Maintenance of certification for radiologists: an overview of European countries

Robert M. Kwee¹ and Thomas C. Kwee²*

Abstract

Background: It is currently unclear whether the continuing medical education (CME) requirements for radiologists to keep up their certification are equal across Europe, which would be desirable for uniform cross-border quality of radiology and because of the fundamental principle of free movement of workers in the European Union. This study aimed to determine the maintenance of certification requirements for radiologists in different European countries.

Methods: National radiological societies of European countries and/or their delegates as listed on the European Society of Radiology website were contacted to inquire about the maintenance of licensure requirements for radiologists in their country. Data were analysed using descriptive statistics.

Results: Forty-six European countries were contacted. Response rate was 80%. Twenty-two of 36 responding countries (59%) reported mandatory requirements to maintain a radiologist’s license to practise. The median license period was 5 years (range 1–7). The median required number of CME points per year was 40 (range 8–58, interquartile range 30). Eight countries reported additional requirements, including practising clinical radiology, attending quality meeting/clinical audit, and attending additional courses (such as radiation safety training and advanced medical training course). Fifteen of 37 responding countries (41%) did not report mandatory requirements.

Conclusions: There is considerable heterogeneity across European countries regarding the maintenance of certification requirements for radiologists. More homogeneity is desired for uniform quality assurance and professional mobility of radiologists across Europe. The data from our overview may be used to establish a benchmark for national societies who issue maintenance of licensure requirements for radiologists.

Keywords: Licensure, Education, Continuing, Certification, Radiology
Key points

- Fifty-nine percent of European countries have mandatory requirements to maintain a radiologist’s license to practise.
- In these European countries, radiologists are required to obtain at least 8 up to 58 (median 40) CME credits per year.
- Standardisation of maintenance of certification requirements is desired for more uniform quality and interchangeability of radiologists across Europe.

Introduction

Radiologists have to undergo intensive training and assessment in order to get accredited by pertinent governing bodies [1]. In Europe, radiology training takes on average 5 years (range 2–6 years), whereas subspecialty fellowship training is offered in just over half of European countries [1]. The ESR has defined the training requirements for trainees in radiology [2]. In 2011, the European Society of Radiology (ESR) created the European Diploma in Radiology (EDiR), which serves the standardisation and accreditation of radiologists across European borders [3, 4]. From the times of Hippocrates, medical doctors have taken oaths to keep their knowledge and skills up-to-date [5]. The importance of keeping up with knowledge and new developments is self-evident to maintain an adequate level of patient care. As progress in medicine becomes ever faster, the necessity to update ones knowledge is even greater [5]. This especially holds true for radiology, where new knowledge is being developed at an increasingly rapid rate owing to technological advances [6, 7]. The process of continuing medical education (CME) is a part of every physician’s professional growth, development, and lifelong learning [8, 9]. It aids the radiologist in keeping current with new techniques, procedures, and information [8]. To our knowledge, however, it is not clear yet whether the CME requirements for radiologists to keep up their certification are equal across Europe. Equal CME requirements would be desirable for uniform cross-border quality of radiology and because of the fundamental principle of free movement of workers in the European Union (EU) [10]. Therefore, the purpose of our study was to determine the maintenance of certification requirements for radiologists in different European countries.

Methods

Ethics committee approval was not applicable for this study. This study was driven by personal interest and not an ESR initiative. The authors who analysed and interpreted the data (R.M.K. and T.C.K.) had no conflicts of interest with regard to this study.

Data collection and analysis

National radiological societies of European countries and/or their delegates as listed on the ESR website [11] were contacted by email and asked the following single question: “What are the requirements for a radiologist to keep his/her license to practise in your country (e.g. required continuing medical education [CME] points per which time period, minimum number of working hours, etc.)?” Although some countries are geographically not located in Europe but in Asia, they are all ESR member societies and tend to join the ESR activities. These countries were also included under the umbrella of “Europe at large.” Emails were initially sent out mid-January 2020. In case of no initial response, repeated emails were sent up to two times within 1 month. In our analyses, 1 h of reportedly required educational activity was regarded to correspond to 1 CME credit [12]. Data were analysed using descriptive statistics.

Results

Forty-six European countries were contacted. Contact email addresses of Kyrgyzstan and Moldova were not available. Responses were received from 37/46 national radiological societies of European countries (80% response rate) (Fig. 1), which were included in the analyses. An overview of the responses is displayed in Table 1. Twenty-two of 37 responding countries (59%) reported mandatory requirements to maintain a radiologist’s license to practise. Accordingly, 15 of 37 responding countries (41%) did not report mandatory requirements. The median license period was 5 years (range 1–7). The median required number of CME points per year was 40 (range 8–57.6, interquartile range 30). Eight countries reported additional requirements, including practising clinical radiology, attending quality meeting/clinical audit, and attending additional courses (such as radiation safety training and advanced medical training course) (Table 1).

Discussion

Our overview shows that there is a wide variation with respect to requirements to maintain a radiologist’s license to practise: in 22 of 37 responding European countries, radiologists are required to obtain at least 8 up to 50 (median 40) CME credits per year, whereas in other European countries, radiologists currently keep their license for life without any mandatory CME requirements. Remarkably, such a considerable heterogeneity with regard to certification maintenance has also been reported for other medical specialties [13–16].

In 2006, Bresolin et al. [17] conducted a survey on maintenance of certification in radiology among 34 countries worldwide [17]. At that time, CME was requested for radiologists in 13 of 24 responding countries (54%) and requested under certain circumstances in
another four countries (17%) [17]. Interestingly, one
third of countries failure to meet the requested CME re-
quirements would not lead to loss of licensure or certifi-
cation [17]. It should be noted, though, that there is still
no evidence of a causative link between improved health
care outcomes and either mandatory or voluntary recer-
cification systems [15]. It is difficult to compare the
study by Bresolin et al. [17] to our current study, be-
cause Bresolin et al. [17] did not report how many CME
credits were required per country and because they in-
cluded responses of only 7 European countries (Austria,
Belgium, Germany, Ireland, Romania, Spain, and the
UK) [17]. Nevertheless, our study shows that Belgium,
Germany, Ireland, and the UK currently have mandatory
requirements (minimum number CME credits to be ob-
tained and/or participation in quality improvement types
of programs). This suggests a trend towards an increased
number of European countries with official requirements
to maintain a radiologist’s license to practise. Accord-
ingly, some Scandinavian countries also responded that
they are planning to formalise CME requirements.

Europe can be compared to the USA in terms of size:
both consist of multiple countries (Europe) or states
(USA). However, the requirements for maintenance of
certification for radiologists in the United States of
America (USA) are more uniform than among European
countries. Although every state medical board has
slightly different CME requirements [18], the umbrella
organisation for radiologists in the USA, the American
Board of Radiology (ABR), requires radiologists to attain
75 CME credits every 3 years to satisfy maintenance of
certification. At least 25 of these 75 CME credits must
be from self-assessment CME activities, which are pri-
marily podium presentations with a post-session assess-
ment instrument [19]. In addition, besides having a valid
and unrestricted licensure in all states, radiologists
should pass the ABR’s online longitudinal assessment
and complete at least one practice quality improvement
project or participatory quality improvement activity
every 3 years [19]. All the provinces in Canada have
equal CME requirements for radiologists [20], which is
also the case in Oceania [21]. More uniformity in Europe
would be desirable for uniform radiology quality and
professional mobility of radiologists across European
countries. However, the current systems of licensing and
registration of medical doctors within the EU, which are
controlled by national regulatory bodies, are diverse and
complex [13–16]. The ESR could, similar to the EDiR
initiative [3, 4], play a future leading role to achieve uni-
formity in maintenance of certification for radiologists
across Europe.

Our study has some potential limitations. First, we did
not receive a response from all countries. However, the
response rate of 80% can be considered high [22, 23].
Moreover, even a 100% response rate would not change
the main result. Second, our study presents a current
overview of national regulations, which may change in
the near future. Third, 8 European countries reported
| Country                  | Required number of CME credits | Additional requirements                                                                 | License period | Average CME credits required per year |
|-------------------------|--------------------------------|----------------------------------------------------------------------------------------|----------------|--------------------------------------|
| Albania                 | 250                            | Practising clinical radiology for 40 h per week                                          | 5 years        | 50                                   |
| Austria                 | Unknown (no response)          | Unknown (no response)                                                                   | Unknown (no response) | Unknown (no response) |
| Armenia                 | Unknown (no response)          | Unknown (no response)                                                                   | Unknown (no response) | Unknown (no response) |
| Belarus                 | Unknown (no response)          | Unknown (no response)                                                                   | Unknown (no response) | Unknown (no response) |
| Belgium                 | -6 (required for federal agency for nuclear control, mean 2 per year) -60 (other, of which at least 9 [mean 3 per year] in ethics and economy) | -Attending 2 local quality group meetings per year -Production performance of at least 1.250 “prestaties”** | 3 years        | 22                                   |
| Bosnia and Herzegovina  | 90                             | None                                                                                    | 5 years        | 18                                   |
| Bulgaria                | None                           | None                                                                                    | NA            | NA                                   |
| Croatia                 | 120                            | None                                                                                    | 6 years        | 20                                   |
| Cyprus                  | Unknown (no response)          | Unknown (no response)                                                                   | Unknown (no response) | Unknown (no response) |
| Czech Republic          | None                           | None                                                                                    | Unknown (no response) | Unknown (no response) |
| Denmark                 | None                           | None                                                                                    | NA            | NA                                   |
| Estonia                 | None                           | None                                                                                    | NA            | NA                                   |
| Finland                 | 40 (radiation safety training) | None                                                                                    | 5 years        | 8                                    |
| France                  | None                           | None                                                                                    | NA            | NA                                   |
| Georgia                 | Unknown (no response)          | Unknown (no response)                                                                   | Unknown (no response) | Unknown (no response) |
| Germany                 | 200                            | - Attending 1 radiation safety training per year - Attending 1 refresher course in radiation safety per 5 years | 5 years        | 40                                   |
| Greece                  | None                           | None                                                                                    | NA            | NA                                   |
| Hungary                 | 250                            | Practising clinical radiology without any specific requirements                         | 5 years        | 50                                   |
| Iceland                 | None                           | None                                                                                    | NA            | NA                                   |
| Ireland                 | 50 (minimum 20 external [maintenance of knowledge and skills], minimum 20 internal [practice evaluation and development], minimum 5 personal learning, and a desired 2 in research and teaching) | Attending 1 clinical audit (equals 12 CME credits) | 1 year | 50                                   |
| Israel                  | None                           | None                                                                                    | NA            | NA                                   |
| Italy                   | Unknown (no response)          | Unknown (no response)                                                                   | Unknown (no response) | Unknown (no response) |
| Kazakhstan              | 108 to 216 (depending on the)  | None                                                                                    | 5 years        | 21.6 to 43.2                          |
| Country        | Required number of CME credits | Additional requirements | License period | Average CME credits required per year |
|---------------|--------------------------------|-------------------------|----------------|--------------------------------------|
| Kosovo        | 100                            | None                    | 5 years        | 20                                   |
| Kyrgyzstan    | Unknown (no contact information available) | Unknown (no contact information available) | Unknown (no contact information available) | Unknown (no contact information available) |
| Latvia        | 250 (at least 60% in radiology) | None                    | 5 years        | 50                                   |
| Lithuania     | 120                            | None                    | 5 years        | 24                                   |
| Luxembourg    | None**                         | None                    | NA            | NA                                   |
| North Macedonia | Unknown (no response)     | Unknown (no response)  | Unknown (no response) | Unknown (no response) |
| Malta         | None                           | None                    | NA            | NA                                   |
| Moldava       | Unknown (no contact information available) | Unknown (no contact information available) | Unknown (no contact information available) | Unknown (no contact information available) |
| Montenegro    | 120 (at least 72 in radiology, the number of CME points accumulated in one calendar year may not be less than 10)** | None                    | 7 years        | 17.1                                 |
| The Netherlands | 200 (with a maximum of 50 that can be counted in from continued education provided by other non-imaging medical specialties) | - Practising clinical radiology at least 16 h per week - Participation in individual performance evaluation - Attending 1 clinical audit | 5 years        | 40                                   |
| Norway        | None                           | None                    | NA            | NA                                   |
| Poland        | 25                             | None                    | 1 year         | 25                                   |
| Portugal      | None                           | None                    | NA            | NA                                   |
| Romania       | 200                            | None                    | 5 years        | 40                                   |
| Russia        | 250                            | None                    | 5 years        | 50                                   |
| Serbia        | Unknown (no response)          | Unknown (no response)   | Unknown (no response) | Unknown (no response) |
| Slovakia      | 250****                        | None                    | 5 years        | 50                                   |
| Slovenia      | 75                             | Practising clinical radiology without any specific requirements | 7 years        | 10.7                                 |
| Spain         | None                           | None                    | NA            | NA                                   |
| Sweden        | None                           | None                    | NA            | NA                                   |
| Switzerland   | 150 (at least 50% in radiology) | None                    | 3 years        | 50                                   |
| Turkey        | None                           | None                    | NA            | NA                                   |
| Ukraine       | Unknown (no response)          | Unknown (no response)   | Unknown (no response) | Unknown (no response) |
| United Kingdom | 250                            | None                    | 5 years        | 50                                   |
| Country   | Required number of CME credits | Additional requirements                                                                 | License period | Average CME credits required per year |
|-----------|-------------------------------|--------------------------------------------------------------------------------------------|----------------|--------------------------------------|
| Uzbekistan| 288                           | Attending 1-month training course at the Institute of Advanced Medical Training (equals 144 CME credits) | 5 years        | 57.6                                 |

CME continuing medical education, NA not applicable

*Not strictly compulsory, but gives financial benefits (e.g., higher reimbursement of radiologic examinations)*

**The only exception concerns the national program for breast cancer detection where the radiologists have to read at least 1000 mammograms in this program and do 8 h of CME every year in this specific area**

***If a radiologist earns more than 120 CME points during the license period, he/she may transfer 10 points to the next license period***

****Radiologists can get 100 CME credits for a minimum of 4 years of continuous work in radiology, if less than 4 years, then 25 points for every year completed**
additional requirements besides CME, including practicing clinical radiology, attending quality meeting/clinical audit, and attending additional courses (such as radiation safety training and advanced medical training course), as listed in Table 1. However, it was not possible to provide comparable summary measures of these additional non-CME requirements because of their heterogeneous nature. Nevertheless, they should be taken into account when comparing maintenance of certification requirements among different countries.

In conclusion, our overview shows that there is considerable heterogeneity across European countries regarding the maintenance of certification requirements for radiologists. More homogeneity is desired for uniform quality assurance and professional mobility of radiologists across Europe. The data from our overview may be used to establish a benchmark for national societies who issue maintenance of licensure requirements for radiologists.

Abbreviations
CME: Continuing medical education; EDiR: European Diploma in Radiology; ESR: European Society of Radiology; EU: European Union

Acknowledgements
We thank all national radiological societies of European countries and/or delegates for their cooperation.

Authors’ contributions
Both authors contributed to the preparation of the manuscript. Both authors read and approved the final manuscript.

Funding
None.

Availability of data and materials
Available on request.

Ethics approval and consent to participate
Not applicable.

Consent for publication
Consent for publication was obtained.

Competing interests
None.

Author details
1 Department of Radiology, Zuyderland Medical Center, Heerlen/Sittard/Geleen, The Netherlands. “Department of Radiology, Medical Imaging Center, University Medical Center Groningen, University of Groningen, Hanzeplein 1, P.O. Box 30.001, 9700 RB Groningen, The Netherlands.

Received: 29 May 2020 Accepted: 2 July 2020 Published online: 17 July 2020

References
1. Rehani B, Zhang YC, Rehani MM et al (2017) Radiology education in Europe: analysis of results from 22 European countries. World J Radiol 9:55–62
2. European Society of Radiology: Revised European Training Curriculum for Radiology. Available via https://www.myesr.org/sites/default/files/ESR_2016_ESR-EuropeanTrainingCurriculum_LEVEL_I%2BII_Edition_March_2016.pdf Accessed 14 Jun 2020
3. European Board of Radiology (EBR) (2018) The European Diploma in Radiology (EDiR): investing in the future of the new generations of radiologists. Insights Imaging 6:905–909
4. European Board of Radiology. Available via https://www.myesr.org Accessed 10 Mar 2020
5. European Union of Medical Specialists. Areas of expertise. CME - CPD: Continuing Medical Education & Professional Development. Available via https://www.uems.eu/areas-of-expertise/cme-cpd Accessed 10 Mar 2020
6. European Society of Radiology 2009 (2010) The future role of radiology in healthcare. Insights Imaging 1:2–11
7. Hong SJ, Yoon DY, Lim KI et al (2019) Radiological clinical practice guidelines published in the last decade: a bibliometric analysis. J Belg Soc Radiol 103:37
8. Steeves LC (1965) The need for continuing medical education. Can Med Assoc J 92:758–761
9. Davis LP, Olkin A, Donaldson SS (2005) Continuing medical education in radiology: a glimpse of the present and of what lies ahead. J Am Coll Radiol 2:328–343
10. European Commission. Employment, Social Affairs & Inclusion. Working in another EU country. Free movement - EU nationals. Available via https://ec.europa.eu/social/main.jsp?catId=457 Accessed 10 Mar 2020
11. European Society of Radiology. Institutional Member Societies. Available via https://www.myesr.org/about/organisation/institutional-member-societies Accessed 10 Mar 2020
12. European Society of Radiology: Publications & Media. CME/CPD guidelines. Available via https://www.myesr.org/sites/default/files/ESR_brochure_03_0.pdf Accessed 10 Mar 2020
13. Solé M, Panteli D, Risso-Gill I et al (2014) Do medical doctors in the European Union demonstrate that they continue to meet criteria for registration and licencing? Clin Med (Lond) 14:633–639
14. Kovacs E, Schmidt AE, Szocska G, Busse R, McKee M, Legido-Quigley H (2014) Licensing procedures and registration of medical doctors in the European Union. Clin Med (Lond) 14:229–238
15. Sebastian C, Balzan M, Bennett J, Prior Filipe H, Thinggaard E, Smeenk F (2018) “Certified . . . now what?” On the challenges of lifelong learning: report from an AMEE 2017 symposium. J Eur CME 7:1428025
16. Sebastian C, Govaerts M, Mitchell S, Rohege GGU, Smeenk FWJM, Driessen EW (2018) Doctors on the move: a European case study on the key characteristics of national recertification systems. BMJ Open 8:e019963
17. Bresolin L, McCloud TC, Becker GJ, Kwakwa F (2008) Education techniques for lifelong learning: international variations in initial certification and maintenance of certification in radiology: a multinational survey. Radiographics 28:13–20
18. BoardVitals. Continuing medical education: CME state requirements. Available via https://www.boardvitals.com/blog/cme-requirements-by-state Accessed 10 Mar 2020
19. American Board of Radiology. Maintenance of Certification for Diagnostic Radiology. Available via https://www.theabr.org/diagnostic-radiology/maintenance-of-certification Accessed 10 Mar 2020
20. Royal College of Physicians and Surgeons of Canada. The Maintenance of Certification Program. Available via https://www.royalcollege.ca/rcsite/cpd/maintenance-of-certification Accessed 14 Jun 2020
21. The Royal Australian and New Zealand College of Radiologists. Clinical Radiology CPD Handbook 2019-2021. https://www.ranzcr.com/fellows/general/cpd-overview Accessed 14 Jun 2020
22. Cho YL, Johnson TP, Vangeest JB (2013) Enhancing surveys of health care professionals: a meta-analysis of techniques to improve response. Eval Health Prof 36:382–407
23. Dykema J, Jones NR, Piché T, Stevenson J (2013) Surveying clinicians by general/cpd-overview Accessed 14 Jun 2020
24. Kwee and Kwee Insights into Imaging 2019 (2019) Analysis of results from 22 European countries. World J Radiol 9:55–62
25. Kwee S, Kwee T (2016) Insights into Imaging 2016. Analysis of results from 22 European countries. World J Radiol 9:55–62