



Original article

Postgraduate education in internal medicine in Europe

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ABSTRACT

Background: Limited information exists on the framework and content of postgraduate education in internal medicine in Europe. This report describes the results of a survey of postgraduate training in internal medicine in the European countries.

Methods: Two online questionnaire-based surveys were carried out by the European Board of Internal Medicine, one on the practice of internists and the other on postgraduate training in internal medicine. The national internal medicine societies of all 30 member countries of the European Federation of Internal Medicine were invited to participate. The responses were reviewed by internal medicine residents from the respective countries and summaries of the data were sent to the national societies for approval. Descriptive analysis of the data on postgraduate training in internal medicine was performed.

Results: Twenty-seven countries (90%) completed the questionnaire and approved their datasets. The length of training ranged from four to six years and was commonly five years. The majority of countries offered training in internal medicine and a subspecialty. A common trunk of internal medicine was frequently a component of subspecialty training programmes. Hospital inpatient service was the predominant setting used for training. A final certifying examination was in place in 14 countries.

Conclusion: Although some similarities exist, there appear to be significant differences in the organisation, content and governance of postgraduate training in internal medicine between the European countries. Our findings will prove invaluable for harmonisation of training and qualification in internal medicine in Europe.

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1. Introduction

Internal medicine has been referred to as the cornerstone of the health care system in Western societies [1]. Internists play a major role in the diagnosis and management of acute and chronic medical disorders of adults. A wide spectrum of knowledge and skills equips the internist with the necessary tools to provide comprehensive care to

patients with multiple chronic conditions, which are so frequently observed in the elderly population. However, in many countries in Europe the fundamental role of internists has been supplanted by physicians practicing a subspecialty of internal medicine. The medical care provided by subspecialists has been criticised for being fragmented [2,3]. In recent years, the migration of physicians has become more common with the growing influence of the European Union [4]. European regulations and directives have been created to facilitate this development with mutual recognition of diplomas and specialist examinations between member nations (Directive 2005/36/EC of the European Parliament and of the Council, 7 September 2005, on the recognition of professional qualifications). The requirements for qualification and certification differs among countries and information on these differences is not readily available. This could potentially cause problems when certified internists move to a new country within the European Union and are expected to be competent in a number of

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tasks for which they have not received proper training. Hence, the coordination of postgraduate medical education and qualification in Europe has become more important than ever before.

In the past, qualification in internal medicine and other medical specialties has largely been determined by the time spent on training. Recently, it has become increasingly recognised that trainees must demonstrate adequate clinical competence. Reform of training programmes to meet these requirements have already been made in several European countries, including the United Kingdom [5] and the Netherlands [6]. New competency-based curricula have been developed and methods of assessment have been revised [7–10]. The European Board of Internal Medicine is devoted to promoting postgraduate training and qualification in internal medicine in Europe. The core competencies of the internist have already been defined [11] and current work focuses on characterising additional competencies. A European Board guidance for training centres in internal medicine was recently issued [12]. Finally, a European Board examination in internal medicine was introduced but failed due to poor attendance [13].

Published information on postgraduate training in internal medicine in Europe is very limited [14]. This is somewhat surprising in view of the extensive literature covering this area in the United States [8,10,15]. A report from Turkey published in this Journal [16], brought attention to challenges which are likely to be shared by other European countries such as the conflict between service and education and the lack of an effective national accreditation body. This report describes the results of a survey of the organisation and governance of postgraduate education in internal medicine in the European countries, carried out by the European Board of Internal Medicine.

2. Materials and methods

In 2008 and 2009, the European Board of Internal Medicine, which is formed jointly by the European Federation of Internal Medicine (EFIM) and the European Union of Medical Specialists (UEMS) Section of Internal Medicine, launched two online questionnaire-based surveys of internal medicine in Europe. The first survey focused on the practice of internists and their role within the health care system, and the other on postgraduate training in internal medicine. A detailed description of the design and organisation of the surveys and data collection and verification is provided in the report of the survey of the practice of internists in Europe [17]. In this paper, the results from the survey of postgraduate training in internal medicine are reported.

2.1. Outline of the survey of postgraduate training in internal medicine

- Part 1. General issues
- Part 2. Curriculum
- Part 3. Assessment and certification

The following specialties were considered subspecialties of internal medicine: allergy and immunology, angiology (vascular medicine), cardiology, endocrinology and metabolism, gastroenterology and hepatology, geriatrics, haematology, infectious diseases, nephrology, medical oncology, respiratory medicine and rheumatology. These subspecialties were selected as they are recognised in most European countries. However, it should be noted that other subspecialties exist in some countries, for example clinical pharmacology, sleep medicine and palliative medicine.

All 3 parts of the survey were launched on 5 May 2009. The survey can be viewed as supplemental materials online at www.ejim.org.

2.2. Data analysis

The European Board of Internal Medicine Competencies Working Group examined and analysed the data. The data were exported into a Microsoft Excel® spreadsheet and descriptive analysis performed. The

data are reported as percent, mean, or median and range. The percentages are rounded off to the nearest whole number. In the presentation of the data, the number of actual responses to each question is used as the denominator for calculation of percentages.

3. Results

Twenty-eight national internal medicine societies completed the questionnaire on postgraduate training, providing a response rate of 93%, and 27 countries (90%) approved their dataset and were included in the analysis. The response rate for individual questions averaged 85% (range, 30 to 100%).

3.1. Entry and application to postgraduate training programmes

Entry of medical graduates into internal medicine training programmes was on attainment of a medical degree in 12 countries (12/27, 44%) and following basic postgraduate training in 11 (41%), usually a 1 or 2 year internship which was obligatory in most cases. Application for internal medicine training programmes was at the national level in 16 of the 24 countries (67%) that responded to this question and locally in 8 countries (8/24, 33%). Selection of trainees was through an examination in 12 countries (12/27, 44%) and/or an interview in 17 countries (17/27, 63%). A sufficient number of posts for all internal medicine applicants were available in 48% (13/27) of the countries in Europe, but there was a serious shortage (>50%) of training posts in Greece, Italy, Romania and Slovenia. After acceptance into a training programme, the entire training required for specialty qualification could be completed at the same institution in 17 countries (17/27, 63%).

3.2. Duration of training

All but one of the 27 countries offered training in the specialty of internal medicine, the exception being Denmark where internal medicine has not been considered an official specialty since 2004, when a reform of postgraduate training in the medical specialties occurred. The length of training ranged from 4 to 6 years and was 5 years in more than half of the countries (16/27, 59%). Twenty-two countries (22/25, 88%) offered combined training in internal medicine and a subspecialty, while this was not an option in Lithuania, Portugal and Spain. In such training programmes, a median of 4 years (range, 2–6 years) were spent on internal medicine (Fig. 1a) and 3 years (range, 1–5 years) on the subspecialty (Fig. 1b). In most countries that responded to this question (18/21, 86%), the training programmes in internal medicine and a subspecialty were completed consecutively. The exceptions were Ireland, Israel, and the United Kingdom, where the training programmes were run concurrently. In France, Portugal and Spain, qualification as a specialist in internal medicine required 5 years of training and was usually not followed by subspecialty. In the Netherlands, only internal medicine was officially recognised as a medical specialty, whereas subspecialty training was considered added qualification that was only acknowledged by professional societies. In Germany, the training structure had recently been changed to the requirement of a 3-year common trunk in internal medicine for those who wish to become subspecialists, with 3 additional years of subspecialty training. Iceland was the only country that did not offer postgraduate education in the subspecialties of internal medicine which, therefore, had to take place abroad. Eighteen countries (18/26, 69%) incorporated a common trunk of internal medicine as a component of postgraduate education in the subspecialties. Austria, Estonia, Finland, France, Poland, Spain and Turkey did not offer a common trunk and subspecialty training was not available in Iceland. In the countries lacking a common trunk, some internal medicine was usually a feature of the subspecialty training programmes. The duration of the common trunk ranged from 1 to 4 years with an average of 2.1 years.

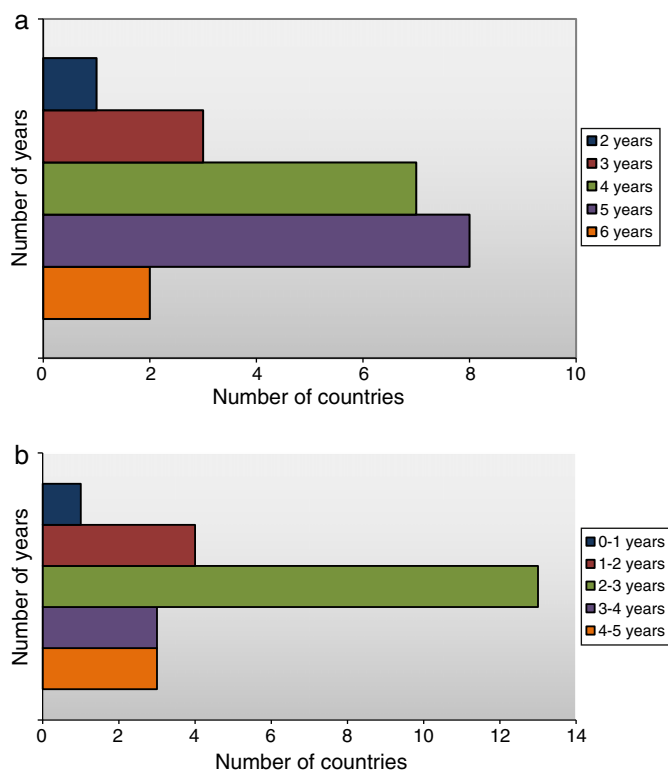


Fig. 1. a. Number of years spent on internal medicine in combined training programmes in internal medicine and a subspecialty. b. Number of years spent on a subspecialty in combined training programmes in internal medicine and a subspecialty.

3.3. Curriculum and educational activities

There was a formal curriculum for specialty education in internal medicine in 22 of 26 countries (85%) that responded to this question. A curriculum was lacking in Belgium, Greece, Iceland and Israel. The national societies were responsible for the curriculum in 18 countries (18/23, 78%), whereas the Ministry of Health was closely involved in 6 countries (6/23, 26%). The internal medicine training programmes included subspecialty rotations in all 25 countries (100%) that responded, which in some cases were mandatory (Fig. 2). While a rotation in geriatric medicine was an option in many countries, it was only compulsory in France, Iceland and Turkey. However, most programmes did not define a detailed training schedule. Table 1 shows the clinical setting used for training. Inpatient service was the main setting used in most countries and the majority of patients were admitted with acute illness.

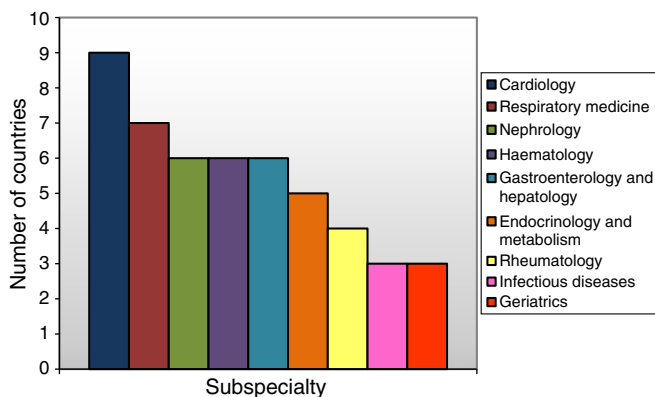


Fig. 2. Subspecialty rotations in internal medicine training programmes. Shown are subspecialties which are mandatory in some European countries.

Table 1
Learning environment in internal medicine training programmes.

| Clinical setting and assignments | Percent or number of countries (%) |
|--|------------------------------------|
| Proportion of time spent on inpatient care | 86% ^a |
| Proportion of ward patients classified as acute admissions | 75% ^b |
| Rotation in the intensive care unit required | 21 countries (100%) ^c |
| Rotation in the emergency ward required | 18 countries (86%) ^c |
| On-call duties required | 24 countries (89%) ^a |

^a All 27 countries responded to this item.

^b 26 of 27 countries responded to this item.

^c 21 of 27 countries responded to this item.

Intensive care medicine was either an obligatory or strongly recommended component of internal medicine training programmes in most countries with the average duration being 3.6 months (range, 2–6 months). A rotation in the emergency ward, averaging 4.4 months (range, 1–12 months), was included in more than half of the countries. On-call duties during nights and weekends were required for completion of specialty training in internal medicine in all countries except Belgium, Germany and Italy. The average number of days per month for on-call duties was 4.6 (range, 2–8 days).

The type of supervised clinical work and learning opportunities available to internal medicine trainees is outlined in Table 2. An average of 4.3 h (range, 0–10 h) was devoted to formal teaching each week, although this varied widely between institutions within the same country. In addition, internal medicine trainees were granted official study leave in 20 countries (20/26, 77%), for a median of 11 days (range, 3–30 days) per year in 15 of the 20 countries (75%) that responded to this question. In several countries, regional or national educational conferences or symposia were organised for internal medicine trainees every year. It was common for internal medicine trainees to undertake research in 19 countries (19/27, 70%) and this was obligatory in 8 countries (8/27, 30%). There were examples of trainees spending up to one year on research in several countries, including France, Ireland, Lithuania, the Netherlands and the United Kingdom. Research was important for obtaining a permanent post upon completion of training in 19 countries (19/20, 95%), particularly in university hospitals.

The estimated number of hours that internal medicine trainees in Europe worked each week was 47.3 on average (range, 35–72 h). There was a limitation on the number of working hours in 23 countries (23/27, 85%). Half of the 18 countries that responded to this question, stated that the limitation of hours was generally adhered to. The 4 countries that reported no working time limit were Ireland, Israel, Norway and Turkey.

3.4. Assessment and qualification

Trainees in internal medicine were assessed through formal examinations and reports from supervisors (Table 3). Assessments were commonly made at the conclusion of training but some countries conducted periodic assessments, including Finland, Iceland, Italy, the Netherlands and Spain. Trainees were expected to achieve competence in performing certain procedures in all countries except Finland,

Table 2
Supervised clinical activities and learning opportunities in internal medicine training programmes.

| Type of supervised clinical activity and learning opportunity | Number of countries (%) |
|---|-------------------------|
| Teaching rounds | 27 (100%) |
| Supervised outpatient care | 18 (67%) |
| Audit meetings | 9 (33%) |
| Morbidity and mortality rounds | 12 (44%) |

All 27 countries responded to each of these items.

Table 3
Methods of assessment in internal medicine training programmes.

| Type of assessment | Number of countries (%) |
|--|-------------------------|
| Report from supervisors | 24 (89%) ^a |
| Formal examinations during training | 21 (78%) ^a |
| Ascertainment of competence in performing procedures | 23 (89%) ^b |
| Certifying examination at completion of training | 14 (67%) ^c |

^a All 27 countries responded to this item.

^b 26 of 27 countries responded to this item.

^c 21 of 27 countries responded to this item.

Iceland, Israel and Romania. Trainees had to pass a final examination to become a certified specialist in 14 of 21 countries (67%) that responded to this question. There were other specific requirements in individual countries, for example comprehensive assessment 12 months before completion of training aimed at identifying any outstanding areas in the United Kingdom and Ireland, and an elaborate portfolio that included all formal assessments in the Netherlands.

3.5. Governance

Only 9 countries responded to the question “Which authoritative body was responsible for postgraduate medical education?” and of those, 8 (89%) reported universities as carrying this responsibility. In the Netherlands and the United Kingdom, this role belonged to a postgraduate institute. In some countries, the governance of postgraduate training varied between regions. In Germany, for instance, there are 15 states, each of which had its own board responsible for overseeing and regulating the training of physicians. In Greece, the Ministry of Health was responsible for the training programmes, examination and certification for all medical specialties. In Latvia, specialty certification required documentation of completion of training from the Latvian Medical Association. In 7 out of 17 countries (41%) that responded, medical chambers run by the profession ascertained specialist qualification and issued a diploma. In the remaining countries, specialist diplomas were issued by a national authority.

4. Discussion

The results of the survey of postgraduate education in internal medicine in Europe demonstrate some similarities as well as significant differences in the framework, content and governance of training between individual countries. The length of internal medicine training was broadly comparable, averaging 5 years. Most countries offered training in internal medicine followed by a subspecialty, and a common trunk of internal medicine was required for training and qualification in the subspecialties in the majority of countries. Hospital inpatient service was the predominant setting used for training.

Even though it was common for physicians in many European countries to train in both internal medicine and a subspecialty, in several countries, including France, Portugal and Spain, internal medicine was still a dominant specialty requiring 5 years of training which are usually not followed by a subspecialty. Moreover, the requirement of a 2- or 3-year common trunk of internal medicine in subspecialty training programmes in many countries in Europe reflects the necessity to ensure a broad competence of these physicians. Thus, the promotion of a common trunk by professional organisations [18,19] appears to have gained momentum.

A formal curriculum for postgraduate training in internal medicine was in place in most European countries and the national internal medicine societies were frequently responsible for its content. Interestingly, inpatient service remained the main setting used for training in internal medicine with only about 15% of the time devoted to ambulatory care. This suggests that recent changes in medical practice and hospital

services aimed at avoiding inpatient admissions, increased patient flow and a reduced length of stay [20] have not been accompanied by a reform of training programmes. Inpatient rotations have traditionally been the main feature of internal medicine training. One possible explanation for limited exposure to ambulatory care is that internal medicine is predominantly a hospital specialty. This notion is supported by our survey of the practice of internists [17], demonstrating that the majority of internists are hospital-based. This trend is best exemplified by the development of acute medicine as a separate subspecialty in the United Kingdom [3].

The survey showed that rotations in emergency medicine and intensive care medicine were common features of internal medicine training programmes and that on-call duties during nights or weekends were required for completion of training in the majority of the countries. These assignments must be considered important components of modern training programmes in internal medicine. It is noteworthy that while rotations in the subspecialties of internal medicine were commonly a feature of training programmes, a rotation in geriatric medicine was mandatory in only 3 countries. Future internists will undoubtedly play a major role in providing comprehensive care to the rapidly growing ageing population which is frequently affected by multiple chronic conditions and polypharmacy. In fact, this monumental task may require contribution from the entire internal medicine workforce, including subspecialists. Therefore, it is important that all internal medicine trainees receive adequate training in geriatric medicine with emphasis on interdisciplinary team approach and multidimensional assessment, using standardised tools to evaluate key domains such as functional status, cognitive ability, medication use and social support [21,22]. It could be argued that more emphasis should be placed on outpatient medicine and chronic disease management which would be in line with current trends in health care delivery.

In addition to supervised clinical work, some formal learning activities occurred each week in most training programmes although the magnitude appeared quite variable, even within the same country. Furthermore, trainees in many countries got time off for a study leave. Learning activities generally did not appear to be well defined, however. The minimum requirement of formal teaching should be defined and preferably should comprise a variety of methods such as lectures, problem-based sessions and self-assessment study modules. In addition, it was common for internal medicine trainees to undertake research and this was compulsory in some countries. Unfortunately, there was a tendency for service demands to dominate over the educational needs of trainees. This calls for improvement as a proper balance between clinical work and educational activities is an essential feature of postgraduate training programmes in internal medicine.

The European Working Time Directive has reduced the number of hours that internal medicine trainees work. The overwhelming majority of European countries had a working hour limit in place though only half of the countries adhered to the limit. It may be a challenge to provide the necessary patient exposures within the confines of the working time limit in order to ensure adequate clinical experience. Hence, relying solely on the duration of training for qualification may be even less reliable than in the past. Recent emphasis on competency-based postgraduate medical education rather than the traditional time-based approach may facilitate overcoming this obstacle [7–10]. In fact, well-defined competencies should be a fundamental component of all postgraduate training programmes in internal medicine and trainees should be assessed with respect to these competencies. One option would be a common competency-based core curriculum in Europe with additional features relevant to clinical practice in individual countries. The Spanish Society of Internal Medicine has recently proposed a series of competencies for the European internist [23]. Such initiative by individual countries is an important contribution to the harmonisation process that has been advocated by professional internal medicine organisations in Europe [11].

There appears to be a considerable diversity in assessment instruments used in training programmes across Europe. The assessment methods most commonly used were formal examinations and reports from supervisors but competency-based assessment was scarce. Assessment of a broad range of competencies may prove useful for determining the qualification of graduates of training programmes in internal medicine. The Netherlands [9] and the United Kingdom [24] have developed advanced assessment systems which are based on defined competencies and are used for thorough evaluation of trainees prior to completion of training. A final certifying examination was in place in the majority of countries that responded to this question. Examinations remain an important assessment strategy in many countries. However, examinations have been a constant matter of debate, including whether attendance should be voluntary or obligatory. The key attributes of a satisfactory trainee relate to knowledge, skills and attitudes. While skills and attitudes can be measured by assessment of clinical performance, examinations remain the best way to assess knowledge. In spite of a previous failed attempt to establish a common European examination in internal medicine [13], we believe that such examination would be an important component in the harmonisation of the qualification of internists in Europe. Unfortunately, European examinations in the medical specialties have been criticised for not bearing any legal status and for not being recognised in individual countries in Europe [25].

The low response rate to the questions related to supervision of postgraduate medical education may suggest that governance is poorly developed in many European countries. Universities were responsible for postgraduate training in several countries but it is unclear if this reflects responsibility toward individual training programmes or overseeing postgraduate medical education in a region or a country. A national authority or a professional body, most frequently the Ministry of Health, issued a specialist certificate in most of the countries that responded. The governance of postgraduate medical education should be the responsibility of a national authority with support from academic institutions and professional societies, with the latter bodies contributing heavily to the content of the training programmes.

This survey is important as it is the first attempt to generate information on postgraduate education in internal medicine in Europe. Such information has become particularly important because increasing migration of physicians between countries in Europe has called for coordination of postgraduate training and qualification of physicians. However, the survey is associated with several notable limitations. The responses to the questionnaire were not based on information generated by systematic inquiry but rather the general knowledge of leaders of national internal medicine societies. In addition, there may be regional differences within countries in the organisation and governance of training programmes but it is unlikely that these will have had a significant impact. The contribution of the internal medicine trainees was useful as it enabled us to verify ambiguous responses from the national societies. Despite the limitation of the methodology, we believe that the information on postgraduate internal medicine training in the European countries is reasonably accurate. It could be viewed as a downside that 4 years have passed since this survey was launched as changes may have occurred since then. A considerable part of this time was spent on completing and verifying the datasets that were approved by the national societies in 2011. Thus, we believe that the survey provides a fairly good picture of the current situation in each country.

In conclusion, there appear to be some similarities as well as significant differences in the structural framework, content and governance of postgraduate training in internal medicine between individual countries in Europe. Harmonisation of the curriculum of training programmes and the requirements for specialty qualification in internal medicine in Europe would be highly desirable. The data generated by this survey will prove valuable for this important mission.

Learning points

- The length of internal medicine training in the European countries ranges from 4 to 6 years and is commonly 5 years.
- A 2- or 3-year common trunk of internal medicine is a component of subspecialty training programmes in most countries in Europe.
- Hospital inpatient service remains the predominant setting used for training in internal medicine in Europe.
- A final certifying examination is in place in approximately half of the countries in Europe.
- It should be feasible to harmonise training and qualification in internal medicine in Europe as has been proposed by professional organisations in recent years.

Conflict of interests

The authors state that they have no conflicts of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.ejim.2013.08.006>.

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