Management of sleep medicine
catalogue of knowledge and skills
and examination

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Sleep Medicine Committee (SMC)

The ESRS has established the SMC to cope with the needs and demands of sleep medicine in Europe. Identified are:

- Standards of practice papers and guidelines for clinical service
- Education: catalogue of knowledge and skills
- Certification of sleep medicine professionals (physicians, psychologists, scientists, and technicians)
- Accreditation of sleep medicine centres.

These tasks will be advanced working with the ESRS board and with representatives from national sleep societies in Europe (ANSS).
Standards of practice papers

Academic sleep centers JSR 2006

Certification of sleep professionals JSR 2009

Standard operating procedures in sleep medicine JSR 2012

Catalogue of Knowledge and Skills JSR 2014
Sleep laboratory accreditation

1. Introduction / Background
2. Rooms, equipment, structures and personnel
3. Criteria for the evaluation of the questionnaire
4. Criteria for the site visit
5. Contents and consequences of final discussion round
6. Contents and structure of site visit report
7. Procedure after having received a report with recommendations
8. Laboratory re-evaluation
9. How to proceed with changes in the laboratory settings

Standard procedures in accredited Sleep Medicine Centres in Europe


Instrument of standardisation and quality assurance of current operational procedures

→ proper patient management
→ adequate resource and time allocation

Standardisation may help calculate operational costs of Sleep Medicine Centres procedures:

→ in relation to other procedures in medicine
→ in relation to the gross domestic product (GDP)

Patients irrespective of citizenship should receive proper sleep medicine care
(according to workload of professionals, costs of therapeutics and costs related to behavioural or pharmacological therapy)
Testing procedures and sleep disorders

Further develop excellence in the practice and quality assurance of Sleep Medicine in Europe

### Sleep Disorders (ICSD-2)

<table>
<thead>
<tr>
<th>Sleep Disorders</th>
<th>Subjective testing</th>
<th>Objective testing</th>
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<tbody>
<tr>
<td></td>
<td>General/specific history + Physical examination</td>
<td>Logs, interviews, sleep diary</td>
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<tr>
<td>Insomnia</td>
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<tr>
<td>Sleep-related Breathing disorders</td>
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<tr>
<td>Hypersomnias</td>
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<tr>
<td>Circadian Rhythm-Disorders</td>
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<td>Parasomnia</td>
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<tr>
<td>Sleep-related Movement Disorders</td>
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Grade of recommendations for subjective and objective diagnostic procedures in different sleep disorders. (ICSD-2 = International Classification of Sleep Disorders 2nd edition, 2005)

‘+’ = standard practice
‘±’ = could be useful
‘-’ = not useful
‘blank’ = no information available
Scientific knowledge in sleep medicine has grown substantially. Caring for patients with sleep disorders requires a high level of proficiency that can only be obtained following proper education and practical training.

The „Catalogue of Knowledge and Skills for the Training of European Sleep Experts“ (CK&S) is taken as a basis to establish courses which are supervised by the ESRS for the creation of multiple choice questions for the examination for the applicants to prepare for the examination

The catalogue offers a thorough overview of topics in sleep medicine which is covered by the examination. The CKS is published in *Journal of Sleep Research* 2014; 23: 222-238
Objectives

Appropriate clinical decision-making, i.e. learning various skills in the choice and implementation of diagnostic tests and therapeutic interventions

- the ability to interview the patient correctly
- to recognize symptoms and signs
- to decide on using appropriate questionnaires, scales, inventories, and laboratory tests
- to schedule a treatment plan.

To know the basics of

- coordinating and taking responsibility for multidisciplinary interactions → ‘interdisciplinary’ or ‘integrative sleep medicine’
- research methodology
- to direct a sleep medicine centre
Rationale

Public domain
- National Sleep Societies (NSS)
- Teaching institutions who set up courses and training programs
- Other parties

ESRS education:
- Sleep medicine teaching courses
- European sleep medicine board exams: the learning outcomes defined by the CK&S should be the content for the examination

ESRS support of national teaching programs:
- Assessment of the programs of parties applying for endorsement
- Staff and logistics (‘bureau’) to implement administrative procedures
- Outcome: decision (approve, proviso or decline) by the ESRS, including a number of ECTS credit points
Chapters of the CK&S

- **A.** Physiological basis of sleep
- **B.** Assessment of sleep disorders and diagnostic procedures
- **C.** Insomnia
- **D.** Sleep-related breathing disorders
- **E.** Hypersomnias
- **F.** Circadian rhythm sleep disorders
- **G.** Parasomnias
- **H.** Sleep-related movement disorders
- **I.** Miscellaneous sleep-related conditions and disorders
- **J.** Societal, economical, organisational and research aspects of Sleep Medicine
European Credit Transfer and Accumulation System (ECTS)

- CK&S matches the content of the sleep medicine curriculum with the European Credit Transfer and Accumulation System (ECTS)
- ECTS makes teaching and learning more transparent and facilitates the recognition of educational opportunities, whether formal, non-formal or informal.
- The system is used across Europe to foster student mobility by credit transfer
- Credit accumulation assures that learning paths towards an academic degree can be constructed by different institutions in different countries
- Student workload ranges from 1,500 to 1,800 hours for an academic year, and one credit corresponds to 25-30 hours of work
- An academic year comprises on average 60 ECTS credits
### CK&S: Allocation of Credit Points

<table>
<thead>
<tr>
<th>Chapter</th>
<th>MD</th>
<th>PhD / Master</th>
<th>Tech / Nurse</th>
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<td>Credits T</td>
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**ECTS Credit Points per Chapter**
CK&S: for physicians, psychologists, scientists, technologists

<table>
<thead>
<tr>
<th>A. Physiological basis of sleep:</th>
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<tr>
<td>1. The neurophysiology and neurobiology of sleep</td>
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<td>2. Regulation of sleep and wakefulness</td>
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<td>3. Adaptation of bodily functions to sleep</td>
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<td>4. Theories on the functions of sleep</td>
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<td>5. Effects of acute and chronic sleep deprivation</td>
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<td>6. Sleep and dreaming</td>
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<td>7. Sleep in all stages of human development</td>
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<td>8. Sleep in women</td>
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<tr>
<th>B. Assessment of sleep disorders and diagnostic procedures:</th>
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<tbody>
<tr>
<td>1. Classification of sleep disorders</td>
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<td>2. The clinical interview and clinical examination</td>
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<td>3. Measuring - monitoring sleep and wakefulness</td>
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<td>4. Other tests and examinations</td>
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<tr>
<td>5. Miscellaneous topics (suitable for workshops)</td>
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<tr>
<th>C. Insomnia</th>
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<tr>
<td>1. Nosological classification, definitions, epidem.</td>
<td>2</td>
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<tr>
<td>2. Pathophysiology</td>
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<tr>
<td>3. Clinical picture and diagnosis</td>
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<tr>
<td>4. Special populations &amp; comorbidities</td>
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Survey of the CK&S (Summary)

A survey was launched to evaluate whether the items of the “Catalogue of Knowledge and Skills” are representing a true proof of knowledge.

Survey was sent per eMail to **209 sleep experts** throughout Europe (incl. approx. psychologists: 20).
Names and addresses of experts were provided by the SMC members.

Survey started end of July 2011, ended mid September 2011.

Respondents: 130 sleep experts (psychologists: 11)
Completed by 110 sleep experts (84.6% of respondents, 52.6% of receivers)
The values correspond to the rating average of the subchapters
→ (1 not important, 2 slightly important, 3 average, 4 important, 5 very important)
Results of the CK&S survey (II)

C. Insomnia

- Nosological classification, definitions, epidemiology: 4.14
- Pathophysiology: 4.08
- Clinical pictures and diagnosis: 4.04
- Special populations and comorbidities: 4.01
- Treatment - practical skills for applying CBT-i: 3.85
- Treatment - tailoring CBT-i to specific needs: 3.79
- Treatment - Pharmacological treatment: 4.34
- Miscellaneous topics: 4.16

D. Sleep-related breathing disorders

- Nosological classification, definitions, epidemiology: 4.42
- Pathophysiology: 4.44
- Clinical picture and diagnosis: 4.52
- Comorbidities: 4.20
- Treatment: 4.07
- Miscellaneous topics: 4.27

The values correspond to the rating average of the subchapters
→ (1 not important, 2 slightly important, 3 average, 4 important, 5 very important)
The values correspond to the rating average of the subchapters
→ (1 not important, 2 slightly important, 3 average, 4 important, 5 very important)
Results of the CK&S survey (IV)

G. Parasomnias
- Nosological classification, definitions, epidemiology: 3.77
- Pathophysiology and psychopathology: 4.04
- Clinical picture and diagnosis: 4.45
- Comorbidities: 4.04
- Treatment: 4.10
- Miscellaneous topics: 4.25

H. Sleep-related movement disorders
- Nosological classification, definitions, epidemiology: 3.80
- Pathophysiology: 3.95
- Clinical picture and diagnosis: 4.14
- Comorbidities: 3.95
- Treatment: 4.19
- Miscellaneous topics: 4.07

The values correspond to the rating average of the subchapters
→ (1 not important, 2 slightly important, 3 average, 4 important, 5 very important)
Results of the CK&S survey (V)

I. Miscellaneous sleep-related conditions and disorders

- Nosological classification, definitions, epidemiology: 3.54
- Pathophysiology and psychopathology: 3.86
- Treatment: 4.14
- Miscellaneous topics: 3.77

J. Societal, economical, organisational and research aspects of Sleep Medicine

- Demographic and socio-economic aspects of sleep disorders: 4.15
- Forensic aspects of sleep: 3.96
- Organisation of a Sleep Medicine Centre: 4.19
- Training and consultancy: 4.11
- Research design and quantitative methods: 3.84

The values correspond to the rating average of the subchapters
→ (1 not important, 2 slightly important, 3 average, 4 important, 5 very important)
1. + 2. Grandfathering examination

Proposal of eligibility for sleep medicine examination to obtain the ESRS sleep medicine certificate (Somnologist) as long as no formal training in an ESRS accredited sleep centre was possible

- University degree in medicine, psychology or sciences (biology, physics, chemistry) more than 15 years ago
- Physicians must have completed a medical specialization (e.g. neurology, pneumology, psychiatry, neurophysiology, etc.)
- Activity in sleep medicine / research for more than 10 years (proven by publications, activities in national or international sleep societies, national sleep medicine certification if available)
- Letter of recommendation by another current ESRS member from another country than the country of the applicant
- Current ESRS membership
Grandfathering Examination

The first examination of sleep experts took place at the ESRS Meeting 2012 in Paris and the second in Berlin 2013.

→ **50 MC-questions** (including recordings) in **75 minutes**.

For the first examinations a written examination was held.

„Grandfathers“ were admitted to the examination.

Successful completion of exam in order to receive certificate.

→ The certificate will confer the title of “**Somnologist**”.

The names of the certificated somnologists were published in the ESRS newsletter. These were 50 (73 applicants) in Paris and 72 (115 applicants) in Berlin.
Admission Requirements

**Grandfathers:**
- University degree in medicine, psychology or sciences
- Physicians must have completed a medical specialization
- Activity in sleep medicine / research since 10 years proven by records
- Letter of recommendation by another current ESRS member from another country other than the applicant
- Current ESRS membership
- Payment of examination fee

**Regulars**
- University degree in medicine, psychology or sciences or degree
- Activity in sleep medicine / research for a time period
- Numbers of PSG etc. examinations according to ERJ publication
- Current ESRS membership
- Payment of examination fee
Technologist grandparents exam

Eligibility: 5 years, ongoing education

MC questions 50 with 27 from technical field

Practical examination: 200 epochs from 1 subject
The Examination for the European Diploma in Respiratory Medicine is in line with the ERS commitment to achieve the highest possible standards of practice in the specialty and harmonise training across Europe.

This is recognised within the profession throughout Europe, thus encouraging the mobility of specialists in respiratory medicine.

The examination is aimed to be a proof of excellence.

The Multiple Choice Examination is knowledge-based only. Candidates have 3 hours to answer 90 questions.

Upon successful completion a European Diploma in Adult Respiratory Medicine will be conferred.

Consolidation of ESRS and ERS programs are planned by a special workgroup.
Current steps

• Regular examination in Tallin
• Examination of sleep technologists with granparent rule
• Preparing educational material / courses
• Identifying teaching centres
• Accreditation of clinical centres (different levels)
Appendix: Catalogue 1/7

A. Physiological basis of sleep:

1. The neurophysiology and neurobiology of sleep
   - Macro- and microarchitecture of sleep
   - Neuroanatomy of sleep
   - Neurochemistry of sleep
   - Sleep-wake functions and consciousness
   - Effects of pharmacological agents on sleep and wakefulness

2. Regulation of sleep and wakefulness
   - Definitions of sleep, sleep transition, wakefulness, sleepiness and tiredness
   - The two-process model
   - Sleep homeostasis
   - Sleep duration, 'core' sleep and 'optional' sleep
   - Chronobiology: the circadian clock and its influence on sleep and circadian rhythms
   - Variation of tiredness (fatigue), sleepiness and cognitive performance during the day
   - Genetics of sleep regulation
   - Chronotypes and sleep
   - Hormone secretion
   - Thermoregulation

3. Adaptation of bodily functions to sleep:
   - Mental and cognitive activities
   - Motor control of skeletal muscles
   - Sensation
   - Activity of the autonomic nervous system
   - Heart and circulatory functions
   - Respiratory functions
   - Metabolic activity

4. Theories on the functions of sleep
   - Evolutionary (including phylogeny of sleep)
   - Cerebral restitution
   - Body restitution (including integrity of immune system, recovery and resilience)
   - Theories on the functions of NREM and REM sleep
   - Sleep, learning and memory
   - Mental health

5. Effects of acute and chronic sleep deprivation on:
   - Emotional state
   - Mood
   - Cognitive function
   - Physical health
   - Immune function
   - Other

6. Sleep and dreaming
   - Mental processes during NREM and REM sleep, at sleep onset and upon awakening
   - What is a dream? Neuropsychology and neuroimaging of dreaming
   - Dreaming and brain/medical disorders
   - Dreaming and psychopathological conditions

7. Aging and sleep: sleep in all stages of human development
   - Perinatal sleep
   - Sleep in infancy
   - Sleep in childhood
   - Adolescence and sleep
   - Adult sleep
   - Sleep in later life

8. Gender differences in sleep
   - Sleep and the menstrual cycle
   - Sleep and pregnancy
   - Sleep and the menopause / andropause

B. Assessment of sleep disorders and diagnostic procedures

1. Classification of sleep disorders
   - ICSD-2
   - Other classification systems

2. The clinical interview and clinical examination
   - Medical history
   - Sleep history
   - Interviewing partner and relatives
   - Semi-structured interview techniques
   - General medical examination (including height, weight, BMI, collar size, hip/waist ratio, blood pressure measurements)
   - Examination of the upper airway (nasal patency, Friedman-Mallampati scores)
   - Neurological examination
   - Psychological/ psychiatric evaluation
   - Differential diagnosis and working hypothesis
Appendix: Catalogue 2/7

3. Measuring and monitoring sleep and wakefulness
General principles (establishing a differential diagnosis, baseline, quantifying treatment progress, appraising outcome)
Sleep questionnaires
Questionnaires on mental well-being, daytime function, etc
Sleep diary
Measurement of core and surface body temperature
Actigraphy (including equipment, handling, interpretation, reporting, advantages and limitations)
Pulse oximetry (including equipment, handling, interpretation, reporting, advantages and limitations)
Cardio-respiratory polygraphy (including equipment, handling, interpretation, advantages and limitations)
Polysonomography, hook-up, montage and technical aspects (including calibration, recording, sampling, filtering and displaying)
Polysonomography, obligatory and optional sensors
Polysonomography, video recording and telemetry
Polysonomography, sleep scoring and reporting (2012 AASM scoring guidelines)
Polysonomography, event scoring, artefact rejection, and reporting (2012 AASM scoring guidelines)
Polysonomography, miscellaneous (split night recording, full montage, effect of drugs and pathological conditions on EEG)
Basic and advanced computer-assisted PSG signal analysis
Tests of sleep propensity and alertness: Multiple sleep latency test (MSLT), Maintenance of wakefulness test (MWT) and other tests (e.g. Osler test)

4. Other tests and examinations
Cognitive evaluation
Psychometric evaluation
Neuropsychological tests (including assessment of vigilance, e.g. PVT)
Technologies relevant to the cognitive neuroscience of sleep (ERPs, MEG, fMRI)
Pulmonary function tests
Analysis of blood and other bodily fluids (e.g. assessment of ferritin, hypocretin, melatonin, etc.)
Various imaging techniques

5. Miscellaneous topics (suitable for workshops)
The clinical interview and further diagnostic management
Assessing motivational state
Setting up diagnostic tests
Scoring, interpretation and reporting of diagnostic tests (see remark attached to this cell)
Putting all data together to formulate a diagnosis

6. Practical training in patient care (fellowship in a Sleep Medicine training centre) ± 300 work hours or 10 ECTS credit points

C. Insomnia
1. Nosological classification, definitions, epidemiology
Standardized criteria for defining insomnia (ICSD-2)
Adjustment insomnia (Acute insomnia)
Psychophysiological insomnia
Paradoxical insomnia
Idiopathic insomnia
Insomnia due to mental disorder
Inadequate sleep hygiene
Behavioural insomnia of childhood
Insomnia due to drug or substance (including alcohol, and hypnotics dependence)
Insomnia due to medical condition
Insomnia not due to substance or known physiological condition, unspecified
Physiological (organic) insomnia, unspecified
Definition of insomnia in other classification systems (ICS-10, DSM-IV, DSM-5)

2. Pathophysiology
Predispositional factors
Precipitating factors
Perpetuating factors
Arousal/hyperarousal models
Cognitive-behavioural models
Primary vs. secondary vs. comorbid insomnia

3. Clinical picture and diagnosis
Day and nighttime symptoms of insomnia
Clinical evaluation including psychiatric assessment
Questionnaires to assess insomnia complaints
Sleep logs and actigraphy
Sleep lab diagnostics in insomnia (PSG, ...)
Other diagnostic tests in insomnia

4. Special populations & comorbidities (this is in part redundant with 1.)
Mental health ('comorbid' psychiatric disorders often implicated in differential diagnosis of sleep disorders, e.g. anxiety and depression, bipolar disorder, ...)
Insomnia in older adults
Insomnia in children
Trauma and chronic stress (insomnia and life events, posttraumatic stress disorder, burnout, ...)
Insomnia and depression
Insomnia and personality disorders
Insomnia and addiction
Insomnia in physically disabled and neurological disorders
Insomnia in brain injury
Insomnia in medical conditions with bodily discomfort (e.g. pain)
Appendix: Catalogue 3/7

5.1. Treatment - practical skills for applying CBT to insomnia
Sleep information and education
Sleep hygiene practice
Relaxation and biofeedback methods
Establishing routines
Sleep stimulus control
Sleep restriction
Cognitive restructuring
Thought management methods
Paradoxical intention
Mindfulness meditation
Other novel strategies

5.2. Treatment - tailoring CBT for insomnia to clinical and service need
Improving adherence to home practice
Working with individuals
Working with groups
Working with other professionals and services
Directed self-help approaches
Other cognitive and behavioural treatments (mindfulness, biofeedback, multicomponent CBT-i)
Behavioural treatment of childhood insomnia; working with parents

5.3. Treatment - Pharmacological treatment
Overview of hypnotic and other sleep inducing drugs
Indications, choice of drug(s), dose adjustment, (long term) follow up
Combined treatment (pharmacotherapy and CBT-i)
Evidence base for CBT-i and pharmacotherapy
Novel pharmacological approaches behind firm evidence

6. Miscellaneous topics (suitable for workshops)
CBT-i (behavioural components, cognitive components, package, adherence)
Drug treatment (what works and what not? Efficacy, efficiency and safety.
Combining with CBT-i)
Diagnostic approaches to insomnia patients
Case records

7. Practical training in patient care (fellowship in a Sleep Medicine training centre)
See appendix 1 of Certification guidelines: For MDs ± 400 work hours or 13 ECTS credit points

D. Sleep-related breathing disorders:
1. Nosological classification, definitions, epidemiology
   Simple snoring
   Obstructive sleep apnea and upper airway resistance syndrome (adult and pediatric)
   Central sleep apnea syndrome and Cheyne-Stokes respiration (primary central sleep apnea, central sleep apnea due to Cheyne-Stokes breathing pattern, high altitude periodic breathing, medical condition not Cheyne-Stokes, drug or substance, primary sleep apnea of infancy)
   Sleep-related hypoventilation and hypoxemic syndromes (Obesity-hypoventilation syndrome and others)
   Other sleep related breathing disorders

2. Pathophysiology
   Control of breathing
   Obstructive sleep sleep disordered breathing
   Cheyne-Stokes respiration in cardiac failure
   Hypoventilation during sleep

3. Clinical picture and diagnosis
   Obstructive sleep-disordered breathing
   Central sleep apnea (including eucapnic and hypercapnic CSA, Cheyne-Stokes respiration and 'complex sleep apnea')
   Hypoventilation during sleep
   Differential diagnosis
   Sleep-disordered breathing in children
   Diagnostic value of polygraphy and polysomnography
   Special conditions (stroke, hypothyroidism, acromegaly, etc.)

4. Comorbidities
   Hypertension
   Cardiac failure
   Stroke and other brain disorders
   Respiratory comorbidities (asthma, COPD, other lung diseases, chest wall and neuromuscular diseases)
   Metabolic syndrome
   Pro-inflammatory conditions

5. Treatment
   Conservative measures (including weight reduction and positional therapy)
   Pharmacological treatment
   Nasal CPAP
   Modifiable PAP (Bilevel PAP, Auto-CPAP, etc.)
   Behavioural Sleep Medicine (BSM) approaches to improving adherence to treatment
   Surgical procedures
   Dental appliances
Appendix: Catalogue 4/7

6. Miscellaneous topics (suitable for workshops)
PSG examples
Nuts and bolts of PAP treatment set-up (choice of interfaces and pressure generators, titration algorithms, trouble shooting)
PAP follow-up: monitoring and improving adherence / compliance
Behavioural methods to improve patient and service outcomes
Case records
7. Practical training in patient care (fellowship in a Sleep Medicine training centre)
± 400 work hours or 13 ECTS credit points

E. Hypersomnias of central origin
1. Nosological classification, definitions, epidemiology
Narcolepsy with cataplexy
Narcolepsy without cataplexy
Narcolepsy due to medical condition
Narcolepsy unspecified
Recurrent hypersomnia / Kleine-Levin syndrome
Recurrent hypersomnia / menstrual-related hypersomnia
Idiopathic hypersomnia with long sleep time
Idiopathic hypersomnia without long sleep time
Behaviourally induced insufficient sleep syndrome
Hypersomnia due to medical condition
Hypersomnia due to drug or substance (alcohol)
Hypersomnia not due to substance or known physiological condition
Physiological hypersomnia, unspecified
2. Pathophysiology
Normal regulation of sleep and wakefulness, the ‘sleep switch’
Hypothalamic regulation of sleep, especially the role of the hypocretin (orexin) system
Neurophysiology, neurochemistry, neurogenetics and neuroimmunology of narcolepsy
3. Clinical picture and diagnosis
Spectrum and differential diagnosis of tiredness (fatigue), sleepiness and cognitive dysfunction
Spectrum of narcolepsy (not only classical tetrad, but fragmented sleep, obesity, psychiatric comorbidity etc as well)
The role of the MSLT and other techniques in assessing EDS
BIISS as an important DD, role of actigraphy to determine habitual sleep duration
The use of hypocretin measurements
The non-diagnostic value of HLA typing for narcolepsy
4. Comorbidities
Comorbidity in narcolepsy, especially overweight / obesity
Mood and anxiety disorders as comorbidity in hypersomnias
5. Treatment
General aspects: information, acceptance, social guidance
Behavioral managements: sleep wake timing, sleep extension if necessary, planned naps
Pharmacological treatment for EDS
Pharmacological treatment for cataplexy, hallucinations and sleep paralysis
Pharmacological treatment for fragmented nighttime sleep
6. Miscellaneous topics (suitable for workshops)
PSG MSLT, and MWT examples
Video session
Case records, especially regarding diagnosis and treatment of primary hypersomnias
7. Practical training in patient care (fellowship in a Sleep Medicine training centre)
± 100 work hours or 3 ECTS credit points

F. Circadian rhythm sleep disorders
1. Nosological classification, definitions, epidemiology
Delayed sleep phase type
Advanced sleep phase type
Irregular sleep-wake type
Nonentrained type (free running)
Jet lag type
Shift work type
Due to medical condition
Other circadian rhythm sleep disorder
Due to drug or substance (incl. alcohol)
2. Pathophysiology
Neuro-endocrine pathways and disturbances
Blindness
Genetics – clock gene polymorphisms
Adaptations to shifted work schedules
Chronobiotic effect of drugs
3. Clinical picture and diagnosis
Assessment of circadian phase
4. Comorbidities
Psychological and psychiatric issues
5. Health risks (may overlap with J.1.)
Shift work and other conditions
6. Treatment
Behavioural approaches
Melatonin
Light therapy
Other (e.g. stimulants)
7. Miscellaneous topics (suitable for workshops)
PSG and actigraphy examples
Case records
8. Practical training in patient care (fellowship in a Sleep Medicine training centre)
± 100 work hours or 3 ECTS credit points
Appendix: Catalogue 5/7

G. Parasomnias
1. Nosological classification, definitions, epidemiology
Disorders of arousal from (NREM) sleep
Confusional arousals
Sleepwalking
Sleep terrors
Parasomnias usually associated with REM sleep
REM sleep behaviour disorder
Recurrent isolated sleep paralysis
Nightmare disorder
Other parasomnias
Sleep-related dissociative disorders
Sleep enuresis
Sleep related groaning (catathrenia)
Exploding head syndrome
Sleep related hallucinations
Sleep related eating disorder
Parasomnias, unspecified
Parasomnias due to drug or substance (incl. alcohol)
Parasomnias due to medical condition
Epileptic activity during sleep (N.B. classified under I. according to ICSD-2)
2. Pathophysiology and psychopathology
State dissociation/activation of central patterns; neurophysiology, genetics, neuroimaging of parasomnias
REM sleep behaviour disorder (RBD) and neurodegenerative disease
3. Clinical picture and diagnosis
Differentiation between parasomnias and epileptic seizures
4. Comorbidities
Parasomnias and brain disorders, psychiatric disorders
5. Treatment
Conservative measures
Pharmacological treatment
Cognitive behavioural treatment
6. Miscellaneous topics (suitable for workshops)
PSG examples
Video polysomnography
Differentiation between epileptic and non-epileptic motor activity during sleep
Case records
Video session
7. Practical training in patient care (fellowship in a Sleep Medicine training centre) ± 100 work hours or 3 ECTS credit points

H. Sleep-related movement disorders
1. Nosological classification, definitions, epidemiology
Restless legs syndrome
Periodic limb movement disorder
Sleep-related leg cramps
Sleep-related bruxism and other disorders with orofacial activity
Hypnic myoclonus
Sleep-related rhythmic movement disorder
Propospinal myoclonus and fragmentary myoclonus
Sleep disturbances in Parkinson’s disease
Sleep disturbances in other movement disorders
Sleep-related movement disorder, unspecified
Sleep-related movement disorder due to drug or substance
Sleep-related movement disorder due to medical condition
2. Pathophysiology
Neurobiological basis of the control of motor function during sleep
Neurophysiology, neuroimaging, genetics of sleep-related movement disorders
Neurobiology of RLS/PLMS (should include metabolic factors and basic neurobiology)
3. Clinical picture and diagnosis
A clinical approach to the patient with sleep related movement disorders
Laboratory evaluation of motor disturbances during sleep
Immobilization tests and actimetry in the assessment of sleep-related movement disorders
Differential diagnosis in sleep related movement disorders
4. Comorbidities
Sleep-related movement disorders and brain disorders, psychiatric, medical disorders
5. Treatment
Conservative measures
Pharmacological treatment
6. Miscellaneous topics (suitable for workshops)
PSG and actigraphy examples
Introduction to video polysomnography
Case records
Video session
7. Practical training in patient care (fellowship in a Sleep Medicine teaching centre)
± 100 work hours or 3 ECTS credit points
Appendix: Catalogue 6/7

I. Miscellaneous sleep-related conditions and disorders

1. Nosological classification, definitions, epidemiology

Isolated symptoms, apparently normal variants and unresolved issues
- Long sleeper
- Short sleeper
- Snoring
- Sleep talking
- Sleep starts (hypnic jerks)
- Benign sleep myoclonus of infancy
- Hypnagogic foot tremor and alternating leg muscle activation during sleep
- Propriospinal myoclonus at sleep onset
- Excessive fragmentary myoclonus
- Other sleep disorders
- Other physiological (organic) sleep disorder
- Other sleep disorder not due to substance or known physiological condition
- Environmental sleep disorder
- Sleep disorders associated with conditions classifiable elsewhere (ICSD-2 Appendix A)

2. Pathophysiology and psychopathology

Sleep habits; behaviourally induced insufficient or excessive sleep
Sleep and social life (relation with family and bedpartner, relation with coworkers, co-sleeping, pets)
Relationship between sleep, analgesia and fatigue
Personal remedies for managing sleep (traditional remedies, OTC remedies, napping)
Sleep and substance abuse (alcohol, caffeine, nicotine, recreational drugs, withdrawal and relapse)

3. Treatment

Cognitive-behavioural approaches
Pharmacological treatment

4. Miscellaneous topics (suitable for workshops)

PSG examples
Examples of other sleep tests
Case records

5. Practical training in patient care (fellowship in a Sleep Medicine training centre) ± 90 work hours or 3 ECTS credit points

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Appendix: Catalogue 7/7

J. Societal, economical, organisational and research aspects of Sleep Medicine

1. Demographic and socio-economic aspects of sleep disorders
   Sleep and sleep disorders in the public opinion and lay press
   Prevalence of sleep disorders
   Shift work (the sleep deprivation and circadian misalignment has a substantial impact on a person’s health as well as on Society/Industry)
   Absenteeism (due to illness)
   Traffic and occupational hazards
   Driver’s license
   Socio-economic cost
   Impact of sleep disorders on public health and quality of life
   Cost-effectiveness and cost-benefits of treating sleep disorders

2. Forensic aspects of sleep
   Sleep and the law
   Driving and falling asleep
   Sleepiness and work related accidents
   Sleep and crimes of sexual nature
   Sleep and murder
   Clinical assessment and differential diagnosis
   Expert testimony

3. Organisation of a Sleep Medicine Centre
   Human resources, organization chart
   Professional certification requirements (certified sleep specialists)
   Facilities, sleep laboratory
   Quality assurance (including PSG scoring QA: intra- and interscorer reproducibility)
   Business case

4. Training and consultancy
   Training practitioners
   Supervising practitioners
   Professional intervision
   Giving advice on service development

5. Research design and quantitative methods (optional)
   The research process
   Hypothesis-driven Foundations of quantitative measurements (The process of measuring, psychometric theory, reliability, validity)
   Introduction to quantitative assessment of sleep
   Foundations of qualitative research
   Self report methods
   Observation
   Foundations of design
   Sampling and ethics
   Evaluating research
   Analysis interpretation and dissemination
Management of Sleep medicine

Catalogue of Knowledge and Skills and Examination for Somnologist

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The management of Sleep medicine consists of several activities. These activities are coordinated by the Sleep Medicine Committee run by the ESRS and supervised by the board of the ESRS. This presentation focusses on the Catalogue of Knowledge and skills and on the examinations to become an ESRS somnologist. The “Catalogue of knowledge and skills” contains a comprehensive overview on topics to be learned in terms of theory and practice in order to become a sleep expert. The catalogue had been published by the Journal of Sleep Research. The catalogue is the basis for sleep medicine education courses and for a textbook covering all aspects of sleep medicine required to pass the examination successfully. The Sleep Medicine Committee is working on the update of the sleep center accreditation publication together with the European Respiratory Society (ERS). The update will include technical issues and propose different types of sleep centers (training centers, comprehensive centers, specialized centers) currently discussed in Europe. The alignment with the ERS, more specifically the HERMES program for respiratory sleep medicine is continued. A new meeting with ESRS and ERS delegates is planned for spring this year.

The examinations for European sleep experts are for physician, psychologist, and scientist with a regular multiple choice exam. In addition a grandparents examination for sleep technologists in cooperation with the European Sleep Technologist Association is offered. Both exams have attracted many interested people and will have a great attendance.