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## An evaluation of the educational requirements to practise radiography in the European Union

J.G. Couto <sup>a,\*</sup>, S. McFadden <sup>b</sup>, P. Bezzina <sup>a</sup>, P. McClure <sup>c</sup>, C. Hughes <sup>b</sup>

<sup>a</sup> Radiography Department, University of Malta, Malta

<sup>b</sup> Institute of Nursing and Health Research, Ulster University, United Kingdom

<sup>c</sup> School of Health Sciences, Ulster University, United Kingdom

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## ABSTRACT

**Introduction:** Radiography is practised world wide, however, the definition of the profession varies across countries. As there is no regulation of the profession or education at EU level, different national regulations might result in educational differences that can compromise the movement of professionals or the safety of patients. The aim of this study was to identify the commonalities and discrepancies in national regulation of radiography.

**Methods:** National competent authorities from all EU countries where the profession is regulated (n = 27) were invited to identify the legal requirements to practise radiography and the data was analysed using thematic analysis.

**Results:** One country does not regulate the profession in the EU. Although, a single profession is regulated in 83% of the cases, 21% regulate separate professions for different specialisms (diagnostic radiography, radiotherapy and nuclear medicine). All countries (n = 27) define education as requirement to practise, however, the academic level varies from secondary school to Master's degree with required programmes varying from 2 to 4 years and from 120 to 240 ECTS. In addition, the subjects covered in the education programme showed great heterogeneity. These subjects were not identified by 35% of the respondents (n = 23) and only 26% define the subjects in terms of competencies.

**Conclusion:** Education is a requisite to practise all over the EU, however, the lack of EU-wide regulation leads to a variation of national regulations. These differences may lead to inhomogeneity of competencies being developed, compromising the movement of professionals across Europe and patient safety.

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### Introduction

Radiographers are professionals practising world wide,<sup>1</sup> however their training and practice varies as a result of different national traditions.<sup>2,3</sup> Three traditional educational models influenced structural organisation and values of higher education across Europe, these are the Humboldtian, Napoleonic and Anglo-Saxonic models. They vary in several aspects including professionalising

versus research-driven programmes; or strongly regulated curricula versus freedom of contents being taught.<sup>3</sup>

These educational traditions were spread across Europe, however, in each country, changes were made to the model in order to cater for national needs,<sup>2</sup> creating a variety of different educational systems and diversity in professional identity. Although there is political pressure to standardise education across the EU (e.g. the Bologna process, ERASMUS programmes, recognition of qualification between EU countries) to facilitate the free market of professionals,<sup>2,4–6</sup> there is still no European regulation for radiographers.<sup>4</sup> This leads to different national regulations and consequently different education of these professionals as a consequence of specific national needs.<sup>1,7,8</sup>

### Aims

Despite these differences, in the context of EU legislation, a graduate should be able to practise the profession in another EU

**Abbreviations:** EC, European Commission; ECTS, European Credit Transfer and Accumulation System; EFRS, European Federation of Radiography Societies; ESTRO, European Society for Radiotherapy and Oncology; EU, European Union; EQF, European Qualifications Framework; HENRE, Higher Education Network for Radiography in Europe; ISRRRT, International Society of Radiographers and Radiological Technologists; KSC, Knowledge, Skills and Competences; RPD, Regulated Professions Database; RTT, Radiation Therapist.

\* Corresponding author. Radiography Department, Faculty of Health Sciences, University of Malta, Msida, MSD2080, Malta. Fax: +356 2340 1846.

E-mail address: [Jose.g.couto@um.edu.mt](mailto:Jose.g.couto@um.edu.mt) (J.G. Couto).

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country as long as certain criteria are achieved.<sup>4</sup> These criteria are dependent on national regulations.<sup>4</sup> In view of this, the aim of the study is to understand the differences in regulation of these professions at national level across the EU with regards to academic requisites to practise the profession and discuss the implication of the results in the recognition of qualifications between member-states.

## Literature review

Literature on regulation of radiography and publications discussing radiography educational programmes are scarce.<sup>7,9,10</sup> In view of this, the main source of information was grey literature including legislation (national and EU level), reports, guidelines, documents issued by professional associations amongst others.

### Professional title and identity

The choice of the title of “radiographer” in this work is due to the fact that the research team is established in countries where this is the official title for these professionals. Each regulated profession is identified by their title, which will identify the individuals that feature certain characteristics, including: knowledge, autonomy and authority<sup>11–14</sup> and society recognises the holder of the title as rightful to practise a determined role/tasks when they hold a recognised credential.<sup>12,15,16</sup> Since the EU recognition of qualifications allows incoming professionals to use the title of the destination country,<sup>4</sup> it is legally acknowledging that the incoming individuals have the same characteristics as those trained in the country.

Literature discussing titles is mainly published by professional associations, who identify different titles: “Diagnostic Radiographer” and “Therapy Radiographer”,<sup>17</sup> “Radiation Therapist” (RTT)<sup>18</sup> or “Nuclear Medicine Technologist”.<sup>19</sup> Further titles are identified by world wide associations (e.g. “Radiological Technologist”).<sup>1,20</sup> The titles vary across the EU, with some countries identifying more than one title for different specialisms.<sup>17</sup>

The European Commission (EC) established a Regulated Profession Database (RPD) which aggregates these professions under the generic title of “Radiographer/Radiotherapist”,<sup>21</sup> distinguishing only the “Nuclear Medicine Technologist”.<sup>22</sup> The RPD identifies the professions that are regulated at national level, the main characteristics of the profession, the competent authority for the profession and a contact point responsible for recognition of qualifications.

Professional identity is understood as the integration of education and training into personal attitudes<sup>23</sup> where three components are identified: “self-labelling as a professional” that is influenced by the individual’s perception of the profession, “integration of skills and attitudes as a professional” that depends on the education provided, and “a perception of context in a professional community” (p. 21).<sup>24</sup> All these components might be different from country to country depending on how the profession and education is regulated.

### Mutual recognition of qualification in the EU

The criteria to achieve recognition of qualifications through the 2005/36/EC directive includes that the profession must be regulated in both countries (home country and host country) and the education level can be a maximum of one level lower than the destination country – Article 13 (1.b). The levels are defined as follows (Article 11)<sup>4</sup>:

- Level 1: General primary or secondary school.
- Level 2: Technical or professional secondary course.

- Level 3: Post-secondary course of at least 1 year.
- Level 4: Post-secondary course of at least 3 years.
- Level 5: Post-secondary course of at least 4 years.

Article 7 (4) of 2005/36/EC directive also states that for professions with an impact on the population health or safety, the professional qualifications of the applicant must comply with the requisites to practise in the host country.<sup>4</sup>

### Educational structures in Europe

The European Federation of Radiography Societies (EFRS) survey of education institutions<sup>25</sup> brought to light differences in education across Europe. Results were obtained from 46 institutions (public and private) from 21 countries (18 EU member states). Most institutions offer a bachelor degree but a variety of combinations of specialisms were found in the survey: from single specialism to different combinations of diagnostic, therapeutic and nuclear medicine. The duration of the programmes varied from 3 to 4 years with most respondents identifying a corresponding 60 ECTS (European Credit Transfer and Accumulation System) per year with a range of 25–30 h’ workload per ECTS. Although the results showed a lack of homogeneity regarding curricula structure, an increase in the use of European Qualifications Framework (EQF) recommendations by the educational institutions was observed in comparison with the Higher Education Network for Radiography in Europe (HENRE) survey.<sup>7,26,27</sup> An even greater difference can be found world wide, as revealed by the survey undertaken by the International Society of Radiographers and Radiological Technologists (ISRRT).<sup>1</sup> The European Society for Radiotherapy and Oncology (ESTRO) also identified educational differences for the Radiation Therapist (RTT) based on the results of questionnaires circulated for the development of the benchmark document<sup>28</sup> and core curriculum<sup>29</sup> for these professionals. In addition, ESTRO is currently conducting a survey on education for all Radiotherapy professions. However, none of these studies focused on the regulation of radiography across the EU.

### European qualifications framework (EQF)

The *Recommendation of the European Parliament and of the Council on the establishment of the European Qualifications Framework for lifelong learning* defines that the learning outcomes to be achieved by the students should be written in terms of Knowledge, Skills and Competencies (KSC) and that the academic level achieved is classified according to the level at which the KSC is developed. The EQF framework, from EQF1 (lower level) to EQF8 (PhD),<sup>30</sup> aims to facilitate recognition of European Union citizens’ education across states, promoting the movement of professionals inside the EU. Although it is a non-binding document,<sup>30</sup> it has been used by educational institutions in their programme design<sup>7,27</sup> and professional associations in benchmark documents<sup>20,28,31</sup> but the use of this framework in regulation of these professionals was never studied.

## Methodology

A descriptive cross-sectional, non-experimental, qualitative methodology was used in this study, performed through document analysis. Exhaustive sampling was used where all EU countries were included in the study. All the national “competent authorities” and the “contact points” were included, while the non-EU countries or member-states where the profession is not regulated were excluded. The national competent authorities and contact points were identified through the RPD and contacted (email and letter)

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