



RADIOLOGICAL TRAINING PROGRAMMES IN EUROPE

EAR EDUCATION SURVEY

Analysis of Results

European Association of Radiology
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Preface

EAR has embraced the ambition to create a dynamic environmental infrastructure to promote excellence in radiology throughout Europe. Two of the main challenges in this regard is providing high standards in training curricula and facilities, and facilitating the great efforts made by National Societies and Training Centres to reach these standards.

The European Training Assessment Programme (ETAP) has been in existence for three years; a certain number of teaching centres have been visited. Through these visits we start getting a picture of training around Europe; however, our impressions remain incomplete until a substantially greater number of centres have been visited. The initial review indicates that there is general enthusiasm for developing high-quality training programmes. There are, however, a number of structural variations in the delivery of training. The resources available to different training centres do also vary quite significantly. Also the length of training differs from one country to the other. At present, the structure of training seems to conform to the EAR/UEMS European Training Curriculum in only a small number of training centres. Structured lecture programmes to cover the curriculum are provided in a few countries. Log-books do not seem to be in common usage. Appraisal is undertaken differently according to the respective countries. There are no formal appraisal systems in some countries. National examination is not established everywhere. In addition, the overall management of the respective training programme differs from

country to country. Apart from that subspecialty training is very variable.

The EAR Executive Bureau asked the EAR Education Committee to conduct a survey among the EAR National Societies to obtain a better overview of these differences in training between the European countries. Thus a survey was done between September and December 2004. The aim was to assess the degree of harmonisation of radiological training programmes in Europe, to measure the potential deviation from the EAR/UEMS recommendations and to evaluate the training programme in every single European country. This survey was based on a questionnaire sent to all National Societies through their national delegates to the EAR Education and Professional Organisation Committees as well as the UEMS Radiological Section. The results of this survey were presented at the EAR Education Committee Meeting, EAR Executive Bureau Meeting and the EAR General Assembly in March 2005. The analysis of the survey's results is presented in this brochure.

The results demonstrated the existence of a wide spectrum of diversity in terms of requirements, training schemes, appraisal and professional evaluation between the various countries in Europe. In spite of the current deviation from the UEMS / EAR recommendations in the existing training programmes, harmonisation in training skills in Europe remains a major objective for the future.

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Radiological Training Programmes in Europe

EAR Education Survey - Analysis of Results

2004 - EAR Education Committee

The survey conducted was based on a questionnaire sent to all EAR National Societies through their national delegates to the EAR Education and Professional Organisation Committees as well as the UEMS Radiology Section.

The questionnaire included 28 questions classified into the following five main items:

- Qualification and requirements for entry into training schemes
- Training scheme description
- Examination, appraisal, and professional evaluation
- Subspecialty
- Number of radiologists per country

25 countries completed the questionnaire; however, only 24 questionnaires were assessable.

1 - QUALIFICATION AND REQUIREMENTS FOR ENTRY INTO TRAINING SCHEMES (TABLE 1, P. 4)

In 22 countries it is necessary to be certified as a medical doctor before being authorised to start radiology training. In France, the final certification (medical thesis) may be obtained at the end of radiological training.

Passing a national examination before starting the training programme is requested in 12 countries. Local (university) examinations for the selection of candidates before the entry into training programmes are organised in six countries.

In 17 countries the selection of the candidates for the entry into radiological training is also (or only) based on an interview.

While in 13 countries training in a clinical discipline (as an intern) is a prerequisite for being allowed to start radiology training, in three countries (France, Germany and Hungary) it is postponed and included in the five-year training programme.

2 - TRAINING SCHEME DESCRIPTION (TABLE 2, P. 5)

- The length of radiological training programmes is five years in 18 countries, four years in five countries, and only two years in one country (Russia).
- Training is based on successive rotations in different sections or departments in 23 countries; the duration of these rotations varies between one and six months. In 19 countries rotations are necessary in both organ-oriented and modality-driven sections, in three countries in modality-driven sections only and in two countries in organ-oriented sections only. Certain organ-oriented sections (chest, vascular, breast, paediatric, and musculo-skeletal) are not specifically requested in five countries. Only seven countries have included nuclear medicine in their training programmes. PET has not yet been incorporated in any radiological training programme. Radiation therapy is part of the training programme in only one country.
- 20 countries have a national radiological training curriculum; in 13 countries these curricula are very similar or identical to the recommendations outlined in the UEMS/EAR Training Charter. A log-book is available and used by trainees in 16 countries and absent in 8 countries. While formal teaching is mandatory in 18 countries, it is not obligatory in six countries. The recommended duration of formal teaching varies between the countries from 60 to 400 hours per year.
- The degree of the trainees' supervision by senior radiologists during the training programme is extremely variable from one country to another. Trainees perform and report procedures always under the supervision of a senior radiologist only in five countries. They start performing and reporting procedures after variable durations of training (big difference between countries, ranging from immediately to after board examination). The permission for trainees to report and perform procedures independently is given during the second or third year of training in nine countries. Trainees start having on-call responsibilities after a variable time of training (two months to four years).

There are no on-call responsibilities for trainees in five countries and a supervisor consultant is available in 15 countries.

- In 13 countries there are certain requirements to attend clinical radiology meetings; such requirements start at a variable stage (first - third year of training).

3 - EXAMINATIONS, APPRAISAL, AND PROFESSIONAL EVALUATION (TABLE 3, P. 6)

Final examinations to validate the clinical programme exist in 19 countries. They are organised at a local or regional level in eight countries, and at a national level in 11 countries. There is no final examination in five countries (France, Denmark, The Netherlands, Norway and Spain). Continuous professional evaluation is organised during training in 17 countries. This continuous professional evaluation is managed by the programme director or tutor in eight countries, by regular examinations in six countries, by getting credit hours in one country, and by national report in two countries.

4 - SUBSPECIALTY (TABLE 4, P. 7)

Subspecialties in radiology are officially recognised in 13 countries, and specific training programmes are available for these subspecialties in 12 countries. The number of these recognised subspecialties varies between countries from just one (neuroradiology) to all subspecialties, e.g. in the UK. The most frequently recognised subspecialties are neuroradiology and paediatric radiology. Subspecialty training starts during the fourth or fifth year of the radiological training programme or after having completed the programme. Upon completion of the training programme, there are opportunities for elective attachments and fellowships in only 15 countries. The percentage of trainees going to fellowships is extremely variable between the countries from only a few to 100%.

5 - NUMBER OF RADIOLOGISTS PER COUNTRY (TABLE 5, P. 8)

The number of currently working radiologists differs among the countries between 60 and 250 per one million inhabitants. The percentage of radiologists in training varies from 15 to 50%. Unfilled training places exist in 9 countries. The proportion of radiologists practising exclusively one subspecialty of radiology varies from 1 to 20%. The ratio of radiologists practising general radiology with a special interest in one or two subspecialties ranges from 5 to 100% (mean: 20-30%).

6 - CONCLUSIONS

This survey demonstrates the existence of a wide spectrum of diversity in terms of requirements, training schemes, appraisal and professional evaluation between the various countries throughout Europe. The curriculum is more or less similar to the recommendations given in the EAR/UEMS Training Charter in only 13 countries. There are also significant differences between the countries in the numbers of radiologists per one million inhabitants. Subspecialties in radiology are officially recognised in less than 50% of the countries and subspecialty training starts at a variable level of the training programme.

There are however some similarities, particularly regarding the duration of training (five years in the great majority of the countries). There are also similarities with regard to the format of the training programmes based on rotations in modality-driven and organ-oriented sections or departments. The great majority of the countries have a national curriculum, mandatory formal teaching and professional evaluation.

In spite of the current gap between the EAR/UEMS recommendations and the existing training programmes in different European countries, harmonisation in training skills remains a very important aim for European radiology.

We have to admit that the survey's methodology is not perfect and that available information has to be verified and improved through the National Societies. A new evaluation of the training programmes in Europe will be done very soon to assess the degree of improvement in harmonisation.



TABLE 1 - QUALIFICATION AND REQUIREMENTS FOR ENTRY INTO TRAINING SCHEMES

List of countries	Certification as MD	National / local examination	Interview	Clinical training as an intern (length)
Austria	Yes	No / No	Yes	No
Belgium	Yes	No / Yes	Yes	Yes (1 yr)
Croatia	Yes	Yes / No	Yes	Yes (1 yr)
Czech Republic	Yes	Yes / No	Yes	Yes (1.5 yr)
Denmark	Yes	No / No	No	Yes (1.5 yr)
Estonia	Yes	Yes / Yes	Yes	No
France	No	Yes / No	No	No
Germany	Yes	Yes / Yes	Yes	No
Greece	Yes	No / No	No	No
Hungary	Yes	Yes / Yes	Yes	No
Ireland	Yes	No / No	Yes	Yes (2 yrs)
Italy	Yes	No / Yes	Yes	No
Latvia	Yes	No / No	Yes	No
Netherlands, The	Yes	No / No	Yes	No
Norway	Yes	No / No	Yes	No
Poland	Yes	Yes / Yes	Yes	Yes (3 months)
Portugal	Yes	Yes / No	No	Yes (15 months)
Romania	Yes	Yes / No	No	No
Russia	Yes	No / No	Yes	No
Slovakia	Yes	Yes / No	Yes	Yes
Spain	Yes	Yes / No	No	No
Sweden	Yes	Yes / No	No	No
Switzerland	No	No / No	Yes	No
UK	Yes	No / No	Yes	Yes (2 yrs)

TABLE 2 - TRAINING SCHEME DESCRIPTION

List of countries	Length (yr)	Rotations in modality-driven or organ-based sections (length)	National curriculum	Log-book / clinical radiology meetings	Obligatory formal teaching (Nb of hours /yr)	On-call responsibility (starting time)
Austria	5	Yes (3-6 months)	Yes	No / Yes	No	Yes (2 nd yr)
Belgium	5	Yes (6 months)	Yes	Yes / Yes	Yes (130)	Yes (2 nd yr)
Croatia	4	Yes (3-6 months)	Yes	Yes / Yes	Yes (120)	No
Czech Republic	5	Yes (variable)	Yes	Yes / No	Yes (?)	No
Denmark	5	Yes (6 months)	Yes	Yes / No	Yes (250)	Yes (2 nd yr)
Estonia	4	Yes (1-3 months)	Yes	Yes / Yes	Yes (?)	Yes (3 rd - 4 th yr)
France	5*	Yes (6 months)	Yes	Yes / No	Yes	Yes (?)
Germany	5*	Yes (3-4 months)	Yes	Yes / No	Yes (?)	Yes (2 nd yr)
Greece	5	Yes (6 months)	Yes	No / No	No	Yes (6 months)
Hungary	5*	Yes (2-3 months)	Yes	No / No	Yes	Yes (?)
Ireland	5	Yes (variable)	Yes	Yes / Yes	Yes (400)	Yes (2 nd yr)
Italy	4	Yes (2-4 months)	No	No / No	Yes (150)	No
Latvia	4	Yes (?)	Yes	Yes / Yes	Yes	No
Netherlands, The	5	Yes (3 months)	Yes	No / Yes	Yes (90)	Yes (2 nd yr)
Norway	5	Yes (6 months)	No	No / Yes	Yes (60)	Yes (2 months)
Poland	5	Yes (1-6 months)	Yes	Yes / Yes	Yes (60)	Yes (3 rd yr)
Portugal	5	Yes (?)	Yes	No / No	No	Yes (2 nd yr)
Romania	5	Yes (3-6 months)	Yes	Yes / No	Yes (205)	Yes (4 th yr)
Russia	2	Yes (3-6 months)	No	Yes / Yes	Yes	Yes (2 nd yr)
Slovakia	5	No	No	No / No	No	Yes
Spain	4	Yes (3-6 months)	Yes	Yes / Yes	No	Yes (2 nd yr)
Sweden	5	Yes (3 months)	Yes	Yes / No	No	Yes (2 nd yr)
Switzerland	5 + 1	Yes (2-6 months)	Yes	Yes / Yes	Yes	Yes (3 months)
UK	5	Yes (3-4 months)	Yes	Yes / Yes	Yes (200)	Yes (3 rd yr)

* One year outside radiology included within the 5th year of training
 * One year outside radiology in addition to the 5th year of training

TABLE 3 - EXAMINATIONS, APPRAISAL, AND PROFESSIONAL EVALUATION

List of countries	Final examination			Continuous professional evaluation
	Yes / No	National / Local	Written /MCQ / Oral	
Austria	Yes	National (2 x yr)	W / MCQ / Oral	No
Belgium	Yes	Local (University)	W / MCQ / Oral	Yes (programme director à federal licensing committee)
Croatia	Yes	Local (University)	Oral	No
Czech Republic	Yes	National	MCQ	Yes (national level)
Denmark	No			Yes (after each rotation)
Estonia	Yes	National	W / MCQ / Oral	Yes (interview with tutor)
France	No			Yes (end of the first year)
Germany	Yes	Regional	W / MCQ / Oral	No
Greece	Yes	Local (University)	W / MCQ / Oral	No
Hungary	Yes	National	MCQ / Oral	Yes (tutor)
Ireland	Yes	National	W / MCQ / Oral	Yes (end of the first year)
Italy	Yes	Local (University)	Oral	Yes (at the end of each year)
Latvia	Yes	Local (University)	MCQ	Yes (200 credit hours / 5 years)
Netherlands, The	No*			Yes (annual evaluation by the programme director)
Norway	No			Yes (mentors + exams after formal teaching)
Poland	Yes	National	MCQ / Oral	Yes
Portugal	Yes	Local (Hospital)	Oral	Yes (at the end of each year)
Romania	Yes	National	MCQ / Oral	No
Russia	Yes	National	W / Oral	Yes (supervising radiologist /assistant professor/professor)
Slovakia	Yes	Local	W / MCQ / Oral	No
Spain	No			Yes (resident tutor)
Sweden	Yes	National	W / Oral	No
Switzerland	Yes	National	W / MCQ / Oral	Yes (evaluation forms)
UK	Yes	National (FRCP)	W / MCQ / Oral	Yes (assessment at beginning and end of each attachment. Formal annual assessments).

* National exam exists, but it is not obligatory to pass it

TABLE 4 - SUBSPECIALTY

List of countries	Elective attachments or fellowship opportunities		Recognised subspecialties			Starting training in a subspecialty during general training / after completion
	Yes / No	% Fellowship	Yes / No	List	Specific training programme	
Austria	Yes	?	Yes	Neuro, Paed, Intervent	Yes	General training (5 th yr) / after completion
Belgium	Yes	< 30	No	---	---	A subspecialty training is possible on a voluntary basis
Croatia	Yes	?	Yes	US, Neuroradio, Intervent	Yes	After completion
Czech Republic	No	--	Yes	Paed, Vascular, Intervent, Neuroradio	Yes	During general training
Denmark	No	---	No	---	No	After completion
Estonia	Yes	?	No	---	--	--
France	Yes	10 - 15	No	---	Yes	General training and after completion
Germany	Yes	90	Yes	Neuroradio, Paed	No	3 rd year of training
Greece	Yes	2-3	No	--	--	---
Hungary	No	--	Yes	Neuroradio, Paed	Yes	After completion
Ireland	Yes	100	Yes	Neuroradio, Nuclear med, Intervent, Breast, Paed. Cross-section imaging	Yes	3 rd year of general training
Italy	No	---	No	--	--	--
Latvia	No	--	Yes	US	Yes	1 st year of general training
Netherlands, The	Yes	?	No	--	--	--
Norway	Yes	?	No	--	--	--
Poland	No	--	No	--	--	--
Portugal	No	--	Yes	Paed, Vascular, Neuroradio	Yes	5 th year of general training
Romania	Yes	?	No	--	--	--
Russia	Yes	5-10	Yes	Paed, US, Intervent, angio, neuroradio	Yes	After completion
Slovakia	Yes	3-5	Yes	Neuroradio	Yes	General training (variable)
Spain	No	--	No	--	--	--
Sweden	No	--	Yes	Neuroradio, Paed	Yes	4 th – 5 th years of general training and after completion
Switzerland	Yes	?	Yes	Neuroradio, Paed	Yes	5 th year and after general training and after completion
UK*	Yes	5-10	Yes*	All subspecialties	Yes	4 th – 5 th years of general training

* Not recognised for national specialist registration, but for training and practice purposes.

TABLE 5 - NUMBER OF RADIOLOGISTS PER COUNTRY

List of countries	Currently working	In training	Training positions available / yr (unfilled training places)	% practicing exclusively one subspecialty	% practicing general radiology with a special interest in one or two subspecialties
Austria	920	250	35 (no)	< 10%	?
Belgium	1467	205	+/- 40 (yes)	10-15	< 50
Croatia	380	60	~ 10 (no)	15	~ 50
Czech Republic	1300	200	? (yes)	?	?
Denmark	1050	80	20 (yes)	20	50
Estonia	175	22	6-8 (no)	?	100
France	7500	450-500	120-150 (no)	< 10	?
Germany	5000	?	? (no)	< 10	?
Greece	2500	300	?	1	5
Hungary	1200	300	45 (yes)	0.5	15
Ireland	180	75	15 (no)	12	60
Italy	9000	1760	450 (no)	20	40
Latvia	250	23	3 (no)	10	90
Netherlands, The	~1000	~180-200	+/- 40 (no)	< 5	?
Norway	430	170	20 (yes)	10	10
Poland	3000	600	277	10	20-30
Portugal	1000	?	? (yes)	?	?
Romania	~1000	~200	? (no)	?	~10
Russia	16000	?	? (yes)	?	?
Slovakia	550-600	80-100	?	1-3	?
Spain	~3500	720-750	200 (no)	~12	50
Sweden	1200	200	~ 50 (yes)	?	Very common
Switzerland	670	171	~ 35 (yes)	?	?
UK	2161	1118	200 (no)	< 10	70

The following documents can be downloaded from the
EAR website at www.ear-online.org

EAR Annual Report 2005

**European Training Charter for Clinical Radiology,
Detailed Curriculum for the Initial Structured Common
Programme, Detailed Curriculum for Subspecialty Training**

**Radiological Training Programmes
in Europe - Analysis of Survey**

EIBIR Newsletter, November 2005

Teleradiology 2004

Good Practice Guide for European Radiologists

Risk Management in Radiology in Europe

CME / CPD Guidelines

EAR Annual Report 2003 / 2004

Benchmarking Radiological Services in Europe



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