

doi: 10.1111/j.1365-2869.2008.00721.x

# European guidelines for the certification of professionals in sleep medicine: report of the task force of the European Sleep Research Society

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Accepted in revised form 14 October 2008; received 9 October 2008

**SUMMARY** In recent years, sleep medicine has evolved into a full-grown discipline, featuring a multidisciplinary approach to diagnosis and treatment of patients with sleep disorders. Sleep medicine cuts across the boundaries of different conventional disciplines and is therefore open to medical and non-medical professionals with different specialty backgrounds. The aim of the current paper is to introduce a qualification for those professionals whose main occupation is to practice sleep medicine in the setting of a sleep medicine centre. The drafting of guidelines dealing with requirements for such qualification was entrusted to a task force by the European Sleep Research Society. The guidelines are the result of a progressive consensus procedure in which standards were defined for education, training, and evaluation. The final step along this pathway is a theoretical and practical examination, providing proof of proficiency in the field of sleep medicine. This paper describes the object of specific competences, the scope of sleep medicine, and the qualification procedures that pertain to three professional categories: medical specialists, non-medical professionals with a university master degree (such as psychologists and biologists), and nurses and technologists. Indices of preceding practical experience and theoretical knowledge are presented in Appendices 1 and 2. These guidelines are a European standard. They may be adapted in the future according to new scientific insights. National certification programs that comply with these guidelines may be subject to homologation by the ESRS.

**KEYWORDS** accreditation, certification, education, European Sleep Research Society, examination, national sleep societies, professional, sleep medicine

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## INTRODUCTION

Over the past decades, sleep medicine has developed from a medico-scientific niche into a full-grown discipline, grounded in science, and worthy of respect and attention of the entire medical enterprise. The rapid expansion of its professional content has brought about a major shift in clinical practice. Many practitioners have redirected occupational activities dealing with sleep from an area of specific attention towards main clinical practice. At present, the professional content is sufficiently robust to justify the recognition of sleep medicine as a specialty in its own right. The year 2005 has been pivotal in this respect, as in USA sleep medicine became an independent specialty, approved by both the Accreditation Council of Graduate Medical Education (ACGME) and the American Board of Medical Specialties. In the same year, sleep medicine was granted the status of a formally accredited medical subspecialty by the Chamber of Physicians in Germany. Efforts are being made in other countries to achieve official recognition as well.

The rationale of the current paper is to offer a blueprint for medical, educational, and scientific societies and organizations that seek to foster careers in sleep medicine in the context of accredited practice. From the many past contacts with members of National Sleep Societies (NSS) and the European Sleep Research Society (ESRS), a clear desire emerged to create guidelines that are sufficiently specific, but also take into account the different needs and professional circumstances in Europe. The aim of this paper is therefore to introduce a qualification for those professionals whose main occupation is to practice sleep medicine based on guidelines that are suitable for application in different European countries. Sleep medicine is a multidisciplinary field cutting across competences in different conventional disciplines. Therefore, it must be accessible to medical practitioners with different specialty backgrounds as well as to non-medical professionals. This paper deals with requirements for medical specialists, non-medical professionals with a university master degree (such as psychologists and biologists), and nurses and technologists. Recommendations apply only to those professionals who work in Sleep Medicine Centres (SMCs). The listing of requirements for individuals who work outside this context is outside the scope of this paper.

These guidelines are the result of a progressive consensus procedure in which representatives of different NSS from Europe and representatives of the ESRS were involved. The draft is in part based on existing national guidelines that are already operational in some countries. Particularly, official documents from accredited programs in USA (ACGME, 2008) and Germany (DGSM, 1997a,b, 1999) were taken into account. Additional information obtained during different rounds of consultation was gathered and processed by the members of the Steering Committee, formerly appointed by the ESRS. At the ESRS congress in 2006 a preliminary version was reviewed by delegates from different NSS. Subsequently, written comments were collected and necessary

revisions were made. The revised draft manuscript was then circulated again and further amended during a meeting of the Assembly of NSS (ANSS<sup>1</sup>) in March 2007 and May 2008. A Task Force was instituted by the ESRS to review and finalize the document.

The certification is a voluntary proof of further education and training in the professional area of sleep medicine, including clinical-scientific knowledge and technical skills. Initiatives to implement certification in sleep medicine can be taken by the Board of each NSS. Whenever possible, this qualification should be endorsed, if not organized by authorized bodies of the country. Such authority may be assigned to the medical faculty of the universities, nursing, or technical schools, or other relevant authorities involved in the educational program (government, chamber of physicians, etc.). Applications for certification must be filed to the authority responsible for the educational program.

The certification confirms successful education in the science, practical clinical work, and technical skills as well as sufficient experience in the area of sleep medicine. The practical training must take place in an accredited SMC (Pevernagie *et al.*, 2006). By passing a theoretical and practical examination the candidate gives proof of competence in the field of sleep medicine.

These guidelines are a European standard. The guidelines may be adapted in the future according to new scientific insights. It is acknowledged that the NSS may be required to adjust these guidelines to comply with local laws concerning the practice of medical acts by physicians, non-medical professionals with a university master degree, nurses and technologists. The NSS who seek homologation have to submit their national certification programs to the ESRS. The ESRS will specifically assess the submitted information. Only following official approval by the ESRS, the NSS will be entitled to declare that their programs comply with the present certification standards.

## GUIDELINES FOR CERTIFICATION OF PROFESSIONALS IN SLEEP MEDICINE

### Object of competence

#### *Medical sleep specialists*

The certificate intends to show that the named person is able to carry out the diagnosis and differential diagnosis of sleep-related diseases, as listed in ICD-2 (Sateia, 2005), and their management.

#### *Non-medical sleep professionals with a university master degree*

The certificate intends to show that the named person is able to demonstrate knowledge of sleep-related diseases, as listed in

<sup>1</sup>The ANSS represents the associate membership from different European NSS within the ESRS. As such, the ANSS is a formal body of the ESRS, its role being defined in the bylaws.

ICSD-2 (Sateia, 2005), and their management, especially in their field of competence (e.g., biology, psychology, etc.).

#### *Nurses and technologists*

The certificate intends to show that the named person has basic knowledge of the disorders listed in ICSD-2 (Sateia, 2005) and is able to carry out the organization, logistics, preparation, recording, observation, analysis, evaluation, and documentation of polysomnography (PSG), and other investigations carried out in the SMC. The candidate is responsible for the correct instruction and care of the patients.

#### **Scope of sleep medicine**

In most European countries physicians bear ultimate responsibility for the investigation and care of patients with sleep disorders. However, in some countries specific tasks may be delegated to other professionals. Therefore, the scope of sleep medicine, as described below for different professional categories, should comply with local national rules at all times.

#### *Medical specialists and non-medical sleep professionals with a university master degree*

The mastering of sleep medicine includes the ability to interview the patient correctly, to recognize symptoms, to decide on appropriate questionnaires, scales, inventories, and laboratory tests, and to prescribe specific therapeutic measures. In addition, medical specialists and non-medical sleep professionals with a university master degree should be familiar with research methodologies.

#### *Nurses and technologists*

The educational program envisages the mastering of patient care related to the specific activities of the SMC as well as the acquisition of all technical and organizational skills that pertain to the operation of a SMC.

The candidates from all three categories above should have mastered adequately the knowledge and skills relevant to their profession, listed in Appendices 1 and 2.

#### **Qualification procedure**

##### *Training and educational prerequisites*

##### *Required degree*

*Medical sleep specialists.* The candidate must be qualified as a certified medical doctor who has completed training in a medical specialty.

*Non-medical sleep professionals with a university master degree.* The candidate must have a relevant scientific university degree at least at the master's level.

*Nurses and technologists.* The candidate must have a relevant degree from nursing or technical school.

##### *Training requirements*

*Medical sleep specialists.* Applicants who have obtained a relevant medical specialty degree must spend a full-time equivalent period of at least 12 months performing clinical work with full responsibilities in an accredited SMC (Pevernagie et al., 2006).

If training in sleep medicine, as a subspecialty, has been offered during the foregoing medical specialty training, this period may be reduced to no less than 6 months, depending on the degree of exposure.

*Non-medical sleep professionals with a university master degree.* Applicants must receive training during a full-time equivalent period of at least 12 months in an accredited SMC.

*Nurses and technologists.* Applicants must receive training during a full-time equivalent period of at least 12 months in an accredited SMC.

##### *Time frame*

The certification exam should be completed within 3 years after the corresponding training period.

Recognition of training in a non-accredited setting will be possible while awaiting implementation of accreditation procedures for SMCs. However, this will be applicable for a limited period of time not exceeding 5 years.

##### *Application for admission to the sleep medicine examination*

To apply, the candidate must provide written proof to the relevant authority that the qualification requirements described above have been fulfilled.

##### *Certification committee*

Unless a certification program is already operational and organized by university or government officials, the NSS may take responsibility for this process. For this purpose, it is suggested that the NSS set up a Certification Committee consisting of at least three members appointed for 2 years. The committee examines whether the candidate's application fulfils all requirements.

The Certification Committee is composed of a chairperson and at least two additional members. Its composition should represent different medical disciplines within sleep medicine. The Board of the NSS decides about who will act as chairperson of the Certification Committee.

The Certification Committee selects the date and place for the examination and appoints an Examination Board for medical specialists and non-medical sleep professionals with a university master degree as well as an Examination Board for nurses and technologists. These Boards should consist of at least three sleep professionals from different centres or universities, who represent the relevant medical and non-medical specialties.

### Procedure and protocol for examination

Examinations for medical and non-medical sleep professionals with a university master degree are separate from those for nurses and technologists. The required skills and theoretical knowledge to be evaluated are listed in Appendices 1 and 2. The examination consists of a theoretical and a practical-clinical part. Each part can be passed independently with only two results possible: pass or fail. The benefit of a partly successful examination can be kept for no more than 3 years.

A report of the examination and its outcome signed by all members of the Examination Board is required. The applicant has the right to request a copy of his/her examination report. The examination can be repeated twice more (i.e., a total of three times) if a candidate is unsuccessful. The Board of the NSS will decide on the necessary prerequisites. The NSS informs the candidate about the decision of the Certification Committee or examiners within 4 weeks.

### Certificate

A certificate will be issued by the NSS or the authorized body to candidates who completed both parts of the examination successfully. The NSS thus certifies that the successful candidate is a sleep professional, in accordance with the present guidelines. If the NSS obtained an endorsement by the ESRS of their program, this shall be stated in the certificate.

The validity of the certificate may be limited in time. The term of validity should be in accordance with national rules. If required, the certified individual must show proof of having pursued continued professional education to be eligible for extended certification.

### Transitional arrangements

To start the certification procedures in those countries which have not yet implemented their own training programs and examination sessions, it is recommended that currently active and experienced sleep practitioners can apply for a certification as a professional in sleep medicine. These applicants must be able to show that they performed the procedures as listed in Appendices 1 and 2. They must provide evidence of their theoretical and practical knowledge.

The Board of the NSS shall decide by simple majority if the application fulfils the requirements. If so, an official certification will be granted and issued in writing. The transitional period should not be longer than 18 months. For countries with existing training programs and examination sessions, transformation of these by the NSS into the presently proposed certification system is possible if they comply with the requirements mentioned above.

### ACKNOWLEDGEMENTS

The authors are indebted to delegates and members of the NSS who reviewed the text and made helpful comments: Högl B., Popovic R. M., Mallin W. (Austrian Sleep Research Association), Hack M. (British Sleep Society), Dogas Z. (Croatian Sleep Research Association), Sonka K. (Czech Sleep Research and Sleep Medicine Society), Jennum P. (Danish Sleep Research Association), Kerkhof G. (Dutch Society for Sleep and Wake Research), Pindmaa M. (Estonian Sleep Society), Saaresranta T. (Finnish Sleep Research Society), Paquereau J. and Vecchierini M.-F. (French Society of Sleep Research and Sleep Medicine), Mayer G. and Penzel T. (Deutsche Gesellschaft für Schlafforschung und Schlafmedizin), Dikeos D. and Papavassiliou A. (Hellenic Sleep Research Association), Szakács Z. (Hungarian Sleep Research Society), Ferrillo F. and Ferini-Strambi L. (Italian Association of Sleep Medicine), Mariotti M. (Italian Sleep Research Society), Liesiene V. (Lithuanian Sleep Society), Bjorvatn B., Pallesen S., and Akre H. (Norwegian Sleep Society), Kukwa A. (Polish Sleep Research Society), Moutinho dos Santos J. and Paiva T. (Portugese Sleep Association), Mihaicuta S. (Romanian Sleep Society), Gnidovec Strazisar B. and Dolenc L. (Slovenian Sleep Society), Puertas J. (Iberic Sleep Research Society), Grote L. (Swedish Sleep Society), Bloch K. E. (Swiss Society of Sleep Research, Sleep Medicine and Chronobiology), and Ardiç S. and Kaynak H. (Turkish Sleep Research Society). Special acknowledgements are addressed to Kerkhofs M., PhD (Montigny-le-Tilleul, Belgium) and De Valck E., PhD (Brussels, Belgium) for reviewing the section on non-MD sleep professionals, and to Ryckx A. (Montana, Switzerland) and Tiete J. (Luxemburg, GD of Luxemburg) for reviewing the section on sleep nurses and technologists.

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## APPENDIX 1. INDEX OF PRECEDING PRACTICAL EXPERIENCE

The practical work enumerated below is considered as basic experience required for granting professional competence in sleep medicine.

### Medical specialists and non-medical sleep professionals with a university master degree

The candidate will be required to provide a written declaration from the head of the Sleep Medical Centre (SMC) where training was completed, stating correct and independent performance of the following:

- full polysomnography (PSG) recording procedure in 30 patients;
- scoring, interpreting, and reporting of 100 PSGs, comprising a spectrum of neurological, cardiorespiratory, and psychiatric disorders in adults and children;
- full Multiple Sleep Latency Test (MSLT)/Maintenance of Wakefulness Test (MWT) procedure in 10 patients;
- if applicable to current practice of sleep medicine in a particular country, 50 ambulatory cardiorespiratory recordings;
- interpretation of relevant questionnaires and sleep/wake diaries;
- acquaintance with all techniques required from nurses and technologists (cfr. infra); and stating:
- for medical sleep specialists: treatment experience in 100 patients with sleep/wake disorders, including cases of each of the following: sleep-disordered breathing, treatment thereof with nasal continuous positive airway pressure, other intrinsic sleep disorders, and sleep disorders due to physical and mental diseases;
- for non-medical sleep professionals with a master university degree, depending on the specialty of the applicant, sufficient practical experience of the techniques relevant to their field, e.g., cognitive behavioral therapy (CBT), psychotherapy, etc.

### Nurses and technologists

The candidate will be required to provide a written statement from the head of their SMC stating correct performance of the following:

- full PSG recordings in 300 patients;
- independent reading of 300 PSGs according to prevailing scoring rules, including scoring of arousals, respiratory events, periodic limb movements, and recognition of other sleep events like bruxism, parasomnia, etc;
- independent performance of a full MSLT/MWT procedure in 30 patients;
- depending on the specialty of the applicant they should in addition provide evidence of sufficient practical experience of the techniques relevant to their field, e.g., continuous positive airway pressure (CPAP) titration, CBT, actigraphy, and psychomotor testing of alertness, etc.

## APPENDIX 2. INDEX OF THEORETICAL KNOWLEDGE

### Medical specialists and non-medical sleep professionals with a university master degree

The candidate applying for the qualification in sleep medicine must demonstrate knowledge of the following topics:

#### *Physiological basis of sleep*

- Physiology of sleep and wakefulness states as a function of age;
- sleep regulation as a function of age;
- models of ontogeny and biological function of sleep;
- electroencephalogram activity during wakefulness and sleep and staging of sleep;
- usefulness and limitations of different methods for scoring sleep stages;
- adaptation of bodily functions to sleep:
  - brain activity
  - motor control of skeletal muscles
  - sensation
  - activity of the autonomic nervous system
  - heart and circulatory functions
  - respiratory functions
  - metabolic activity
  - hormone secretion
  - thermoregulation
  - effects of acute and chronic sleep deprivation
  - mental processes during non-rapid eye movement and rapid eye movement sleep, at sleep onset and upon awakening, e.g., reflexive activity, classic dreams, lucid dreams, nightmares, hypnagogic, and hypnopompic hallucinations.

#### *Chronobiological aspects of sleep*

- Circadian rhythm, circadian clock, and its influence on circadian rhythms such as temperature and various physiological functions;
- chronobiological models of sleep regulation;
- circadian variation of cognitive performance;
- variation of tiredness and sleepiness during the day;
- methods for recording time-dependent variations of sleepiness and alertness;
- circadian rhythm disorders (diagnosis and management).

#### *Diagnostic procedures and assessment of sleep disorders*

- Ability to perform clinical and psychological work-up (interview and examination);
- adequate knowledge of diagnostic approach to diseases listed in ICSD-2 (Sateia, 2005);
  - mastering of diagnostic procedures including:
    - PSG
    - cardiorespiratory polygraphy

- MSLT and MWT
- sleep/wake questionnaires
- basic knowledge of other diagnostic tests, e.g., neuropsychological tests.

*Treatment of sleep disorders*

- Sleep hygiene;
- influence of medication on sleep;
- drug therapy for sleep disorders;
- cognitive behavioral therapy and other psychotherapeutic procedures;
- nasal CPAP, principles of non-invasive ventilation;
- surgical procedures;
- dental appliances;
- light therapy.

*Management of a SMC*

- The candidate should master the principles of managing a SMC and should be familiar with the requirements regarding staff and logistics (Pevernagie *et al.*, 2006).

**Nurses and technologists**

The candidates applying for the sleep medicine qualification must demonstrate knowledge of the following topics relevant to sleep medicine:

*Electroencephalogram and physiological bases of sleep*

Candidates should demonstrate basic knowledge of:

- physiological and age-related variations of sleep/wakefulness;
- sleep regulation;
- electroencephalogram activity during wakefulness and sleep and staging of sleep.

*Chronobiological aspects of sleep*

The candidate should have basic knowledge concerning:

- circadian rhythms and their influence on different bodily functions;
- circadian variation of tiredness/sleepiness in the 24-h period;

- diagnostic procedures for disturbances of circadian rhythmicity;
- current disorders of the sleep–wake rhythm and their classification;
- current therapeutic strategies.

*Diagnostic procedures for assessment of sleep disturbances*

The candidate should have basic knowledge of:

- outpatient diagnostic procedures for insomnia;
- outpatient methods for identifying and assessing disturbances of alertness;
- current questionnaires for assessment of sleep disturbances;
- various diagnostic procedures, e.g., neuropsychological tests.

The applicant should have extensive knowledge of:

- polysomnography with respect to methodological concept, recording techniques, artifact recognition and rejection, and reading of the signals;
- MSLT and MWT;
- cardiorespiratory polygraphy.

*Diagnosis (differential) of sleep disorders as listed in ICSD-2*

The candidate should have basic knowledge of the disorders listed in ICSD-2 (Sateia, 2005).

*Therapy of sleep disturbances*

The candidate should have basic knowledge of:

- sleep hygiene;
- cognitive behavioral therapy and other psychotherapeutic procedures for sleep disturbances;
- influence of medication on sleep;
- drug therapy for sleep disorders;
- nasal CPAP and other procedures for non-invasive ventilation;
- surgery;
- dental appliances;
- light therapy.

*Organization of a sleep lab*

The applicant should have sufficient knowledge of the organization of a sleep laboratory.