

European Society of Radiology

Publications & Media

Congress
Education
Industry Relations
Membership
Research
Societies



Radiological Training Programmes in Europe

**EAR Education Survey –
Analysis of Results**



**ESR Board**

December 05 – March 07

ESR President

Nicholas Gourtsoyiannis, Iraklion/GR

ESR Vice President

Antonio Chiesa, Brescia/IT

ESR Secretary General

Guy Frija, Paris/FR

ESR Treasurer

Borut Marincek, Zurich/CH

Members:

Andreas Adam, London/UK

Albert L. Baert, Leuven/BE

José I. Bilbao, Pamplona/ES

Lorenzo Bonomo, Rome/IT

Éamann Breatnach, Dublin/IE

Christian J. Herold, Vienna/AT

Gabriel P. Krestin, Rotterdam/NL

Josef Lissner, Munich/DE

Iain W. McCall, Shropshire/UK

Yves Menu, Le Kremlin-Bicêtre/FR

András Palkó, Szeged/HU

Maximilian F. Reiser, Munich/DE

Bruno Silberman, Paris/FR

Malgorzata Szczerbo-Trojanowska, Lublin/PL

Table of Contents

| | |
|--|----------|
| Preface | 1 |
| Introduction | 2 |
| 1. Qualification and Requirements for Entry into Training Schemes | 2 |
| Table 1 | 5 |
| 2. Training Schemes Description | 2 |
| Table 2 | 6 |
| 3. Examinations, Appraisal, and Professional Evaluation | 3 |
| Table 3 | 7 |
| 4. Subspecialty | 3 |
| Table 4 | 8 |
| 5. Number of Radiologists per Country | 3 |
| Table 5 | 9 |
| Conclusion | 3 |

Digital print

Reissued from November 2005

ESR/EAR OFFICE

Neutorgasse 9/2a / AT-1010 Vienna, Austria

Tel +43 1 533 40 64–33 / Fax +43 1 533 40 64–448

office@ear-online.org

www.ear-online.org

© all rights reserved by the
EUROPEAN SOCIETY OF RADIOLOGY (ESR)

Preface

The European Association of Radiology (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.

President

Nicholas Gourtsoyiannis

Vice President

Iain W. McCall

Chairman of Education Committee

Philippe A. Grenier

Executive Bureau of the European Association of Radiology, November 2005

President

Nicholas Gourtsoyiannis

Vice President

Iain W. McCall

Secretary General

Guy Frija

Treasurer

Lorenzo Bonomo

Education

Philippe A. Grenier

Professional Organisation

Bruno Silberman

Research

Gabriel P. Krestin

Subspecialties

José I. Bilbao

National Members

András Palkó

European Radiology

Albert L. Baert

ECR Chairman

Antonio Chiesa

EAR Education Committee 2004

Chairman

Philippe A. Grenier

José I. Bilbao

Lorenzo Bonomo

Adrian K. Dixon

Nicholas Gourtsoyiannis

Apostolos H. Karantanas

Iain W. McCall

Roberto Passariello

Peter M. Pattynama

Bruno Silberman

Andrej Urbanik

Peter Vock



Radiological Training Programmes in Europe

EAR Education Survey – Analysis of Results

2004 – EAR Education Committee

Introduction

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. 5)

In 23 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 14 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. 6)

- 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 24 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 been yet been incorporated in any radiological training programme. Radiation therapy is part of the training programme in only one country.
- 21 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 four countries and a supervisor consultant is available in 16 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. 7)

Final examinations to validate the clinical programme exist in 20 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 18 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. 8)

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 16 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. 9)

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: around 40 %).



Conclusion

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 | Yes | No / No | Yes | Yes (12 months) |
| 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 | Yes (variable length) | Yes | No / No | Yes (50) | Yes (2 nd yr) |
| 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 in addition to the 5th year of training

* One year outside radiology included within 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 → 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 | National | W / MCQ / Oral | Yes (supervising professor) |
| 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 | | 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 | No | -- | No | -- | No | After completion of general radiology |
| Spain | No | -- | No | -- | -- | -- |
| Sweden | No | -- | Yes | Neuroradio, Paed | Yes | 4 th – 5 th years of general training and after completion |
| Switzerland | Yes | 30-45 | 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 | 380 | 230 | No | 3-5 | 10 |
| Spain | ~3500 | 720-750 | 200 (no) | ~12 | 50 |
| Sweden | 1200 | 200 | ~ 50 (yes) | ? | Very common |
| Switzerland | 670 | 171 | ~ 35 (yes) | < 5 | ~75 |
| UK | 2161 | 1118 | 200 (no) | < 10 | 70 |

Publications & Media

V