

**INTERNATIONAL SOCIETY
OF RADIOGRAPHERS
AND
RADIOLOGICAL TECHNOLOGISTS**



INTERNATIONAL RADIATION PROTECTION SURVEY

2005

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**ISRRT
Professional Practice Committee
2006**

Introduction

The International Society of Radiographers and Radiological Technologists (ISRRT) is a non-profit, non governmental, non political organization composed of seventy-six national radiographic societies from seventy-three countries. It was formed in 1959 to act as a link between radiographers and radiological technologists throughout the world. To better address regional concerns, the Society is divided into three regions: The Americas, Asia and Australasia and Europe and Africa.

The Society is dedicated to the improvement of standards of practice in radiation medicine technology. With this objective in mind, the Professional Practice Committee of the ISRRT, with the support of the Board of Management undertook the initiative of an international radiation protection survey to determine the working environment of radiographers and radiological technologists worldwide with regards to radiation protection.

This survey will give us a current 'snapshot' of the actual working conditions in which our members practice. The Professional Practice the Education Committees of the ISRRT will be able to use this data to assess the current needs of member countries and strategize how best to meet those needs. Member societies will have current, comparative data to support their national and regional petitions and submissions to governing authorities.

The Professional Practice Committee developed the survey and distributed it through e-mail to the national, member society of the seventy-three member countries via their council members as well as society executive in mid April, 2005. The survey was also translated into Spanish for the benefit of our Spanish speaking member societies. Two reminders were sent out in June and July of 2005.

The data collected is compiled by region and analyzed both regionally and globally.

Percentages have been rounded to the nearest whole number.

The ISRRT hopes that you will find this document helpful in maintaining and improving radiation protection practices in your country.

Acknowledgements

I would like to acknowledge the following groups and individuals with out whose considerable effort and dedication, this survey would not have been possible.

The Board of Management of the ISRRT for their approval of this project and the necessary funding to finance the project as well as consistent support.

The Professional Practice Committee members: Eileen Ahlswede, USA (The Americas) , Gudlaugur Einarsson, Iceland (Europe and Africa) and Yutaka Nakamura, Japan (Asia and Australasia) for their endless hours of work and sage advise.

Member of the Europe and Africa region for permitting us to use their draft radiation protection survey as the basis for this survey.

Dr. Sandy Yule, Secretary General of the ISRRT for his continual assistance.

Jose Moscoso of Puerto Rico for his daunting work in translating the survey into Spanish.

All of the Council Members and national Society members who took the time to respond to the survey as without their assistance, there would be no survey.

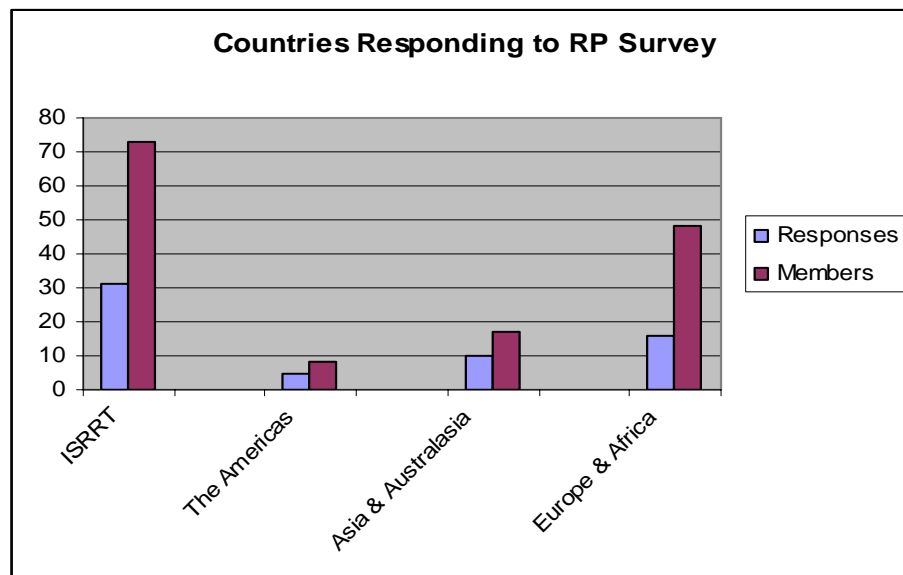
Thank you very much for your support and assistance in making this initiative a reality.

Mary Jon Lachance
Chair
Professional Practice Committee

ISRRT International Radiation Protection Survey, 2005

Executive Summary

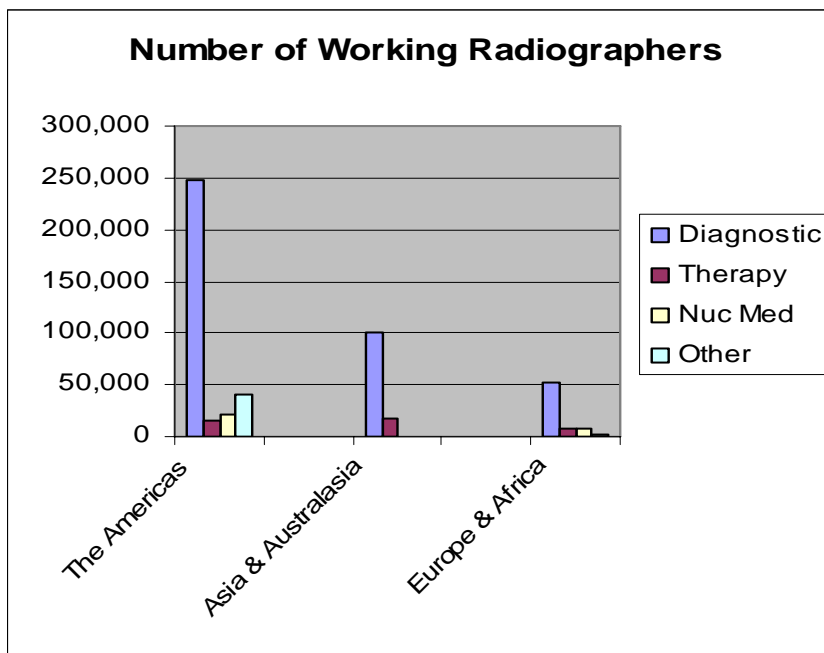
The Professional Practice Committee of the ISRRT, with the support of the Board of Management undertook an international radiation protection survey in early 2005 to determine the working environment of radiographers and radiological technologists worldwide with regards to radiation protection. This initiative resulted in a total response from thirty-one countries or 42 % of the ISRRT member countries. The Americas had a response rate of 63%, Asia and Australasia 59 % and 33 % of the member countries on Europe and Africa answered the survey.



Demographics

Well over half a million radiographers and radiological technologists practice in the responding 31 member countries. The majority practice in The Americas, followed by the Asia and Australasia region and then the Europe and Africa region.

There is considerable variability in how professionals are categorized in the various countries. For example, in some countries, nuclear medicine technologists are a profession unto themselves while in others, they are combined with either diagnostic radiography or radiation therapy.



CT and MRI technologists are often considered part of diagnostic radiography, as is ultrasound while in some countries they are a stand alone profession and often have their own professional society. The same may be said for education, management and IT. However, diagnostic radiography is by far the largest group.

Education and Training

Many countries require an undergraduate degree for entry to practice, although some require a diploma. Generally 2-4 years of training is required. Some countries require training in more than one specialty. Some countries are in a period of transition from diploma to degree programs, In some geographically very large countries, the minimum entry level education and training required varies across the country. All countries required both didactic and clinical components to their training programs. 16 out of 31 countries or 52% stated that an examination is required prior to entry to practice. In The Americas and Asia and Australasia, English is the language of choice for education of radiographers and radiological technologists whereas, in Europe and Africa there is a great variety of languages used but English is used more frequently than any of the other languages. The same can be said about English in practice of the profession. Education in radiation protection is a must for all radiographers and radiological technologists.

Licensure, Registration and Professional Membership

In the context of this survey, licensure and registration are deemed to mean the same thing. 74 % of the reporting countries require either licensure or registration by a government body or an extension of a government body prior to working in the profession. 52 % require an examination. The same number has continuing education requirements.

Membership in the national society is not mandatory for most countries. However, 39 % of all working professionals are members of their national professional society.

Legislation

74 % of countries reported that ICRP recommendations are followed and that their country's radiation protection legislation is in compliance with the IAEA's Basic Safety Standards. Some countries noted that their relevant legislation is in development. With the exception of one country which did not respond to the question, all countries reported that the basic principles of justification and optimization (ALARA) are taught and practiced. In diagnostic areas, 84 % of the countries reported that radiographers are recognised in their legislation as being responsible for QA/QC. In therapy it is a little less.

80% have legislation addressing dose limits to radiation workers. 90 % of the countries monitor occupational exposure to radiation. Professional societies report that they are consulted during the drafting and/or review/revision of legislation pertaining to their profession and practice.

A national or regional registry of radiological equipment is very common. Most countries have requirements for acceptance testing of new equipment as well as consistency testing for existing equipment.

Roles and Responsibilities

Generally radiographers and radiological technologists do not have the responsibility of ordering radiological examinations. There are several other health care professionals other than physicians who may but they are restricted to a very narrow scope of practice. The majority of the responding countries report that the radiographer/radiological technologist may refuse to perform an examination/treatment if they believe it is not justified. Many qualified this authority by saying that they must consult with the referring practitioner.

Responsible for the optimization of exposure levels (ALARA) in diagnostic examinations is almost always the responsibility of the radiographer or radiological technologist in diagnostic radiology and the majority in therapy. Many commented that in therapy ALARA was a team responsibility. Generally radiographers are recognised in their legislation as being responsible for QA/QC.

About three quarters of the reporting countries stated that departments and clinics are required to have a RPO/RSO but only a third that is a position assumed by radiographers. It should be noted that about half did not specify which professions had that responsibility.

The Profession

1. What is the minimum education and training required for an entry level radiographer?

Country	Diagnostic	Therapy	Other	Comments
The Americas				
Barbados	2yrs	2yrs	Nuc.Med,US 2yrs	3 yrs for degree
Canada	2yrs	2yrs	NucMed 3yrs	Some provinces require a degree.
Trinidad-Tobago	3 yrs	3yrs		With associate degree
USA	Certificate	Certificate		
El Salvador	3yrs	3yrs		
Asia and Australasia				
Australia	3yr degree +1	3 yr degree +1		1 year clinical
China Macau	3 yrs	4 yrs		
Fiji				Diploma in Radiography
Hong Kong	B.Sc	B.Sc		
India	2-3 yrs	2-3 yrs		
Japan	3-4 yrs	3-4 yrs		
New Zealand	3 yrs	3 yrs		
Philippines				5.5 mos hospital intership
Seychellas				Polytechnic level
Taiwan	4 yrs	4 yrs		5 yrs from junior highschool
Europe and Africa				
Austria				~ total 4605 hours
Cyprus	3			* done abroad /Greece
Denmark	3,5	+ 1	+1 Nucl.Med	
Estonia	3,5			Th. included in part in D.
Germany	3	3	3 NM, *	*Radiophysics, Rad.Prote.
Iceland	4			BSC programme
Latvia	3	3		
Norway	3	+1		
Malta	4	4		BSc
Slovenia	3	3	3 *	* Nuclear Med.
Sweden 1	3			
Sweden 2		3,5		0,5 y in RT plus nurse ed.
Turkey	8 and 11	8 and 11 years		* see Extra Comments
UK	3	3		
Cameroon	*	*		*A level certificate
Kenya	*	*		*Diploma
South Africa	3	3	3 *	* Ultrasound/Nuclear Med.

Range is 2-4 years of training. Some countries require training in more than one specialty. Some countries are in a period of transition from diploma to degree programs, In some geographically very large countries, the minimum entry level education and training required varies across the country.

2. What language is used?

Country	In education	In practice	Comments
The Americas			
Barbados	English	English	
Canada	English	English	French, in some areas
Trinidad-Tobago	English	English	
USA	English	English	
El Salvador	Spanish	Spanish	
Asia and Australasia			
Australia	English	English	
China Macau	Chinese, English, Portuguese	Chinese, English	
Fiji	English	English	
Hong Kong	English	English, Cantonese	
India	English	English	
Japan	Japanese	Japanese	
New Zealand	English	English	
Philippines	English	English	
Seychellas	English, French	English, Creole, French	
Taiwan	Chinese	Chinese	
Europe and Africa			
Austria	German	German	
Cyprus	Greek and English	Greek	
Denmark	Danish	Danish	
Estonia	Estonia (English books)	Estonian	
Germany	German *	German	40 H techn. English
Iceland	Icelandic(English b.)	Icelandic	
Latvia	Latvian	Latvian	
Norway	Norwegian	Norwegian	
Malta	English	English and Maltese	
Slovenia	Slovenian	Slovenian	
Sweden 1	Swedish and English	Swedish	
Sweden 2	Swedish and English	Swedish	
Turkey	Turkis	Turkis	
UK	English	English	
Cameroon	French and English	French and English	
Kenya	English	English, Swahili	
South Africa	English	English, Afrikaans	Regional languages

In The Americas and Asia and Australasia, English is the language of choice for education of radiographers and radiological technologists whereas, in Europe and Africa there is a great variety of languages used but English is used more frequently than any of the other languages.

The same can be said about English in practice of the profession.

3. How many radiographers are working in your country?

Country	Diagnostic Radiography	Nuclear Medicine	Therapy	Education	Other (Specify)	Comments
The Americas						
Barbados	35	1	5	0	US 2	
Canada	11,500	1300	1400	unknown	MR 900	
Trinidad-Tobago	170	0	6	3	MR 5 CT 6 US 15	
USA	234,853	20,000	14,885	unknown	MR 15,639 CT 23,989	Number Registered
El Salvador	331	7	12			
Asia and Australasia						
Australia	9500	300	1200	250	150	management
China Macau	100	4	30	10		
Fiji	54			5	6	Private
Hong Kong	1100		200			
India	85000*		15000*	150		Includes unqualified
Japan						40,500 total
New Zealand	1550	55	172	20		
Philippines	NK	NK	NK	NK	NK	7,000 total
Seychellas	7					
Taiwan	2655					245 NM/RT
Europe and Africa						
Austria	60%	15%	15%	5%	5% (IT)	~ 4000
Denmark	1164					
Cyprus	80	not radiogr.	15	no schools		
Estonia	300	6	20	18		
Germany	15000	6600	6600	900	900 *	* Industry
Iceland	130	incl. in DR	2	8		
Latvia	442	5	19	6		
Norway	2200	50	200	50		
Malta	66	incl. in DR	15	6		
Slovenia	300	20	30	5		
Sweden 1	3500			25		
Sweden 2						
Turkey						Total 10000
UK	22195	incl. in DR	incl. in DR	~216		
Cameroon	114	2	4			
Kenya	600	0	5	12		
South Africa	4000-4500	200	500	65-75	US-200	

There is considerable variability in how professionals are categorized in the various countries. For example, in some countries, nuclear medicine technologists are a profession unto themselves while in others, they are combined with either diagnostic radiography or radiation therapy. CT and MRI technologists are often considered part of diagnostic radiography, as is ultrasound while in some countries they are a stand alone profession and often have their own professional society. The same may be said for education, management and IT.

In The Americas, the 5 countries responding claim a total of 325,064 practicing radiographers and radiological technologists, with diagnostic radiography being the largest with 75 %, followed by the Others at 13 %, nuclear medicine at 7 % and radiation therapy at 5 %. The size of the various professional groups ranges from 1 to 234,853.

In Asia and Australasia, the ten countries responding claim a total of 165,263 practicing professionals with diagnostic radiography being the largest at 80 +%, followed by radiation therapy at 13+%. As two countries did not break down their numbers by profession and another combined nuclear medicine and radiation therapy, it is impossible to state absolute percentages, thus a + sign has been used. The size of the various professional groups ranges from 4 to 85,000.

In Europe and Africa, the sixteen countries responding claimed a total of 81,195 practicing professionals again with diagnostic radiography being the largest at 65% (- as some countries included nuclear medicine and radiation therapy). Radiation therapy is next with 10+% followed closely by nuclear medicine with 10 %. The size of the various professional groups varies from 2 to 22,195.

4. Is membership in the national society mandatory for working as a radiographer?

Country	Yes	No	Comments
The Americas			
Barbados		x	
Canada		x	Very strongly encouraged
Trinidad-Tobago		x	
USA		x	
El Salvador		x	
Asia and Australasia			
Australia		x	
China Macau		x	
Fiji		x	
Hong Kong		x	
India		x	
Japan		x	
New Zealand		x	
Philippines	x		
Seychellas		x	
Taiwan	x		
Europe and Africa			
Austria		x	
Cyprus		x	a national society legislation is in the process of being establ.
Denmark		x	
Estonia		x	
Germany		x	
Iceland	x		Is also a Union
Latvia		x	
Norway	x		
Malta		x	
Slovenia		x	not yet
Sweden 1		x	
Sweden 2		x	
Turkey		x	
UK		x	
Cameroon		x	
Kenya		x	
South Africa		x	

Membership in the national society is not mandatory in any of the responding countries in The Americas, but it is required in two or 20 % of the Asia and Australasia countries as well as two or 13 % of the responding Europe and Africa countries.

5. How many working radiographers are members of the national society?

Country	Diagnostic Radiography	Nuclear Medicine	Therapy	Education	Other (Specify)	Comments
The Americas						
Barbados	30	0	5	0	US 2	
Canada	8258	1206	1308	Unknown	MR 813	
Trinidad-Tobago	20	0	3	2	-6-	
USA	116,000	2000	9000	1300		
El Salvador	293	2	10			
Asia and Australasia						
Australia	3500	250	1000	150	55	management
China Macau	12	2	5	0		
Fiji	38					
Hong Kong	280		132			
India	550		100	40		
Japan						31,000 total
New Zealand	1122	16.5	210.5		15*	*ultrasound
Philippines						7,000 total
Seychellas	7					
Taiwan	2655					244NM/RT
Europe and Africa						
Austria						estm total 1000
Cyprus	65		15			
Denmark	1059	1	39	150	8 US	
Estonia	275	4	15	18		
Germany	3300	1500	1500	200	200	
Iceland	130		2	8		
Latvia	442	5	19	6		
Norway						> 97%
Malta	75%		0	100%		
Slovenia						87 %
Sweden 1	1300					
Sweden 2		100-200				
Turkey						total 850
UK	15309	incl. in DR	1974	Incl. in D+T		
Cameroon	30	1	1			
Kenya	331	0	5	12		
South Africa						~1000

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39 % of all working professionals are members of their national society. If broken down by region, The Americas is 43 %. Asia and Australasia is 29 % and Europe and Africa is 41 %

As some countries didn't break down the membership by specialty, it is not possible to get definite percentages for each specialty. However, working with the data provided, 39% of the Diagnostic Radiographers are members, The Americas 50%, Asia and Australasia 8+% and Europe and Africa 42+%. 17 % of the Nuclear Medicine technologists have membership, The Americas 15 %, Asia and Australasia 75+% and Europe and Africa 20+%.

In Radiation Therapy, 37 % are members, The Americas at 63%, Asia and Australasia 9+% and Europe and Africa 45+%.

6. Do radiographers need a license/registration to work?

Country	Yes	No	License issued by	Comments
The Americas				
Barbados	x		Paramedical Professions Council of Barbados	
Canada	x		Provincial legislative body	Some-not all required
Trinidad-Tobago	x		Board of Radiographers Trinidad Tobago	
USA			Individual States	Not all States
El Salvador	x		Higher Council on Public Health via JVPM	
Asia and Australasia				
Australia	x		Gov't,Radiological Advisory Council or Registration Board	In some states
China Macau	x		Macau Health Service	
Fiji		x	Gov't screens. Licensing legislation being	developed
Hong Kong	x		government	
India		x		
Japan	x		Minister of Health,Labour and Welfare	
New Zealand	x		Medical Rad Technologist Board (MRTB)	
Philippines	x		Professional Regulation Commission (PRC)	
Seychellas		x		
Taiwan	x		Dept of Health	
Europe and Africa				
Austria	x			
Cyprus		x		Not at the moment
Denmark	x		National Board of Health	
Estonia	x		Tartu Medical School	Non university level, high education
Germany	x		Regional Councils	
Iceland	x		Ministry of Health and Social Security	
Latvia	x		Latvian Society of Radiographers	
Norway	x		Ministry of Health	
Malta	x		Council of Professions supplementary to Medicine.	They do not issue a licence but maintain a register.
Slovenia	x		Ministry of Health	
Sweden 1	x		The National Board of Health and Welfare	
Sweden 2	x		The National Board of Health and Welfare	
Turkey				No answer
UK	x		Health Professional Council	

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Cameroon		x		
Kenya		x*	Radiation Protection Board	* Haphazard and Contentious, there is no Radiography registration board.
South Africa	x		Health Professional Council of SA	HPCSA

In this context, licensure and registration are taken to mean the same thing.

In some of the geographical larger countries such as Canada, the USA and Australia, responsibility for licensure is with the state or province and thus there is no uniformity across the country.

In the Americas, 80% responded that licensure was required, but two said this requirement varied by state/province.

In Asia and Australasia, 70% of the countries require licensure but of these, one said it varied by state. Of the three countries who said no, one noted that legislation is being developed that will require radiographers to have a license.

In Europe and Africa, 75 % require a licence; one did not answer the question and two or 19% said no.

What are the requirements which have to be met before a license is issued?

Country	Minimum Age	Academic Training	Clinical Training	Examination	Comments
The Americas					
Barbados	18	Must meet standards	Council sets standards	Exam, if Council requires.	Proficiency in English required.
Canada	Yes	Yes	Yes	Yes	
Trinidad-Tobago	21	Yes	Yes	No	
USA	18	Varies by State	Varies by State	Varies by State	
El Salvador	22	Radiology Degree	Academic program 4-5 years	Yes	Practical Techs=10 yrs experience plus a test
Asia and Australasia					
Australia	18	Degree	1 yr	No	Minimum age may vary
China Macau	20	yes	yes	yes	
Fiji	NA	NA	NA	NA	Legislation in development
Hong Kong	None				
India	NA	NA	NA	NA	
Japan	21	3.4 yrs	450 hrs	yes	National exam
New Zealand	18	Degree	Yes	yes	3 yr degree includes clinical
Philippines	20	3 yrs	1 yr	yes	
Seychellas	NA	NA	NA	NA	
Taiwan	20	4-5 yrs	Min 5 mos	yes	
Europe and Africa					
Austria					No answer
Cyprus	21	3y	1500 H +	yes	
Denmark				yes	
Estonia	21	4280	1320	yes	
Germany	18	2800	1600	yes	* see Extra Comments
Iceland		3 years	1 year	yes	
Latvia	18	3 years	3 years	yes	
Norway		3 years	1 year		
Malta	18	BSc	incl. in BSc	no	
Slovenia	17	3	1		
Sweden 1		yes	yes	yes	
Sweden 2		yes	yes	yes	
Turkey					No answer
UK		BSc	Standards*		* of Proficiency to be met
Cameroon					No answer
Kenya	*	*	*	no	* not defined
South Africa		3 y	2500h/3 y		Formative & summative incl. in programme

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The majority of countries have a minimum age criterion between 17 and 22 that must be met. Three countries said that there was no minimum.

16 out of 31 countries or 52% state that an examination is required prior to entry to practice. 3 or 10 % gave a firm no exam is required and 11 or 37 % did not respond to the question. 1 said it varied with the state.

Are there any requirements for Continuing Education?

Country	Yes	No	Hours/points per year	Recertification	Comments
The Americas					
Barbados		x			It is being proposed
Canada	x		Not defined		Without licensure not mandatory
Trinidad-Tobago		x			
USA	x		24 hrs every 2 years to maintain voluntary registry ARRT		Mandatory State requirements vary
El Salvador		x			
Asia and Australasia					
Australia	x				CPD certification req'd to maintain accreditation
China Macau		x			
Fiji		x			
Hong Kong	x				
India		x			
Japan	x				JAETEC
New Zealand	x				880 clinical hrs/3 yrs, comply with Code of Ethics
Philippines	x				
Seychellas		x			
Taiwan	x		100 hrs within 4 yrs		
Europe and Africa					
Austria	x		150 p / 3 years		Society req.
Cyprus	x				* see Extra Comm
Denmark		x			
Estonia		x			
Germany	x		12H / 5year in RP		
Iceland		x			
Latvia	x		Every 5 years are training courses in radiation protection and safety and quality assurance		
Norway					No answer
Malta		x			not yet
Slovenia					No answer
Sweden 1	x		For some C.E. 2 years in clinic is required		

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Sweden 2	x		For some C.E. 2 years in clinic is required		
Turkey					No answer
UK	x				Maintenance of competence which requires evidence of CPD
Cameroon					No answer
Kenya		x			
South Africa	x		20 credits/year	x	for re-registration

15 countries or 48 % have a requirement for continuing education, 12 or 39 % do not and 4 or 13% did not respond. In the Americas, 40% said yes and 60 % said no. For Asia and Australasia, 60 % had the requirement for continuing education while 44 % did not. In Europe and Africa, 44% said yes, 31% said no and 25% did not answer the question.

Legislation

1. Are the recommendations of the ICRP followed in your national legislation, i.e. are your laws and regulations changed in accordance with new ICRP recommendations?

Country	Yes	No	Comments
The Americas			
Barbados		x	1971 Legislation outdated. Government run main hospital has polices
Canada	x		
Trinidad-Tobago		x	
USA	x		ICRP recommendations considered in rule making
El Salvador	x		
Asia and Australasia			
Australia	x		
China Macau		x	
Fiji			Not sure
Hong Kong	x		
India	x		
Japan	x		
New Zealand	x		
Philippines	x		
Seychellas			
Taiwan	x		
Europe and Africa			
Austria	x		Euratom Directives implemented
Cyprus		x	
Denmark	x		
Estonia	x		Euratom Directives implemented
Germany	x		
Iceland	x		
Latvia	x		
Norway	x		
Malta	x		our regulation follows exactly the EU directives and are copied from the UK legislation
Slovenia	x		Euratom Directives implemented
Sweden 1	x		
Sweden 2			No answer
Turkey			No answer
UK	x		
Cameroon	x		
Kenya			Amendments ongoing
South Africa	x		

The ICRP recommendations are followed in 23 or 74 % of the responding countries, 60 % in the Americas, 70 % in Asia and Australasia and 81% in Europe and Africa.

2. Is your national radiation protection legislation in compliance with the IAEA's Basic Safety Standards?

Country	Yes	No	Comments
The Americas			
Barbados		x	Outdated. Institutional policies at Gov. run main hospital, QEH based on ICRP
Canada	x		
Trinidad-Tobago	-	-	
USA	x		
El Salvador	x		
Asia and Australasia			
Australia	x		
China Macau		x	
Fiji		x	Still working on legislation
Hong Kong	x		
India	x		
Japan	x		
New Zealand	x		
Philippines	x		
Seychellas			
Taiwan	x		
Europe and Africa			
Austria	x		
Cyprus	x		
Denmark	x		
Estonia	x		Law on RP in preparation
Germany	x		
Iceland	x		
Latvia	x		
Norway	x		
Malta	x		
Slovenia	x		
Sweden 1	x		
Sweden 2			No answer
Turkey			No answer
UK			
Cameroon		x*	* Not to our knowledge
Kenya	x*		* to some extent
South Africa	x		

23 or 74% of the respondents stated that their country's radiation protection legislation is in compliance with the IAEA's Basic Safety Standards. Two or 6 % said they were working on corresponding legislation. The Americas has 60% compliance, Asia and Australasia has 70 % compliance and Europe and Africa 81 %.

3. Are the basic principles of justification and optimisation (ALARA) taught and practiced in your country?

Country	Yes	No	Comments
The Americas			
Barbados	x		No schools, taught to practitioners, general adherence
Canada	x		
Trinidad-Tobago	x		
USA	x		
El Salvador	x		
Asia and Australasia			
Australia	x		
China Macau	x		
Fiji	x		
Hong Kong	x		
India	x		
Japan	x		
New Zealand	x		
Philippines	x		
Seychellas			
Taiwan	x		
Europe and Africa			
Austria	x		
Cyprus	x		
Denmark	x		
Estonia	x		
Germany	x		
Iceland	x		
Latvia	x		
Norway	x		
Malta	x		
Slovenia	x		
Sweden 1	x		
Sweden 2	x		
Turkey			No answer
UK	x		
Cameroon	x		
Kenya	x		
South Africa	x		

30 countries or 97 % said that the basic principles of justification and optimisation (ALARA) taught and practiced in their country. 1 country did not respond to the question.

4. Is there legislation about dose limits to radiation workers ?

Country	Yes	No	Comments
The Americas			
Barbados		x	ICRP Guidelines followed in QEH. Has 1day course.
Canada	x		
Trinidad-Tobago		x	
USA	x		
El Salvador	x		
Asia and Australasia			
Australia	x		
China Macau		x	
Fiji		x	Not yet
Hong Kong	x		
India	x		
Japan	x		100 mSV per 5 years
New Zealand	x		
Philippines	x		
Seychellas	x		
Taiwan	x		
Europe and Africa			
Austria	x		
Cyprus	x		
Denmark	x		
Estonia	x		
Germany	x		
Iceland	x		for Category A workers
Latvia	x		
Norway	x		
Malta	x		
Slovenia	x		20 mSv/year
Sweden 1	x		
Sweden 2	x		
Turkey			No answer
UK	x		
Cameroon	x		
Kenya		x*	* no legislation, but international protocol is adhered to
South Africa	x		

25 or 81% of the countries have legislation about dose limits to radiation workers. 2 other countries said that although they didn't have specific legislation, they did adhere to international standards.

5. Is there mandatory radiation exposure monitoring of radiation workers in your country (i.e. film badge, TLD)?

Country	Yes	No	Comments
The Americas			
Barbados		x	Not at national level but at most institutions.
Canada	x		TLD
Trinidad-Tobago	x		
USA	x		Varies state to state, facility to facility
El Salvador	x		
Asia and Australasia			
Australia	x		
China Macau	x		TLD
Fiji	x		Film badges
Hong Kong	x		
India	x		
Japan	x		Glass badge
New Zealand	x		Film badges
Philippines	x		
Seychellas	x		
Taiwan	x		
Europe and Africa			
Austria	x		
Cyprus	x		TLDs
Denmark	x		Film badges, TLDs
Estonia	x		
Germany	x		
Iceland	x		Film badges
Latvia	x		
Norway	x		
Malta	x		
Slovenia	x		TLDs
Sweden 1	x	(x)	both yes and no, depends on Cat.A or Cat B
Sweden 2		x	
Turkey			No answer
UK	x		if likely to receive more than 3/10 dose limit
Cameroon	x		
Kenya	x		
South Africa	x		TLDs

28 countries or 90 % state that radiation workers in their country have their exposure to radiation monitored. In Europe and Africa region, one country did not respond and one claimed partial monitoring.

6. Is your society consulted during the drafting and/or review/revision of legislation pertaining to your profession and practice?

Country	Yes	No	Comments
The Americas			
Barbados	x		On occasions
Canada	x		As a result of extensive lobbying
Trinidad-Tobago			Sometimes
USA	x		
El Salvador	x		
Asia and Australasia			
Australia	x		
China Macau	x		
Fiji	x		
Hong Kong			Not always
India		x	
Japan	x		
New Zealand	x		
Philippines	x		
Seychellas		x	
Taiwan	x		
Europe and Africa			
Austria	x		
Cyprus	x		
Denmark	x		
Estonia	x		
Germany	x		
Iceland	x		
Latvia	x		
Norway	x		
Malta		x	No, never. That is the biggest disappointment for our Society
Slovenia	x		
Sweden 1	x		
Sweden 2			No answer
Turkey			No answer
UK	x		
Cameroon		x	
Kenya		x	
South Africa	x		most times

22 or 73 % of the responding countries report that their society is consulted during the drafting and/or review/revision of legislation pertaining to your profession and practice. Another 2 say they are consulted sometimes. The Americas 80 %, Asia and Australasia 70 % and Europe and Africa 75 %.

7. What Ministry in your country is responsible for radiation protection (please give name and address)?

Country	Ministry	Address	Website
The Americas			
Barbados	Ministry of Health	Jemmott's Lane St. Michael Barbados W.I.	
Canada	Health Canada	Canadian Federal Gov. Ottawa, Ontario	
Trinidad-Tobago	Health and Labour	Park Street Port of Spain	
USA	Nuclear Regulatory Commission / Food and Drug Administration		www.nrc.gov or www.fda.gov
El Salvador	Public Health Ministry Reg. Advis. Unit in Ionizing Radiation	El Salvador, Central America	
Asia and Australasia			
Australia	State Depts of Health or Environmental Protection Agencies Federal Dept of Health Australian Radiation Protection & Nuc Safety Agency	Canberra Melbourne	
China Macau	Radiation Protection Committee	Macau Health Service - RAEM	
Fiji	Ministry of Health and Ministry of Labour		
Hong Kong	Dept of Health		
India	Atomic Energy Regulatory Board	Gov't of India	
Japan	Ministry of Health, Labour and Welfare Ministry of Education, Culture, Sports, Science and Technology	1-2-2 Kasumigaseki Chiyoda-ku Tokyo 100-8916 Japan 2-5-1 Marunouchi Chiyoda-ku Tokyo 100-8959 Japan	
New Zealand	Ministry of Health	National Radiation Laboratory (NRL)	
Philippines	Radiation Health Service (RHS), Ministry of Health	San Lazaro Compound Santa Cruz, Manila	
Seychellas	Ministry of Health	P.O. box 52, Victoria	

		Hospital, Seychelles	
Taiwan	Atomic Energy Council	Yung-Ho City, Taipei	Aec.gov.tw
Europe and Africa			
Austria	Bundesministerium für Gesundheit und Frauen, Abteilung Strahlenschutz	Radetzkystrasse 2, 1030 Wien	http://www.bmgf.gv.at
Cyprus	Ministry of Labour and Social Insurance		
Denmark	National Institute of radiation Hygiene	Knapholm 7, 2730 Herlev	www.sis.dk
Estonia	Ministry of the Environment	Narva mnt 7a, 15172 Tallinn, Estonia	e-mail: min@envir.ee
Germany	- Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit	Alexanderplatz 6 D-10178 Berlin	
Iceland	Ministry of Health and Social Security	Vegmúla 3 - 150 Reykjavík	www.heilbrigdisraduneyti.is/
Latvia	The Ministry of Environment of the Republic of Latvia	Peldu street 25, Riga, LV-1494, Latvia	pasts@vidm.gov.lv
Norway	Radiation Protection Agency		www.nrpa.no
Malta	Occupation Health and safety Authority, , , Malta	17, Edgar Ferro street, Pieta, MSD 08, Malta	falls under the Ministry of Education, Youth and Employment, 120 St. Ursola Street, Valletta
Slovenia	Ministry of Health	Stefanove 5, 1000 Ljubljana, Slovenia	
Sweden 1	Swedish Radiation Protection Institute	117 16 Stockholm, Sweden	
Sweden 2	Swedish Radiation Protection Institute	117 16 Stockholm, Sweden	
Turkey	No answer		
UK	IMEX – Intentional, Medical and Environmental Exposure	See Extra Comm	
Cameroon	Scientific Research..		
Kenya	Ministry of Health	P.O. Box 30016, Nairobi 00100, Kenya	
South Africa	Department of Health Radiation control	Private Bag X62, Bellville, South Africa, 7535	

Role and Responsibilities

1. Do radiographers have the responsibility to request a radiological examination? Who other than a medical doctor has this authority? Such as nurses or other health professionals.

Country	Yes	No	No one	Nurse	Others (Specify)
The Americas					
Barbados		x			Chiropodist
Canada		x		x	RNs unofficial, limited to RN scope of practice
Trinidad Tobago		x			Dentist, Chiropractor
USA		x			
El Salvador		x			
Asia and Australasia					
Australia		x		x	Podiatrists, physiotherapists, chiropractors, others
China Macau		x	x		
Fiji		x		x	Medical assistants
Hong Kong		x		x	
India		x			
Japan		X			Dentist
New Zealand		x		x	Chiropractors, physiotherapists, nurses limited
Philippines		x	x		
Seychellas		x	x		
Taiwan		x	x		
Europe and Africa					
Austria		x	x		
Cyprus		x	x		
Denmark		x			Dentist and Chiropractors
Estonia	x				
Germany		x			Only medical doctors and alternative practitioner
Iceland		x	x		
Latvia		x			(radiologists)
Norway		x			physiotherapists
Malta		x	In the absence of guidelines, the national regulations imply that any other health professional may request an x-ray. This is a referrer – means a medical doctor, dentist or health professional recognised by the Radiation Protection board.		
Slovenia		x			Practitioner w. clinical responsibilities
Sweden 1		x	x		
Sweden 2		x	x		
Turkey					No answer
UK	x*				a nurse or other healthcare professional who has the training and competence can within a defined scope of practice (e.g a nurse in a minor injuries unit)

ISRRT Professional Practice Committee

Cameroon	x				Nurses and senior Health personnel
Kenya		x			Nurse, clinical officer (medical assistant)
South Africa		x			Registered Health Professionals

With the exception of three countries in the Europe and Africa region, radiographers and radiological technologists are not authorized to request radiological examinations. There is a significant variety of other healthcare professionals who may request an examination but this authority is generally restricted to a very limited area.

2. May radiographers refuse to perform an examination/treatment if they believe it is not justified?

Country	Yes	No	Comments
The Americas			
Barbados		x	Radiographers may questions clinicians requests
Canada	x		Must notify and document refusal to MDs and RNs
Trinidad-Tobago	x		
USA		x	
El Salvador		x	Radiation Therapist has input to treatment planning
Asia and Australasia			
Australia	x		In consultation with referring practitioner
China Macau	x		
Fiji	x		
Hong Kong			May discuss
India	x		Must consult with referring doctor
Japan	x		
New Zealand	x		Must consult with referring doctor or radiologist
Philippines	x		
Seychellas	x		Must inform the radiologist
Taiwan	x		
Europe and Africa			
Austria	x		
Cyprus	x		
Denmark		x	
Estonia	x		
Germany	x		if it is not requested from a radiologist
Iceland	x		
Latvia		x	
Norway	x		
Malta		x	Regulation state that no practitioner may authorise a medical exposure unless he has given due consideration to (see Extra Comm.)
Slovenia		x	
Sweden 1	x		The radiographer can talk to the radiologist and present her/his opinions of the patient and the examination, but the radiologist make the decision.
Sweden 2	x		Same as above
Turkey			No answer
UK	x		
Cameroon	x		
Kenya	x		
South Africa	x		with consultation

71 % of the responding countries report that the radiographer/radiological technologist may refuse to perform an examination/treatment if they believe it is not justified. Many qualified this authority by saying that they must consult with the referring practitioner.

3. Are radiographers responsible for the optimization of exposure levels (ALARA) in

Country	Diagnostic			Therapy		
	Yes	No	If not, who	Yes	No	If not, who
The Americas						
Barbados	x			x		With Radiotherapist/Physicist
Canada	x			x		Physicists participate
Trinidad –Tobago	x				x	Oncologist and Physicist
USA	x			x		
El Salvador	x			x		
Asia and Australasia						
Australia	x			x		
China Macau	x			x		
Fiji	x					
Hong Kong	x				x	physicist
India	x			x		
Japan	x			x		
New Zealand	x			x		
Philippines	x			x		
Seychellas	x					
Taiwan	x			x		
Europe and Africa						
Austria	x			x		as member of multi- professional team
Cyprus	x		in cooperation with M.P.	x		in cooperation with M.P.
Denmark		x	Medical doctors		x	Medical doctors
Estonia	x			x		
Germany	x			x		in according with the medical Physicist
Iceland	x				x	Doctors
Latvia		x	Radiologists		x	Radiation Oncologist
Norway	x			x		
Malta	x			x		
Slovenia	x			x		
Sweden 1	x					
Sweden 2	x				x	Radiation Oncologist
Turkey			No answer			
UK	x			x		responsibility of the team
Cameroon	x			x		
Kenya	x			x		
South Africa	x			x		

90% responded that radiographers were responsible for the optimization of exposure levels (ALARA) in diagnostic examinations and 73 % in therapy. Many commented that in therapy ALARA was a team responsibility.

4. Are radiographers recognised in your legislation to be responsible for QA/QC?

Country	Diagnostic			Therapy		
	Yes	No	If not, who	Yes	No	If not, who
The Americas						
Barbados		x	National, no. Gov. Hosp. yes		x	Medical Physicist supervises
Canada	x			x		
Trinidad-Tobago	x			x		
USA	x			x		
El Salvador	x			x		
Asia and Australasia						
Australia	x		Also medical physicists,radiologists	x		In some situations, physicists, radiation oncologists
China Macau	x			x		
Fiji	x					In proposed legislation
Hong Kong		x	No legislation		x	No legislation
India	x		Along with medical physicists	x		Along with medical physicists
Japan	x			x		
New Zealand	x *		Medical physicists, radiologists	x *		Medical physicists, radiation oncologists
Philippines	x			x		
Seychellas	x					
Taiwan	x			x		
Europe and Africa						
Austria	x			x		as member of multiprf. team
Cyprus	x*		*in cooperation with M.P.	x*		*in cooperation with M.P.
Denmark	x		MP are validating the data	x		MP are validating the data
Estonia		x	Physicists and Radiologist		x	Physicists and Radiologist
Germany	x			x		
Iceland	x				x	Medical Physicists
Latvia		x	Radiologist		x	Rad. Oncologist
Norway	x			x*		* along with Med.Phys.
Malta	x			x		
Slovenia	x			x		
Sweden 1	x		for exam. not equipment			
Sweden 2					x	Medical Physicists
Turkey			No answer			
UK	x		anyone with app. skills and knowl..	x		anyone with app. skills and knowl.
Cameroon	x			x		
Kenya	x			x		
South Africa	x		in scope of prof. practice	x		

- New Zealand: radiographers are recognized under the Health Practitioners Competence Assurance Act but not in the Radiation Protection Act.

In diagnostic areas, 26 or 84 % of the countries reported that radiographers are recognised in their legislation as being responsible for QA/QC. In therapy it is 71 %.

5. Which professionals are authorized to use diagnostic x-ray equipment, i.e. initiating exposure to patients and carrying out the actual x-ray examination?

Country	Medical Doctors	Radiologists	Radiographers	Others (Specify)
The Americas				
Barbados	x	x	x	Dental Technicians
Canada		x	x	Basic Radiography workers with limits
Trinidad-Tobago		x	x	Dentists/Veterinarians/Physicists
USA	x	x	x	
El Salvador		x	x	Dentist/Veterinarians
Asia and Australasia				
Australia	If licensed	x	x	Dentists, chiropractors, licensed doctors and nurses in remote areas
China Macau		x	x	
Fiji		x	x	
Hong Kong	x	x	x	
India	x	x	x	Anyone as there is no proper implementation of legislation
Japan	x	x	x	Dentists
New Zealand	x *	x	x	* Only in remote areas, dental assistants, nurses in remote areas
Philippines		x	x	Medical physicists
Seychellas			x	
Taiwan			x	
Europe and Africa				
Austria		x	x	Medical technical helpers (small group)
Cyprus		x	x	Cardiologist, + other surgeons..
Denmark	x	x	x	
Estonia	x	x	x	Dentists
Germany	*	x	x	* not in general. Alternative practitioner and nurses as long as they have done a training in RP
Iceland	x	x	x	
Latvia		x	x	Dentists, surgeons
Norway	x	x	x	Dentists
Malta	x	x	x	Midwives.. (see Extra Comm.)
Slovenia	x	x	x	Tramatologis (?), cardiologist, dentists
Sweden 1		x	x	Some medical doctors are doing angiography and put in pacemakers e.g. They need spec education in Radiation Protection.
Sweden 2		x	x	same
Turkey				No answer

UK		x	x	Dentists and Dental Nurses(if trained and competent)- Assistant practitioners to a limited extent working under the supervision of a Radiographer
Cameroon		*	x	* at times
Kenya	*	*	x	* some do it illegally
South Africa		x	x	

40 % stated that medical doctors were authorized to use diagnostic x-ray equipment, i.e. initiating exposure to patients and carrying out the actual x-ray examination but some restricted this to remote areas. India was the only country that didn't have legislation which restricted authorization.

6. Are there requirements for a department/clinic to have a Radiation Protection Officer/Radiation Safety Officer and if yes, who may be a RPO/RSO?

Country	Yes	No	Radiographer	Medical Dr	Physicist	Other (specify)
The Americas						
Barbados	x				x	RPO-Medical Physicist
Canada	x		x			Med.Radiation Technol.
Trinidad-Tobago		x				
USA	x					Nuclear Med Depart. Varies by State RSO
El Salvador		x				
Asia and Australasia						
Australia	x		x	x	x	Radiation therapists
China Macau		x				
Fiji	x					
Hong Kong	x		x		x	
India	x					Not all clinics
Japan	x		x			Radiological technologists
New Zealand	x			x *	x	radiologist
Philippines	x					
Seychellas		x				
Taiwan	x					
Europe and Africa						
Austria	x		x		x	
Cyprus	x		Any person approved by competent authority, based on his/her medical radiation expertise			
Denmark		x				
Estonia	x		x	x	x	
Germany	x		x	x	x	
Iceland		x				
Latvia	x					
Norway	x					
Malta	x		x	x	x	x
Slovenia	x					
Sweden 1	x				x	
Sweden 2	x					
Turkey						No answer
UK	x		Yes though the RPO may cover a number of sites. The requirement again is for a suitably trained and competent person. RSOs are normally radiographers			
Cameroon		x				
Kenya	x		but rarely adhered to in practice			
South Africa	x				x	

74 % of reporting countries state a RPO/RSO is required in a department or clinic. In only 10 or 32% of the countries, radiographers may assume this responsibility. However, 15 or 48 % of the countries did not identify who may be the RPO/RSO.

7. Are there requirements for education in radiation protection for

Country	Requirements exist for education in radiation protection for							
	Radiologists		Medical Doctors		Radiographers		Others	
	Yes	No	Yes	No	Yes	No	Yes	No
The Americas								
Barbados	x			x	x			
Canada	x		x		x		x	
Trinidad-Tobago	x			x	x			
USA		x		x	Varies by State	Not Nationally		
El Salvador	x			x	x			
Asia and Australasia								
Australia	x		x licence		x		x	
China Macau	x		x		x			x
Fiji	x		x		x		x	
Hong Kong	x			x	x			
India	x		x		x			
Japan		x	x		x			
New Zealand	x		x		x		x	
Philippines	x			x	x			
Seychellas		x		x		x		
Taiwan	x				x			
Europe and Africa								
Austria	x		x		x			
Cyprus	x			x	x			
Denmark	x		x		x			x
Estonia		x		x	x		x	
Germany	x		x		x	x		
Iceland	x			x	x		x	
Latvia	x		x		x		x	
Norway	x		x		x			
Malta	x			x	x			x
Slovenia	x				x			
Sweden 1	x				x			
Sweden 2	x				x			
Turkey	No answer							
UK	x		x		x		x	
Cameroon	No answer							
Kenya		x		x		x		
South Africa	x			x	x			x

There are requirements for education in radiation protection for radiographers in 28 or 90% of the reporting countries (2 didn't answer the question), for radiologists in 24 or 77% (3 didn't respond), medical doctors in 12 or 38 % (6 didn't respond) and for other groups in 8 or 26 % of the responding countries.

Country	Formalized education in radiation protection exists for							
	Radiologists		Medical Doctors		Radiographers		Others	
	Yes	No	Yes	No	Yes	No	Yes	No
The Americas								
Barbados	x			x	x			
Canada	x		x		x		x	
Trinidad-Tobago	x			x	x			x
USA	Varies by State		Varies by State		Varies by State			
El Salvador	x			x	x			
Asia and Australasia								
Australia	x		x		x		x	
China Macau	x		x		x			x
Fiji								
Hong Kong	x			x	x			
India	x				x			
Japan								
New Zealand	x		x		x		x	
Philippines	x			x	x			
Seychellas		x		x		x		
Taiwan	x				x			
Europe and Africa								
Austria	x			x	x			
Cyprus		x		x		x		
Denmark	x		x		x			x
Estonia	x		x		x		x	
Germany	x		x		x		x	
Iceland		x		x	x		x	
Latvia	x		x		x		x	
Norway		x		x	x		x	
Malta	x			x	x			x
Slovenia			x					
Sweden 1	x				x			
Sweden 2	x				x			
Turkey	No answer							
UK	x		x		x		x	
Cameroon	x		x		x			
Kenya	x			x	x			
South Africa	x		x		x			x

Formal education exists in radiation protection for radiologists in 23 or 74% of the responding countries (4 didn't answer this question), for medical doctors in 13 or 42 % (6 didn't answer), for radiographers in 25 or 81% (4 didn't answer) and for others in 9 or 29 % (14 didn't answer this part).

Other**1. Does a national/regional register of radiological equipment exist ?**

Country	Yes	No	Comments
The Americas			
Barbados		x	
Canada	x		Provincial Registries collect/compile data, not 100%current
Trinidad-Tobago		x	
USA	x		Not National, occurs at State level.
El Salvador	x		
Asia and Australasia			
Australia	x		State by state basis
China Macau	x		
Fiji		x	
Hong Kong	x		
India		x	
Japan	x		
New Zealand	x		
Philippines	x		
Seychellas		x	
Taiwan	x		
Europe and Africa			
Austria			No answer
Cyprus	x*		in the process of being established b. authority
Denmark	x		
Estonia	x		
Germany	x		regional registers by factory inspectorate
Iceland	x		
Latvia	x		
Norway	x		
Malta	x		
Slovenia	x		
Sweden 1	x		
Sweden 2			No answer
Turkey			No answer
UK	x		
Cameroon		x	
Kenya	x		
South Africa	x		

23 or 74 % said their country had a national or regional registry of radiological equipment.

2. Are there national requirements for acceptance and consistency testing of all existing and new radiological equipment?

Acceptance testing of new equipment			Consistency testing of existing equipment		
Country	Yes	No	Yes	No	Comments
The Americas					
Barbados		x		x	Not National, occurs at department level
Canada	x		x		
Trinidad-Tobago		x		x	
USA	x			x	Varies by State
El Salvador	x		x		
Asia and Australasia					
Australia	x		x		
China Macau	x		x		
Fiji	x			x	
Hong Kong		x		x	No requirement but they are done.
India	x		x		In gov't sector and some clinics
Japan	x		x		
New Zealand	x		x		
Philippines	x		x		
Seychellas	x		x		
Taiwan	x		x		
Europe and Africa					
Austria					No answer
Cyprus	x		x		
Denmark	x		x		
Estonia	x		x		
Germany	x		x		
Iceland	x		x		
Latvia	x		x		
Norway	x		x		
Malta	x		x		
Slovenia		x		x	in state level (?)
Sweden 1	x		x		
Sweden 2	x		x		
Turkey					No answer
UK	x		x		
Cameroon		x		x	
Kenya	x			x	
South Africa	x		x		

24 or 77 % of the countries reported that their countries have national requirements for acceptance testing of new equipment (2 said that acceptance testing was done although there was no national requirement and 2 didn't respond to this part of the question)

21 or 68% of the countries reported that their countries have national requirements for consistency testing of existing equipment (2 said that consistency testing was done although there was no national requirement and 2 didn't respond to this part of the question).

3. **Is your society participating in regional collaborative activities in radiation protection? If so, what?**

Country	Yes	No	What Activities
The Americas			
Barbados		x	
Canada	x		
Trinidad-Tobago		x	
USA		x	
El Salvador	x		Regional/National Seminars plus CE courses
Asia and Australasia			
Australia	x		Membership of working parties & advisory groups, seminars for RSO's at State level
China Macau	x		Annual scientific meeting held by Macau Radiology Assoc
Fiji		x	
Hong Kong		x	
India		x	
Japan	x		
New Zealand		x	
Philippines	x		QA/QC
Seychellas		x	
Taiwan	x		Survey of radiation equipment and its safety
Europe and Africa			
Austria			No answer
Cyprus	x*		*in cooperation with physics departments
Denmark		x	
Estonia	x		Continuing education in RP
Germany	x		The society offers courses in RP
Iceland	x		ECRRT
Latvia	x		e. 5years an obligatory RP course
Norway	x		Courses, further education programmes ...
Malta		x	we have never been invited to participate, although we have asked several times.
Slovenia	x		Optimisation of rad.exposure, Diagnostic reference levels
Sweden 1		x	
Sweden 2			No answer
Turkey			No answer
UK	x		Issues advice to members and others. Our society is also a member of the International Society of Radiation Protection
Cameroon		x	
Kenya		x	
South Africa		x	

Half of all countries reported that their society is participating in regional collaborative activities in radiation protection.

4. Is basic health and safety information available in your country?

Country	Yes	No	Comments
The Americas			
Barbados	x		
Canada	x		
Trinidad-Tobago		x	
USA	x		
El Salvador		x	Limited to information posted in waiting rooms & given by radiographers to patients
Asia and Australasia			
Australia	x		
China Macau	x		
Fiji	x		
Hong Kong	x		
India	x		
Japan	x		
New Zealand	x		
Philippines	x		
Seychellas	x		
Taiwan	x		More or less
Europe and Africa			
Austria			No answer
Cyprus	x		
Denmark	x		
Estonia	x		
Germany	x		Federal office of radiation protection
Iceland	x		
Latvia	x		
Norway	x		
Malta	x		
Slovenia	x		
Sweden 1	x		
Sweden 2	x		
Turkey			No answer
UK	x		
Cameroon	x		
Kenya	x		
South Africa	x		in the legislation

27 or 87 % of the responding countries stated that basic health and safety information was available in their country.

5. Has the IAEA, the WHO or affiliated organizations offered any training programs in radiation protection in medical imaging for radiographers in your country in the past two years?

Country	Yes	No	By Whom	What training
The Americas				
Barbados		x		
Canada		x		
Trinidad-Tobago		x		
USA		x		
El Salvador		x		
Asia and Australasia				
Australia		x		
China Macau		x		
Fiji		x		
Hong Kong		x		
India	x			Atomic Energy Regulatory Board (gov't of India)
Japan		x		
New Zealand		x		
Philippines	x			Radiation Health Services (RHS)
Seychellas		x		
Taiwan		x		

Europe and Africa				
Austria				
Cyprus		x		IAEA training in 1974 / 3 months
Denmark		x		
Estonia		x		
Germany		x		
Iceland		x		
Latvia		x		
Norway		x		
Malta	x		IAEA	maybe three years ago, but was not for all radiographers.
Slovenia	x		IAEA	Nuclear Medicine (in Turkey)(3 years ago), Radiation Protection in Ljubljana (2 years ago)
Sweden 1		x		
Sweden 2			No answer	
Turkey			No answer	
UK		x		
Cameroon	x		IAEA	about 6 years ago
Kenya	x		IAEA	QA/QC
South Africa		x		

Training in radiation protection longer than two years ago.

Country	Yes	No	Year	By Whom	What training
The Americas					
Barbados		x			
Canada		x			
Trinidad-Tobago		x			
USA		x			
El Salvador		x			UNRA past provider I SSRT QA Workshop to be held 10/2005
Asia and Australasia					
Australia					
China Macau		x			
Fiji	x				Acquired overseas but didn't return to practice
Hong Kong		x			
India		x			
Japan		x			
New Zealand		x			
Philippines		x			
Seychellas		x			
Taiwan		x			
Europe and Africa					

6. What have we not asked about that you feel is important?

Country	Comments
The Americas	
Barbados	
Canada	
Trinidad-Tobago	Feedback, recommendations and any comments from you would be very useful and welcome.
USA	
El Salvador	Personal dosimeter services and readings are not reliable. We believe that international organizations should help provide this service in a more trustworthy manner and accessible to developing countries budget and economical reality. We can provide adequate patient protection when we have no idea to how much radiation we are being exposed.

Asia and Australasia	
Australia	
China Macau	
Fiji	
Hong Kong	
India	No licensing authority or registration council for radiographers exists, hence no uniform education for RP and safety measures as well as radiographic education.
Japan	What an education system for promoting international license system should be.
New Zealand	
Philippines	BORT will give twice a year, examination under supervision of Professional Regulation Commission.
Seychellas	There is no consistency in the control of dosimetry reading.
Taiwan	
Europe and Africa	
Austria	No answer
Cyprus	No answer
Denmark	No answer
Estonia	to finish RP Law Regulations to recognise radiography profession
Germany	No answer
Iceland	No answer
Latvia	It is very important for us to change legislation in Latvia, in order to radiographer would be responsible for QA/QC, as well as responsible for the optimisation of exposure level.
Norway	No answer
Malta	We believe that the EU directives are disrespectful to the Radiography Profession. Whilst the Radiologist as practitioner and Physicists as medical Physics expert are sort of defined, the radiographer isn't. This has created a lot of confusion and misinterpretation for radiographers throughout Europe. Because in Malta the number of Radiographers is low, our Society is not strong enough to affect decision

	making as regards regulations. Thus we feel that there is no point in maintaining the Society as in the present format, but will probably change to a House Union
Slovenia	No answer
Sweden 1	No answer
Sweden 2	No answer
Turkey	In EU membership process there are many changing in the agenda of Health Ministration Agenda, so working conditions and education duration are going to change.
UK	Currently radiographer initial qualification is in diagnostic radiography or therapy and those wishing to specialise in Nuclear Medicine then study at post-registration, postgraduate level. Nuclear medicine is also undertaken by Clinical Technologists, who currently are not required to register with the HPC, but have applied to the HPC to become an additional profession to be registered. Roles and responsibilities depend on competence, knowledge and authorisation rather than being the responsibility of a specific profession and depends on the service need and the skill mix of employees
Cameroon	Do you have any continuing education scholarship or training programs in our profession?
Kenya	WHO REGULATES RADIOGRAPHERS IN THE COUNTRYT IN THE ABSENCE OF A PROF. BOARD. IN KENYA THE RPB PURPORTS TO REGULATE THE PROFESSION YET THEY ARE NOT A PROF. BOARD. THEIR WORK AS ENVISIONED IN THEIR PREAMBLE TO TTPROVIDE SERVICES AND GUIDELINES IN GENERAL RADIATION USE, APPLICATION AND SAFETY.
South Africa	Ultrasound is a separate category of radiography