions	# Vacancies
Discipline:										
Radiation Therapist										
Subspecialties:										
Brachytherapy										
CT										
CT/PET										
CT-Sim										
Dosimetry										
Educator										
MRI										
PACS Administration										
Research - Clinical Trials										
Simulator										
Sonography										

If you have used the “Other” category, please specify the employment situation:

B2. For each of the following disciplines within medical radiation technology, please provide the number of positions that are currently underfilled: positions that are currently being filled by someone at a lower level than requirements set out for the position. (See definitions at beginning of the survey for further explanation of an underfilled position).

	Underfilled Positions	
	2006 (Current)	
	Full-Time	Part-Time
Radiological Technologist		
Nuclear Medicine Technologist		
MR Technologist		
Radiation Therapist		

B3. If budgeted positions in any of the above modalities have decreased since January 1, 2005, what do you believe is the reason for this decrease? (Check all that apply)

- Patient demand declined
- Overall department or facility budget declined, forcing downsizing
- Formerly budgeted positions were so difficult to fill they were dropped from the budget
- Number of patients processed per hour by each medical radiation technologist increased, so number of positions required to handle the workload declined
- Average number of hours worked per week by our medical radiation technologists increased, so number of positions required to handle workload declined
- Conversion to digital technology
- Other (Please specify) _____

B4. If budgeted positions in any of these modalities have increased since January 1, 2005, what do you believe is the reason for this increase? (Check all that apply)

- Patient demand increased
- Overall department or facility budget increased, making it possible to add more positions
- Average number of hours worked per week by our MRTs decreased, so number of positions required to handle workload increased
- Other (Please specify) _____

B5. Has your facility experienced any of the following consequences of a work force shortage? (Check all that apply)

- Curtailed plans for facility expansion
- Curtailed plans for acquiring new technology
- Plans to stop offering a service
- Reduced number of staffed diagnostic units
- Discontinued MRT educational programs
- Increased patient wait time for procedures
- Cancelled procedures
- Decreased patient satisfaction
- Increased patient complaints
- Other (Please specify) _____

SECTION C. FORECASTING RETIREMENT AND FUTURE NEEDS

C1. Does your facility do any forecasting of upcoming staff retirement or future needs?

Yes No

If you answered yes to question C1, please answer the rest of the questions in this section to the best of your ability.

C2. Of the staff that you currently have, please indicate the number forecasted and their respective position (Full-time or Part-Time) to retire within the year, within five years, and within 10 years.

	Forecasted Retirement					
	Before Dec. 31, 2006		Within 5 years Before Dec. 31, 2011		Within 10 years Before Dec. 31, 2016	
	Full-Time Positions	Part-Time Positions	Full-Time Positions	Part-Time Positions	Full-Time Positions	Part-Time Positions
Radiological Technologist						
Nuclear Medicine Technologist						
MR Technologist						
Radiation Therapist						
Department Manager						

C3. Please indicate your future staffing needs.

	Forecasting Future Staffing Needs					
	2 year projection		5 year projection		10 year projection	
	2008/09 Operating Plan		2010/11 Operating Plan		2015/16 Operating Plan	
	Full-Time Positions	Part-Time Positions	Full-Time Positions	Part-Time Positions	Full-Time Positions	Part-Time Positions
Radiological Technologist						
Nuclear Medicine Technologist						
MR Technologist						
Radiation Therapist						

SECTION D. RECRUITMENT AND RETENTION

D1. For each of the following disciplines in medical radiation technology, how have the following staffing indicators changed since the 2004-2005 fiscal year?

Employees' average length of employment at your facility:

RADIOLOGICAL TECHNOLOGIST

- Much lower
- Lower
- About the same
- Higher
- Much higher

NUCLEAR MEDICINE TECHNOLOGIST

- Much lower
- Lower
- About the same
- Higher
- Much higher

MR TECHNOLOGIST

- Much lower
- Lower
- About the same
- Higher
- Much higher

RADIATION THERAPIST

- Much lower
- Lower
- About the same
- Higher
- Much higher

Turnover rate:

RADIOLOGICAL TECHNOLOGIST

- Much lower
- Lower
- About the same
- Higher
- Much higher

NUCLEAR MEDICINE TECHNOLOGIST

- Much lower
- Lower
- About the same
- Higher
- Much higher

MR TECHNOLOGIST

- Much lower
- Lower
- About the same
- Higher
- Much higher

RADIATION THERAPIST

- Much lower
- Lower
- About the same
- Higher
- Much higher

D2. Please indicate your annual turnover rate for your last fiscal year if it is calculated at your facility: _____%

D3. Please indicate your average recruitment cost per person: \$_____

D4. Please indicate for each discipline, the average time to fill a position (i.e. number of days from requisition posting date to the successful candidate's employment start date – see definitions at the beginning of the survey for further clarification).

	Average Time To Fill			
	Less than 30 days	31-60 days	61-90 days	More than 90 days
Radiological Technologist				
Nuclear Medicine Technologist				
MR Technologist				
Radiation Therapist				

If you indicated that the average time to fill for any of the above positions was 90 days or more, please answer the following two questions:

D5. Please identify the issues that have influenced this extended “time to fill”. Please select and rank the top three by frequency of occurrence.

- Not enough applicants
- Candidates/graduates do not have required competencies
- Rejected offers/withdrawals
- Recruiter workload
- Delays from relocation activities
- Delays in the Immigration Office administration
- Other (Please specify) _____

D6. What were the impacts of extended “time to fill” on existing staff or units? (Check all that apply)

- Skill mix changes
- Use of overtime
- Increased use of casual staff
- Increased use of part-time staff
- Underfill
- Other (Please specify) _____

D7. Please add here any comments you feel are necessary to clarify any of your responses to the preceding questions and/or any additional comment you wish to share on your perceptions of the supply/demand of medical radiation technologists.

SECTION E. INTERNATIONALLY EDUCATED MEDICAL RADIATION TECHNOLOGISTS

E1. Would you consider hiring an internationally educated medical radiation technologist who was certified to work in Canada? Why or why not?

If your department employs internationally educated medical radiation technologists who were certified to work in Canada please answer the following four questions. Please continue your answer on another page if you require more space.

E2. For each of the following disciplines within medical radiation technology, how many of your employees are internationally educated? If known, please list the countries where these employees were educated.

	# Internationally Educated					Countries of Education
	Full-Time	Part-Time	Casual	Contract/Term	Other	
Radiological Technologist						
Nuclear Medicine Technologist						
MR Technologist						
Radiation Therapist						

E3. In your experience, what are the barriers/challenges to hiring internationally educated medical radiation technologists, if any?

E4. In your experience, what are the barriers/challenges to integrating internationally educated medical radiation technologists into the Canadian workplace, if any?

E5. Would you consider hiring more internationally educated medical radiation technologists that were certified to work in Canada? Why or why not?