



CHAPTER 4

MEDICAL EDUCATION AND TRAINING

The HERMES initiative aims to develop a range of consensus documents for the education and training of respiratory specialists, with the objective of harmonising and standardising this education and training, and thus medical practice and care, across Europe.

Fast-moving societal and technological changes in the 21st century are reshaping the medical profession. These trends will particularly impact on respiratory medicine, and it is crucial that the respiratory community keeps pace with these changes.

The demands upon healthcare systems are increasing, partly due to increasing longevity and partly due to the increased expectations of the patients and the public. Healthcare costs are rising in almost all countries, and governments will increasingly struggle to meet them (see also Clinical care chapter). Patients already have considerable access to medical information of variable quality from the internet, and this will increase further.

The volume of medical knowledge increases steadily, as does the range and complexity of treatment options. It will therefore be essential that doctors and other care professionals of the future have the skills to keep up to date in their field, to analyse new developments critically, to practise on the basis of the best evidence available and to be able to explain and justify their advice to patients.

WORKFORCE PROFILE

Workforce mobility

In the past decade, automatic recognition of diplomas and certificates across Europe has led more and more doctors, be it in primary, secondary or tertiary care, to cross borders. For instance, more than 30% of healthcare workers currently active in countries such as the UK and Switzerland are non-nationals, and this figure is steadily increasing.

Mobility is of paramount importance in the 21st century, as we will face issues such as the shortage of health professionals in certain countries, and the ageing population. This increased professional mobility, both long and short term, raises concerns with regard to the quality and consistency of health services provided to patients, due to the fact that training differs widely from country to country. There will be a need for leading European respiratory physicians and medical educators to collaborate and agree on defining clear standards and guidelines to ensure optimal and equal patient care. Ensuring patient safety is critical and must never be compromised.

Transfer of responsibilities

Patients suffering from chronic respiratory conditions, such as chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis, interstitial lung disease and sleep apnoea syndrome, require long-term treatment. Providing for the needs of these patients is challenging for healthcare organisations, both in terms of structure and funding. In the past years, efforts to provide a more integrated respiratory care have led to a shift from secondary to primary care, and to nurse-assisted home care. In such integrated care schemes, the role of the specialist nurse has become prominent. Due to increasing numbers of patients with chronic conditions and the high healthcare costs generated, this shift in responsibility towards a nurse-led care is due to gain weight in the next decade.

For the respiratory profession, producing clear clinical practice guidelines and protocols and delivering appropriate training to specialist nurses will be of utmost importance [1–3].

Future challenges

- Increased workforce mobility.
- Shift of healthcare models towards increased role for respiratory specialist nurses.
- Need for adequate guidelines and training for these respiratory specialist nurses.
- Shift from hospital based care to long-term chronic care with a greater need in future of more “hands-on” staff and carers.
- Need to deliver adequate and consistent training to ensure respiratory healthcare workers are fully competent, wherever they work.

PATIENT PROFILE

Ageing population, chronic comorbidities

With ageing, the presence of comorbidities increases. COPD, for instance, often overlaps with other conditions, such as hypertension, hypercholesterolaemia, depression, cataracts and osteoporosis. However, even though COPD is widespread and represents a huge economic burden – €38.6 billion in the European Union (EU) in 2002 – patients’ awareness of their condition has been found to be low, and COPD has subsequently also often been undertreated in comparison to more asymptomatic, less morbid conditions, such as hypertension. In order to optimise

patient treatment in the future, it will be important for professionals in respiratory care to educate not only respiratory specialists, but also primary care physicians on how to best diagnose and treat COPD in conjunction with other adverse health conditions. Creating better patient and public awareness is also a challenge respiratory healthcare professionals will need to meet [4–8]. In future we are likely to see all stakeholders join forces to raise awareness of chronic respiratory diseases.

Patient mobility

In addition to the healthcare workforce mobility, patient mobility is also increasing, due to business and leisure trips, and also long-term international retirement migration. For example, in 2015, the number of British pensioners living abroad is expected to constitute around 11.2% of the overall UK retired population, with many of them moving to countries with warmer or drier (winter) climates. Most retirees are healthy when they move; however, some seek a milder climate because of pre-existing respiratory (and other chronic) disorders [9]. Many elderly migrants will need professional care. The onus will be on respiratory healthcare workers to improve their competencies going beyond medical knowledge and clinical skills, to areas such as language skills and intercultural communication skills [10].

RECOMMENDATIONS FOR FUTURE EDUCATION AND TRAINING OF RESPIRATORY HEALTH PROFESSIONALS

Medical education is provided on several levels: first, undergraduate teaching is important for setting the standards for future physicians and healthcare workers and for the recruitment of the best suited students for future specialist work. Secondly, postgraduate teaching includes education of the general practitioner, the specialist in respiratory medicine and other healthcare workers including nurses, physiotherapists and respiratory technicians. There is a need for the practitioner to be confident, competent, to show empathy, humanity and honesty, and they should be willing to view the patient as an important partner. Teamwork means understanding: not only leadership but also “fellowship”. This is important to recall as teamwork will become more and more essential in future.

Future challenges

General attributes: knowledge and understanding; skills; behaviours and attitudes:

- Knowledge and understanding, including biomedical sciences, psychosocial sciences, basics of patient-oriented research in the clinics and community, general understanding of basic epidemiological population sciences, clinical sciences, information and communication technologies.
- Skills, e.g. communication skills, planning and time management skills, information handling and analysis, and management skills.
- Procedural skills.
- Academic skills related to research and teaching.
- Problem solving.
- Multidisciplinary collaboration and team working skills.

Specific knowledge and procedural skills:

- More public health promotion and prevention.
- Use of non-invasive ventilation.
- Diagnosis and treatment of respiratory disorders during sleep.
- Treatment of the respiratory complications of neuromuscular disorders.
- Diagnosis and treatment of common chronic comorbidities.
- Prescription of rehabilitation programme.
- Telemedicine.
- Provision of end of life palliative care.

Skill set expansion

Pulmonary doctors and allied health professionals are expected to increase their procedural skills in order to be able to provide appropriate treatment of chronic lung diseases, pulmonary malignancies, and pulmonary infections, including tuberculosis and epidemic lung infections. Specific training programmes are required for nurses, physiotherapists and dieticians in lung diseases. There is a general lack of specialists, e.g. in the field of thoracic surgery, which is a highly specialised subdiscipline requiring sophisticated knowledge and practical tools to generate successful outcomes.

Perhaps more importantly, respiratory specialists need to acquire new knowledge and procedural skills in the areas of critical and intermediate care, and respiratory

sleep medicine [11–13]. Pulmonary doctors should be able to use non-invasive ventilation, in the hospital and at home, and to diagnose and treat respiratory disorders during sleep, such as obstructive sleep apnoea syndrome. There will be an urgent need for both clinical and non-clinical respiratory scientists in the next decade who are familiar with the principles underlying the diagnostic techniques in both waking and sleeping respiratory physiology.

Specialist teams already exist for the management of complex pulmonary vascular disease and in some centres there are also multidisciplinary teams who act as referral centres for sleep and breathing problems. This pattern will need to be expanded and spread across the EU.

Greater attention should be paid to the diagnosis and treatment of comorbidities associated with chronic respiratory diseases. Moreover, pulmonary rehabilitation has been demonstrated to be an effective strategy to improve quality of life and to reduce hospital admissions in patients with chronic respiratory diseases, such as COPD. Therefore, pulmonary doctors and nurses are expected to increase their knowledge and procedural skills in the area of hospital-based and home supervised pulmonary rehabilitation.

We will need respiratory scientists that are able to work from bedside to the laboratory, and bring possible solutions from the laboratory back to the bedside. For this reason, we need to educate dedicated young scientists in both clinical pulmonology and respiratory disease-related research, including basic/clinical respiratory pharmacology and physiology. There will be a need for future specialists to be trained in molecular genetic approaches to COPD, as genes have a major role in COPD, and so this aspect will play an increasingly important role in the future management of this disease.

Well-structured MD/PhD programmes in pulmonary medicine, including supportive educative grants and certified education centres, may contribute to the selection, training and career development of these promising people.

PhD candidates need to be motivated to perform their research projects in the field of respiratory medicine. Aside from optimal local conditions, project-related financial support needs to be offered based on a

competitive, peer-review system of project proposals. Organisations active in the field of pulmonary medicine should offer research grants, especially for young researchers setting up their own research groups.

As a result of the very large number of patients that will be suffering from chronic respiratory diseases such as COPD, more diagnosis and management is needed in general practice and among general physicians. An internal “leadership” survey was conducted by the European Respiratory Society (ERS) in 2009–2010 among its members. An overwhelming majority of those interviewed (93.2%) believe it is their responsibility to advise their patients about smoking cessation, yet just 38.5% have had formal training on smoking cessation approaches. Gaps such as these will need to be addressed in future.

Moreover, functional testing of the lungs represents an important part of clinical practice and of detection and diagnosis. While there are some excellent training programmes for lung function staff in some countries of Europe, there is a need to put a basic training programme (similar to the European spirometry driving licence task force concept) which will enable lung function staff in all countries to achieve the same ERS standards of competence in lung function testing for the measurement of spirometry, lung volumes, gas transfer, blood gases and respiratory muscle pressures. This would mean all countries would get the same fundamental standards of diagnosis delivered by competent staff.

In the near future, and because of the need to keep these patients outside hospitals because of the risk of healthcare-associated infections, doctors and nurses should also improve their skills in the area of telemedicine.

Finally, greater attention should be paid to end of life palliative care, which is frequently required in patients with malignant or otherwise incurable pulmonary diseases.

RECOMMENDATIONS FOR PATIENT EDUCATION

Healthcare is changing fast and patients' experiences and expectations are also changing. Developments in information technology are already having a profound

influence on the way health services are delivered, as is discussed in the Clinical care chapter.

Patients no longer see themselves as passive recipients of care: increasingly they expect to be involved in all decisions that affect them [14]. Respiratory professionals and care givers need to be prepared to engage in dialogue with their patients and to educate them, with the help of patient organisations. Asthma UK has been involved in studies looking into the value of patient involvement in decision making and in patients educating their peers. In a study of asthmatic patients funded by Asthma UK, CARESS *et al.* [15] found that patients want to be involved more in decisions about their care. PARTRIDGE *et al.* [16] showed, in a randomised equivalence trial, that it is possible to recruit and train lay educators to provide a discrete area of respiratory care comparable to that seen with nurses.

POSTGRADUATE AND SPECIALIST TRAINING

The practice of medicine generally is a discipline deeply rooted in tradition, culture and boundaries, which has been created by a long-standing history of social practices. To adopt harmonised training standards for medical specialties across Europe involves more than just a change in practice; it reflects a realisation among the respiratory community that these changes are necessary if we are to move closer towards an overall improvement of care.

HERMES: A harmonised European syllabus and curriculum in respiratory medicine

In 2005, the ERS launched the HERMES initiative, aimed at developing a range of consensus documents for the education and training of respiratory specialists (figs 1 and 2) [17].

HERMES involves:

- A core syllabus describing the competencies required or recommended [18, 19]. The HERMES syllabus 2006 (and the HERMES curriculum 2008) represents the level of competence that should be reached by young doctors who have just finished training as specialists in adult respiratory medicine.
- The HERMES syllabus and curriculum specifies the mandatory items that are required to be included in the core syllabus and optional items which are recommended to be included in the core syllabus.
- Curriculum recommendations suggesting how competencies should be taught and learned [20, 21].
- An ERS HERMES Handbook on Respiratory Medicine [22].
- An accreditation methodology for European training centres [23].
- A voluntary European examination to assess whether specialists have acquired the knowledge-based component of competence [24].

This initiative has expanded to other subspecialties, including that of paediatric respiratory medicine [25–27]. Moreover, such European ‘harmonised’

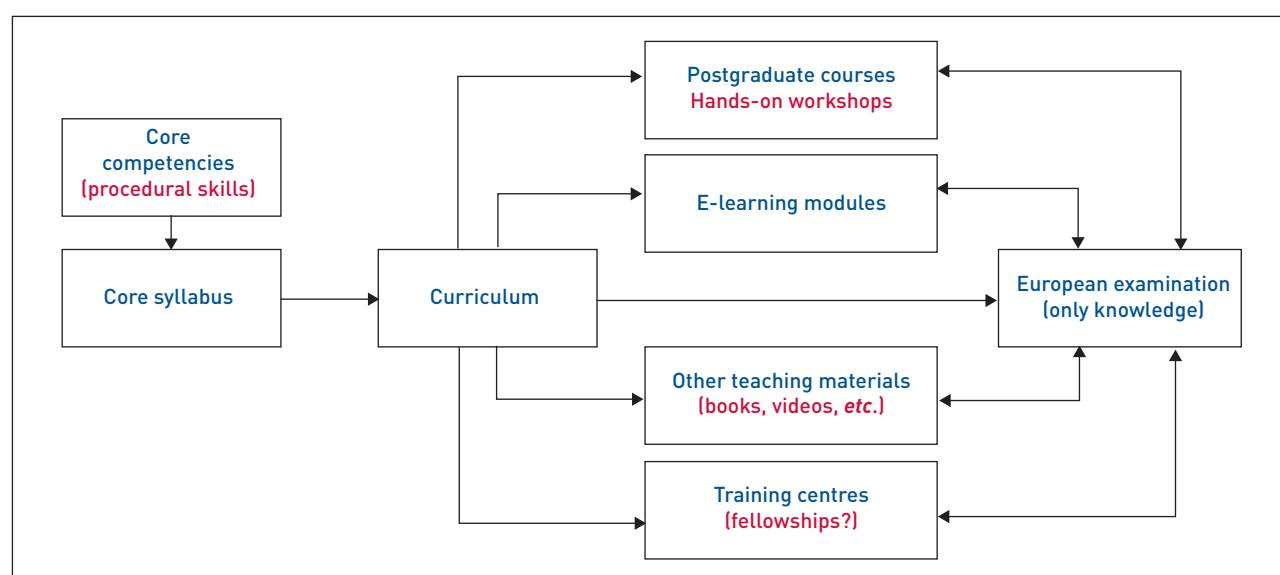


Figure 1. The HERMES implementation structure for a harmonisation of training in respiratory medicine.



Figure 2. HERMES timeline.

curriculum recommendations may in future serve as a framework upon which to base the individual curriculum development of many member states, and as a benchmark for smaller countries.

In the future, to ensure good practice in different specific areas of respiratory medicine where needs arise, similar documents will be produced to guide training, such as for instance in the area of smoking

cessation, where ERS intends to also develop a recommended multidisciplinary training programme, supported by standard training materials to be used by trainers to organise and run their courses. The ERS strongly believes that, in the next 10 years, it will be able to play an important role in harmonising and improving education and training in respiratory medicine, for the ultimate benefit of patients.

RECOMMENDATIONS FOR FUTURE EDUCATION AND TRAINING

Workforce profile

- It will be essential that doctors of the future have the skills to keep up to date in their field, to analyse new developments critically, to practise on the basis of the best evidence available and to be able to explain and justify their advice to patients.
- There will be a need for leading European respiratory physicians and medical educators to collaborate and agree on defining clear standards and guidelines to ensure optimal and equal patient care.

Patient profile

- Creating better patient and public awareness is also a challenge respiratory healthcare professionals will need to meet [4–8]. In future we are likely to see all stakeholders join forces to raise awareness.



- Patients want to be, and should be, involved in decision-making processes that impact their healthcare: they need to be educated in order to do this.
- Expert patients who can “teach” their peers can be as effective as nurses in educating others and should be invested in.

Postgraduate education and training

- In view of harmonising postgraduate specialist education and to raise the quality of training (and trainers), it is desirable to introduce European training centres that are accredited according to the HERMES criteria.
- Persuade the national authorities to recognise “European accreditation”, which holds out the hope of harmonisation of training standards in Europe and would act as a stimulus to those countries with lower standards to improve their performance.
- Training of medical and pharmaceutical professionals for the pharmaceutical industry remains problematic.

Skill sets for respiratory health professionals

- In addition to the traditional skills of history taking and clinical examination, graduates must be able to perform a range of specified practical skills, have extensive communication skills and be good at information handling and analysis. These key elements must be taught and assessed in all undergraduate and postgraduate programmes.
- High-quality teaching and learning support in specific areas of respiratory medicine, such as spirometry (focus on technical skills) or smoking cessation/tobacco dependence treatment (focus on interpersonal communication skills), are needed.
- We will need respiratory scientists that are able to work from bedside to the laboratory, and bring possible solutions from the laboratory back to the bedside. For this reason, we need to educate dedicated young scientists in both clinical pulmonology and respiratory disease-related research, including basic/clinical respiratory pharmacology and physiology, and molecular genetic approaches.

Continuing medical education (CME)

- High-quality educational journals will be of increasing importance for bridging the gap between important scientific advances and the practising specialist.
- The next decade must see a move towards provider rather than event accreditation. Specifically, UEMS-EACCME to accredit the major providers of European events and e-learning, and also to accredit each national authority as an accredited provider.

Chronic comorbidities

- Due to increasing numbers of patients with chronic conditions and the high healthcare costs generated, the shift in responsibility towards a nurse-led care is due to gain weight in the next decade.
- In order to optimise patient treatment in the future, it will be important for professionals in respiratory care to educate not only respiratory specialists, but also primary care physicians, on how to best diagnose and treat COPD in conjunction with other adverse health conditions.
- Clear protocols and guidelines to ensure appropriate patient management and provision of treatment by respiratory healthcare workers, including specialists, primary care physicians and specialist nurses, are needed.
- Guidelines should be multidisciplinary to avoid conflicting recommendations, collaborate with patient organisations and other health professions. Guidelines should be effectively implemented and updated.

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