International core curriculum in respiratory sleep medicine

This competency-based curriculum has been designed by a task force of respiratory sleep specialists and allied health professionals to underline the learning outcomes and supporting development areas for trainees following a post-specialty or post-graduate programme in respiratory sleep medicine.

This curriculum outlines the core areas for development including the:

1. **Syllabus** stating the content required for training
2. **Knowledge, skills and attitudes** or the **learning outcomes**. These will guide the trainee and trainer to achieve competencies.
3. **Level of assessment** based on Miller's model of clinical competence
4. **Suggested assessment tools** including the methods which are applicable across all training centre networks irrespective of geographical location. Assessments are linked to the learning outcomes and the level of assessment required
5. **Minimum clinical/educational exposure** relating to time, number of cases and/or certain specific actions of the trainee. Minimum clinical exposure refers to indicative minimum numbers of procedures each trainee should be directly exposed to over the entire duration of their training.
6. **Teaching and learning opportunities** providing examples of teaching or learning activities suitable for the learning outcome. This prescribes a teaching method appropriate to the competency or may include a sample clinical situation. This may include informal and/or formal learning opportunities suitable for post graduate/post specialty learning environments.

Target audience

All health professionals working within respiratory sleep medicine are eligible to follow this training. This curriculum may be described as an inter-professional educational programme and defines three specific target groups:

- **Medic** – those physicians who provide patient care in diagnosing, treating and managing respiratory sleep disorders
- **Advanced practitioner** – those health professionals who initiate and lead clinical practice, education and service development for respiratory sleep patients
- **Practitioner** (allied health professional) – those health professionals who provide patient care for the treatment and management of respiratory sleep disorders

Organisation of training

This curriculum has been designed as a post-graduate or post-specialty training programme in respiratory sleep medicine. This is a modular training listing mandatory and optional modules. Depending on prior educational background, training modules may be mandatory or optional. This information is stipulated at the beginning of each module.

Entry into the training programme

- **Medic** – must have medical specialist certification recognised in their country of practice
- **Advanced practitioner** – must have a University Bachelors or Masters diploma in an allied health field
- **Practitioner** – must have a University Bachelors or Masters diploma in an allied health field

Module competency

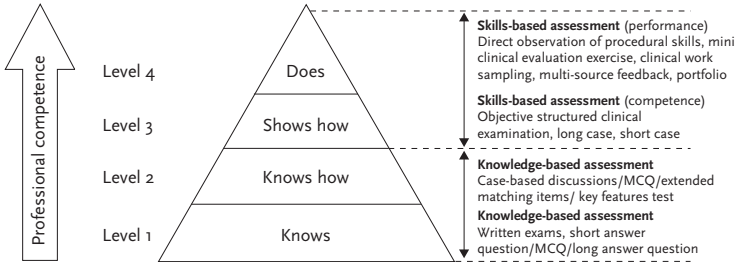
For each module, the competencies required of the trainee have been outlined considering the knowledge, skills and attitudes prescribed within the module and expected of the trainee on entry into practice.

Minimum duration of training

This programme is recommended as a 1-year full-time employment in a recognised sleep centre with a possibility of completing the programme part time within a maximum of 3 years. It is further recommended that the length of training be reviewed by an appeals committee in exceptional circumstances.

Assessment

During the design of this core curriculum, task force members considered appropriate assessment methods using Miller's model of clinical competence (below). Selection of appropriate assessment methods fit for purpose are essential to the validity of assessments and to predict whether a trainee is competent to practice. The level of assessment has been assigned in alignment with the learning outcomes (knowledge, skills and attitudes), assessment methods chosen and teaching and learning opportunities.



Adapted figure from Miller's model of clinical competence [17], and organisation of assessment methods taken from [19].

Note: This document is a supplement to Mitchell, S. Simonds, A. Andreas, S. *et al.* Introducing a core curriculum for respiratory sleep practitioners. *Breathe* 2015; 11: 50–56.

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 1: Physiology and anatomy of sleep and breathing								
Mandatory for all								
Module competency		**To describe the neurophysiology of sleep and breathing, and illustrate how sleep influences the physiology of breathing and homeostatic regulation**						
1. Neuroanatomy and neurobiology of sleep	1.1 Regulation of the sleep–wake cycle including arousals	• Recognise neural processes and transmitters controlling wakefulness, non-rapid eye movement (NREM) and rapid eye movement (REM) sleep states • Identify, explain and evaluate neural processes and transmitters controlling wakefulness, NREM and REM sleep states		• Accept the need for self-directed learning • Display a willingness to communicate well with patients	**2**	MCQ	• Observe nocturnal polysomnography (NPSG) recordings from 20 people with specific attention to sleep staging and nature of arousals • Examine 20 sleep diaries and relate to clinical presentation	Observe in the assessment and management a 16–20-year-old patient with a range of suspected sleep apnoea, hypoventilation
	1.2 Sleep across lifespan	• Describe how the ageing process influences • Review the normal or abnormal sleep cycles in healthy adult • Explain how these cycles vary with age					• Observe in the management of suspected sleep disorders in 20 people across the age span of 16 to >65 years	
2. Breathing during sleep and wakefulness	2.1 Control of breathing during sleep and wakefulness	• Identify causes of the pathology of obstructive sleep apnoea (OSA) and central sleep apnoea (CSA) • Explain the factors that control breathing during sleep		• Appreciate the need for patients to understand the factors that cause OSA and CSA • Accept the need for self-directed learning • Embrace opportunities to accept peer review and feedback from colleagues • Listen to questions on sleep-related changes in the mechanics of breathing from patients/colleagues	**2**	MCQ Case-based discussion	• Observe nocturnal polysomnography (NPSG) recordings from 20 patients with sleep disordered breathing and explain the sleep induced changes in the breathing pattern related to control of breathing	
	2.2 Anatomy and function of the upper airway	• Describe the anatomy of the upper airway • Associate respiratory physiology and pathophysiology with clinical signs and symptoms • Explain the anatomy and physiology of the upper airway related to breathing during sleeping and wakefulness • Discuss the factors that cause upper airway collapse during sleep			**2**		• Observe the assessment of the upper airway in 20 patients with suspected OSA)	
	2.3 Respiratory mechanics and ventilation	• State how respiratory mechanics and ventilation are influenced by pathology • Explain the sleep-related changes in respiratory mechanics			**2**		• Observe in the management of suspected sleep disordered breathing in 20 people with impaired respiratory mechanics (*e.g.* obesity hypoventilation syndrome, muscle weakness, COPD, *etc.*)	

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
3. Homeostatic regulation during sleep	3.1 Autonomic and cardiovascular regulation	• Indicate how autonomic and cardiovascular regulation are influenced by pathology	• Analyse autonomic regulation during sleep • Measure cardiovascular impact e.g. blood pressure	• Display willingness to explain sleep-related changes in cardiovascular regulation	4	MCQ Case-based discussion Portfolio	• Identify the cardiovascular implications in 20 people with suspected sleep disordered breathing • Observe changes in blood pressure and heart rate variation in 10 patients	Management of a patient presenting with comorbidities (*i.e.* hypertension or diabetes) and sleep disordered breathing
	3.2 Metabolic regulation	• Identify how sleep disorders influence and are influenced by metabolic regulation			4		• Screen possible metabolic features in 20 people with suspected sleep disordered breathing for example diabetes, obesity, endocrine disorders	

Syllabus item – content for training	Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 2: Respiratory conditions							
Mandatory for all							
Module Competency	**Define, differentiate, diagnose, and manage obstructive and central breathing disturbances and hypoventilation during sleep. Demonstrate an awareness of their pathophysiology, clinics and consequences, and discriminate comorbidities**						
1 . Definitions of sleep disordered breathing (obstructive sleep apnoea (OSA), obstructive sleep apnoea syndrome (OSAS), central sleep apnoea (CSA), central sleep apnoea syndrome (CSAS), Cheyne–Stokes respiration (CSR), obesity hypoventilation syndrome (OHS), upper airway resistance syndrome (UARS), snoring)	• Define sleep disordered breathing and discuss definitions of sleep disordered breathing *e.g.* (OSA, OSAS, CSA, CSAS, CSR, OHS, UARS, snoring)	• Perform diagnostic evaluation of patients presenting with sleep disordered breathing (SDB)	• Accept the need for self-directed learning	4	MCQ Portfolio relevant to all sections	• Observe and participate in diagnosis of 100 new cases across SDB	Assessment of a patient presenting with snoring and excessive daytime sleepiness

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
2. Obstructive sleep apnoea (OSA)	2.1 Epidemiology of and risk factors for obstructive sleep apnoea (OSA)	• Select different mechanisms and apply to clinical practice for example craniofacial and upper airway morphology, function and dysfunction of upper airway muscles, central respiratory control mechanisms • Recognise the limitations of screening methods • Review specific risk factors in individual patients • Consider risk factors • Appraise risk factors in therapeutic decisions		• Embrace multidisciplinary team work, for example ear nose and throat specialists (ENT), internal medicine cardiologists and neurology colleagues • Discuss the different mechanisms and their consequences with patient and family • Display willingness to refer to colleagues, including neurologists, ENT, oromaxillary surgeons (facial) • Display a professional commitment to ethical practice/confidentiality • Clearly communicate the consequences of obstructive sleep apnoea (OSA) to the patient	2	MCQ Case-based discussion		Participate in the diagnosis, clinical examination and management of a patient presenting with symptoms of snoring, witnessed apnoea and choking arousals. The patient may have excessive daytime somnolence and is sleepy driving
	2.2 Pathophysiology of obstructive sleep apnoea (OSA)	• Integrate knowledge of the pathophysiology of upper airway muscles to management of the patient	• Select different mechanisms and apply to clinical practice for example craniofacial and upper airway morphology, function and dysfunction of upper airway muscles, central respiratory control mechanisms • Perform clinical examination of mouth and throat and use of cephalometry • Manage OSA caused by craniofacial and upper airway morphology • Detect hypercapnic and hypoxic ventilatory response tests • Interpret oxygen and CO_2 as a marker of respiratory response		4	MCQ Portfolio Direct observation of procedural skills		Participate in the diagnosis, clinical examination and management of a patient presenting with symptoms of snoring, witnessed apnoea and choking arousals. The patient may have excessive daytime somnolence and is sleepy driving
	2.3 Clinical aspects of obstructive sleep apnoea (OSA)	• Describe the characteristics of subjective impairment and signs • Describe characteristics of the mouth, throat and craniofacial configuration • List cardiovascular signs	• Produce a sleep history • Clinical examination of mouth and throat • Critical appraisal of sleep questionnaires • Differentiate diagnosis based on symptoms • Consideration of treatment pathways • Consideration of referral for OSA caused by craniofacial and upper airway morphology		4	MCQ Portfolio	Participate in the screening of 30 new cases of OSA	Undertake a clinical exam of a patient with suspected OSA taking a careful history and assessment of symptoms during daytime and sleep
	2.4 Comorbidities of obstructive sleep apnoea (OSA) and long-term effects	• Illustrate neurobehavioral (sleepiness, cognitive and psychiatric) • Summarise cardiovascular disease • List metabolic consequences • Explain the role of echocardiography, lung function and cardiological examination	• Evaluation of the cardiovascular, neurobehavioural, and metabolic consequences of obstructive sleep apnoea (OSA) for example through interpretation of attention tests/ vigilance tests, echocardiogram, and blood test on diabetes and lipids • Produce recommendations for treatment of sleep disordered breathing (SDB)		4	MCQ Case-based discussion Portfolio	• Use of a questionnaire to evaluate daytime sleepiness in 100 new cases of SDB • Interpretation of echocardiograph in 100 new cases and integrate information on heart disease (echocardiogram, left ventricular ejection fraction LVEF) in 20 cases • Evaluate body mass index (BMI) in 100 new cases and integrate information on diabetes mellitus in 20 cases	Interpret results of tests (*e.g.* Epworth Sleepiness Scale, ambulatory blood presure monitoring, echocardiography, blood measurements of metabolic variables)

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
3. Central sleep apnoea (CSA) and Cheyne–Stokes respiration (CSR)	3.1 Epidemiology of and risk factors for central sleep apnoea (CSA)/ Cheyne–Stokes respiration (CSR)	• Describe the prevalence of primary central sleep apnoea (CSA) and underlining conditions • Critique secondary central sleep apnoea for example drugs, heart diseases, renal failure, stroke, endocrine disorders. • Differentiate underlying disorders; risk factors of age, sex • Recognise heart failure, atrial fibrillation, brain disorders, drug use, exposure to high altitude as risk factors.		• Investigate underlining diseases and conditions in specific patients • Share these conditions and impact on lifestyle with the patient • Accept the need for self-directed learning • Cooperate in a multidisciplinary team including cardiologists, neurologists, nephrologists, diabetes specialists	4	MCQ Portfolio	• Clinical assessment of 40 patients with possible CSA including 20 with heart failure and 1–3 opioid-induced CSA is recommended	
	3.2 Pathophysiology of central sleep apnoea (CSA)/ Cheyne–Stokes respiration (CSR)	• Classify pathophysiology of primary CSA • Summarise the role of cardiovascular disorders, opioid use and high altitude in the pathophysiology of secondary CSA including loop gain, apnoea threshold, increased chemosensitivity, overshooting ventilation	• Differentiate hypercapnic and non-hypercapnic CSA for example using blood gas analysis		4	MCQ Portfolio		Analyse the mechanisms that lead to central sleep apnoea in a patient
	3.3 Clinical aspects of central sleep apnoea (CSA)	• Arrange symptoms including, physical examination, consequences of CSA, neurobehavioural (sleepiness, cognitive and psychiatric)	• Conduct a comprehensive history including symptoms of secondary diseases • Critical appraisal of sleep questionnaires • Differentiate diagnosis based on symptoms • Consideration of treatment pathways • Consideration of referral for CSA to cardiology/neurophysiology • Perform a physical examination including internal and basic neurologic examination (level 3 for medic only) • Complete differential diagnosis of symptoms (medic only)		3	Case-based discussion OSCE		Undertake a clinical exam of a patient with suspected CSA taking a careful drug history, cardiological exam and appropriate investigation *e.g.* echocardiogram
	3.4 Consequences of central sleep apnoea (CSA)	• Differentiate the neurobehavioural consequences of CSA (sleepiness, cognitive and psychiatric) • List cardiovascular signs • Describe metabolic consequences • Recognise heart failure has a strong impact on sleepiness while CSA has no clear effect • Identify the effects of cardiovascular CSA	• Appraisal of treatment modalities not supported by evidence based medicine • Evaluate, perform and critically interpret clinical studies		4	MCQ Portfolio	• Participate in the screening and management of 10 heart failure patients	Communicate the diagnosis of CSA to a patient and make recommendations for management

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
4. Hypoventilation syndromes	4.1 Central hypoventilation syndrome	• Recognise symptoms including, clinical presentation, pathophysiology and treatment of central hypoventilation • Classify secondary hypoventilation syndromes • Define hypercapnic respiratory failure (Level 2) • Review the pathogenesis (mutation of gene PhOX2b neurological operation, risk of daytime hypoventilation) (Level 3 for Medic only)	• Evaluate and diagnose daytime hypercapnia by control of blood gases, transcutaneous capnography, and body weight and clinical muscle assessment • Interpret blood gases • Assess indications for non-invasive ventilation, application or supervision of mask and interface	• Explain illness and the risks of obesity, and offer advice on how to decrease BMI through physical activity, training and diet • Embrace a responsibility to prepare the patient to use non-invasive ventilation	4	MCQ Case-based discussion Portfolio	• Case-based discussion Logbook of patients personally followed in an accredited sleep centre • Portfolio interpretation of 25 blood gas measurements • Clinical assessment of 5 patients across all hypoventilation categories (for medics only) • Lung function assessment of 10 patients across all categories	Participate in case-based discussion of a patiens with primary or secondary hypoventilation (*i.e.* patients on drugs affecting central nervous system (CNS), kyphoscoliosis or other skeletal problems)
	4.2 Obesity hypoventilation syndrome	• Recognise symptoms including, clinical presentation, pathophysiology and of obesity hypoventilation • Explain consequences (polyglobulia, corpulmonale) • Define hypercapnic respiratory failure • Illustrate obstructive sleep apnoea						Participate in the screening and diagnosis of an obese patient presenting in type II respiratory failure with morning headache
	4.3 Neuromuscular disorders	• Analyse symptoms including, clinical presentation, pathophysiology • Review insight into the different neuromuscular disorders of various origins, caused by accidents, operations, familial inheritance • Compare respiratory failure stages in neuromuscular disorders • Define hypercapnic respiratory failure	• Treat hypoventilation in patients with neuromuscular diseases • Perform respiratory muscle testing (*e.g.* maximal inspiratory pressure, maximal expiratory pressure)		4			Clinical assessment of a patient with neuromuscular disease presenting with excessive daytime sleepiness and poor sleep quality
5. Comorbid respiratory disorders	5.1 Asthma 5.2 Chronic obstructive pulmonary disease 5.3 Restrictive lung disorders	• Appraise symptoms, clinical presentation, pathophysiology and treatment of asthma, chronic obstructive pulmonary disease (COPD) and restrictive lung disorders • Relate the influence of comorbid respiratory disorders on breathing during sleep • Indicate drug therapy in respiratory disorders, side effects on sleep and role of oxygen therapy	• Perform diagnosis based on current guidelines, differential diagnosis and interpretation of lung function tests (spirometry, body plethysmography, muscle capacity) • Investigate systematically dyspnoea, cough and sputum production • Differentiate between extra-pulmonary and intrapulmonary restrictions and explain symptoms and complications (scoliosis, fibrosis *etc.*) • Provide patient care for treatment and management of asthma, chronic obstructive pulmonary disease (COPD) and restrictive lung disorders	• Willingness to advise patients on preventive methods for example smoking cessation, preventative contact with allergens	4	MCQ Portfolio (ERS spirometry workbook) Direct observation of practical skills	• Perform and interpret 20 spirometries • Diagnosis and treatment of 25 patients according to national and international treatment guidelines across all comorbid respiratory disorders	Participate in the diagnosis of a heavy smoker presenting with hypoxia on room air during the day and awakening with headaches in the morning
6 Comorbid non respiratory disorders	6.1 Sleep in terminal renal failure patients under dialysis	• State pathophysiology of sleep-related breathing in chronic renal failure, including chemoresponsiveness, fluid shift, acid-base balance, presentation of obstructive and central disturbances • Name the risks of renal failure and possibilities of its treatment by renal dialysis, peritoneal dialysis or renal transplantation	• Interpret laboratory tests for renal function (for medic only) • Interpret and clinically evaluate body weight and accumulation peripheral oedema (for medic only) • Complete clinical report	• Value screening for sleep-related breathing disturbances in renal failure • Explain therapeutic methods (for example dialysis or renal transplantation) • Display willingness to collaborate with renal specialist/ nephrologist	4	• Case-based discussion • Portfolio for interpretation of laboratory test for renal function	• Recognise 5 renal failure patients presenting with sleep disordered breathing (SDB) including evaluations of • renal function parameters • diuresis • glomerular filtration	Additional diagnosis and management of a patient on long-term haemodialysis complaining of fatigue and snoring

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 3: Non-respiratory sleep disorders								
Mandatory for the advanced practitioner and medic **Optional for the practitioner**								
Module Competency		**Recognise, diagnose, manage and appropriately refer non-respiratory sleep disorders**						
1. Classification of non-respiratory conditions		• Find the international classification of sleep disorders (ICSD) classification guidelines • Discuss diagnostic and coding manual and current guidelines • Synthesise the history and physical examination	• Employ and interpret the ICSD classification and guidelines • Take a thorough sleep history from the patient, bed partner and other relevant persons • Perform the relevant neurological, respiratory, upper airway and general physical examinations • Produce provisional diagnosis and differential diagnosis • Formulate and execute a management plan • Resolve conflict and convey bad news	• Communicate clearly with patient, families and relevant others, including colleagues	4	Case-based Discussion Portfolio of patients personally reviewed and managed in an accredited sleep centres	• Recognise cases of non-respiratory sleep conditions and referral to specialist	
2. Insomnia	2.1 Primary insomnia 2.2 Secondary insomnia	• Name different types of insomnia including clinical features • Explain how other medical, sleep and psychiatric illnesses may result in insomnia • Discuss indications and limitations of assessment tools in insomnia including sleep diaries, actigraphy, polysomnography (PSGA) • Review management strategies in insomnia • Differentiate between the types of insomnia and their clinical features - acute and chronic, primary and secondary • Review the impact of other medical disorders and lifestyle on the presentation of insomnia	• Implement appropriate assessment tools and outline pharmacological/ behavioural management strategies to the patient	• Adopt a professional manner with patients, their families and relevant others • Demonstrate an understanding of ethical issues in all dealings with patients and colleagues • Recognise personal limitations in management or diagnosis and willingness to refer appropriately for specialist management • Recognise the possible impact of insomnia on patient safety	4	MCQ Case-based discussion Portfolio	• Recognise and manage 5 cases of insomnia	Screen, treat and manage a patient attending with complaints of early-morning awakening.
3. Parasomnia and movement disorders during sleep	3.1 Periodic leg movement disorder and "restless legs" syndrome 3.2 Rapid eye movement (REM)-related disorders 3.3 Non-REM-related disorders	• Compare clinical features of the disorders and their association with other medical conditions and lifestyle factors • Describe advantages and limitations of assessment tools, particularly polysomnography (PSG) and need for multiple nights of recording • Summarise treatment strategies including pharmacological and non-pharmacological interventions	• Conduct assessment of disorders using careful history, clinical examination, at sleep/wake diary and if required additional tests such as polysomnography (PSG) or telemetry • Implement a treatment plan using pharmacological and/or behavioural management strategies (medic only)	• Recognition of the possible impact of parasomnia on lifestyle and patient safety	4	Case-based discussion Portfolio of patients personally followed in an accredited sleep centre	• Participate in the assessment, diagnosis and referral of 10 cases of parasomnia and movement disorders during sleep	Diagnosis and appropriate referral of a woman presenting with episodes of abrupt arousals during the first part of the night, associated with feelings of anxiety and screaming. She complains of seeing spiders on the wall.

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
4. Hypersomnia	4.1 Narcolepsy 4.2 Idiopathic hypersomnia	• Explain clinical features and pathophysiology of hypersomnias • List indications for assessment including multiple sleep latency test (MSLT), sleep diaries, confirmation of sleep patterns and additional testing including polysomnography (PSG), actigraphy, cerebrospinal fluid (CSF) orexin levels and maintenance of wakefulness test (MWT) • Recognise limitations of assessment in isolation to clinical context including implications for lifestyle, driving and pregnancy	• Differentiate narcolepsy from other causes of excessive daytime sleepiness • Contrast idiopathic hypersomnia with other causes of excessive daytime somnolence • Devise appropriate assessment tools and initiate a management plan using pharmacological and/or behavioural management strategies following treatment compliance (medic only)	• Appreciate the impact of hypersomnia on lifestyle, employment, driving and pregnancy	4	Case-based discussion Portfolio of patients personally followed in an accredited sleep centre	• Participate in the assessment and referral of 5 cases of hypersomnia	Diagnosis and referral of an adolescent boy presenting with irresistible sleepiness during the day impairing school performance When he laughs loudly, he experiences buckling of the knees and also complains of hallucinations at sleep onset
5. Circadian rhythm disorders	5.1 Sleep/wake rhythm disorders 5.2 Shift work and sleep	• Name clinical features of circadian rhythm disorders • Discuss indications and methods of assessment including sleep diaries, actigraphy and polysomnography and their limitations • Relate implications for health and lifestyle • Summarise knowledge of shift work disorders and co-morbdities which may result from long-term shift work • Describe principles of pharmacological and behavioural treatment strategies	• Propose appropriate assessment tools and outline pharmacological/ behavioural and light management strategies • Propose ideal shift patterns which support occupational review or change in employment as necessary • Participate in multidisciplinary team diagnosis, treatment and management plan	• Adopt a professional manner with patients, their families and relevant others • Recognise unethical behaviour in colleagues • Recognise personal limitations in management or diagnosis and willingness to refer appropriately for specialist management • Appreciate the impact on lifestyle of circadian rhythm disorders	4	Case-based discussion Portfolio of patients personally followed up in an accredited sleep centre	• Participate in a multidisciplinary team diagnosis, assessment and management of 5 cases of circadian rhythm disorder	Diagnosis and referral of a man presenting with severe sleep-onset insomnia He can only get to sleep at 04:00 h and struggles to get up for work in the morning
6. Psychiatric aspects of sleep		• Explain psychiatric disorders and their impact on sleep and vice versa • Discuss lifestyle, post traumatic stress disorder (PTSD), drug use, smoking, alcohol and medications and their impact on sleep and mood • Describe impact of sleep disorders on psychiatric illness as well as psychological factors involved in treatment adherence, lifestyle change and willingness to undergo treatment	• Investigate psychiatric illness, personality factors and psychological elements and their impact on sleep and sleep disorders	• Recognise the need for referral to another specialist as necessary	2	Case-based discussion	• Observe and participate in the assessment and referral of 1–3 cases	

Syllabus item – content for training	Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 4: Clinical assessment							
Mandatory for all							
Module competency	**Define, differentiate, diagnose, and manage obstructive and central breathing disturbances and hypoventilation during sleep. Understand their pathophysiology, clinics and consequences, and discriminate comorbidities** **Develop and apply a comprehensive clinical approach to the patient with sleep disordered breathing**						
1. Sleep history	• List all essential parts of the sleep history • Describe normal sleep • Compare specific nocturnal and daytime symptoms • Assess different sleep questionnaires	• Perform a thorough interview of the patient, bed partner and other relevant persons • Relate the sleep history to specific sleep disorders • Assess the potential influence of external and internal factors (*i.e.* noise, comfort, shift-work, pain, medical conditions) • Design the appropriate use of sleep diary and sleep, and health related quality of life (HRQL) questionnaires	• Communicate clearly about sleep conditions with patient, families and relevant others, including colleagues • Adopts a professional manner with patients, their families and relevant others • Demonstrate an understanding of ethical issues in all dealings with patients and colleagues	4	Case-based discussion Portfolio of patients regularly reviewed in an accredited sleep centre Direct observation of procedural skills	• Participation in taking a sleep history in 20 presenting cases	Thorough sleep history of a patient presenting with symptoms of snoring with concerns about sleepiness with driving
2. Differential diagnosis of hyper somnolence, tiredness, sleepiness, fatigue	• Summarise manifestations and causes of hyper somnolence • Identify different presentations of sleepiness • Discuss differentiation of hyper somnolence and fatigue	• Conduct comprehensive history taking to fully evaluate the relevant complaint • Perform and interpret objective tests of sleepiness and wakefulness • Undertake a comprehensive clinical evaluation of patient reports of sleepiness and fatigue	• Communicate clearly about sleep conditions with patient, families and relevant others, including colleagues	4	Case-based discussion Portfolio of patients regularly reviewed in an accredited sleep centre Direct observation of procedural skills	• Exposure and participation in differential diagnosis of 20 cases of excessive daytime sleepiness (ESD)	Participate in differential diagnosis of a patient presenting with a tendency of falling asleep frequently during the day at inappropriate times
3. Appropriate choice of diagnostic pathways	• Name all sleep disorders of breathing and list the basics of the most common non respiratory sleep disorders • Describe continuous positive airway pressure (CPAP) and non-invasive mechanical ventilation (NIV) • Recognise the methodology of the different sleep tests (respiratory polygraphy, full polysomnography,(PSG) multiple sleep latency test (MSLT) and actigraphy) • Evaluate sleep questionnaires	• Catalogue different types of sleep studies • Interpret clinical test results of the different sleep tests • Choose appropriate use of the most common sleep and HRQL questionnaires 36-item Short Form(SF-36), Functional Outcomes of Sleep Questionnaire (FOSQ), Beck Depression Inventory (BDI), Epworth Sleepiness Scale (ESS) • Assess differential diagnoses, diagnostic steps and therapeutic options of sleep disorders of breathing and non-respiratory sleep disorders according to current guidelines • Management of breathing and non-breathing sleep disorders	• Work cooperatively with other professionals as members of a team in patient care	4	MCQ Case-based discussion Portfolio Direct observation of procedural skills	• Recording, interpretation and use of 20 sleep questionnaires to assess sleep disorders for differential diagnosis	Participate in the differential diagnosis using diagnostic algorithms of a patient presenting with heavy snoring and pauses in breathing

Syllabus item – content for training	Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
4. Questionnaires on sleep	• Recognise utility and clinical applications of commonly used sleep questionnaires (Epworth Sleepiness Scale, Stanford Sleepiness Scale, Berlin questionnaire, STOP, STOPBang, Pittsburgh Sleep Quality Index) • Discuss risk stratification and clinical triage of patients using questionnaires • Realise that sleep questionnaires are not a replacement for formal investigation of suspected sleep disordered breathing	• Incorporate basic sleep diagnostic questionnaires into the clinical evaluation of the patient with suspected sleep disordered breathing • Instruct patients on how to complete questionnaires on sleep • Interpret results of commonly used questionnaires in light of their demonstrated sensitivity and specificity	• Clearly explain the purpose of questionnaires on sleep to the patient	4	Case-based discussion Portfolio Direct observation of procedural skills	• Participate in the use of sleep questionnaires for the assessment of 20 presenting cases	Apply sleep diagnostic questionnaires in the clinical evaluation of a patient complaining of fatigue and insomnia
5. Quality of life	• Discuss health-related quality of life (HRQoL) • Identify generic and disease-specific instruments (questionnaires) • Relate the effects of treatment on HRQL • Critique age-related differences in results of HRQL	• Perform and interpret commonly used HRQoL questionnaires • Evaluate results of different instruments used in combination (*i.e.* 36-item Short Form(SF-36), Functional Outcomes of Sleep Questionnaire (FOSQ), Beck Depression Inventory (BDI), Epworth Sleepiness Scale (ESS) • Assess the changes in different HRQoL domains after treatment	• Describes the effects of the disease to the patients offering a balance between informative and empathic communication • Clearly explain the results of HRQL questionnaires to the patient • Respect patient's rights, privacy and ability to cooperate	4	MCQ Case-based discussion Portfolio of patients (interpretation of HRQoL questionnaires) Direct observation of procedural skills	• Participate in the evaluation of HRQoL of 20 patients with suspected sleep disordered breathing (SDB)	Use of a generic instrument for HRQoL assessment in the analysis of a patient at baseline and after treatment
6. Surgical and anaesthesia risk assessment	• Discuss peri and post-operative problems associated with obstructive sleep apnoea (OSA) *e.g.* post-operative hypoxemia • Critique questionnaires to identify patients at risk *e.g.* STOPBang • Evaluate available strategies to prevent risk and ensure treatment compliance *e.g.* pre-operative continuous positive airway pressure (CPAP) treatment	• Select pre-operative patients to be screened for obstructive sleep apnoea (OSA) (medic only) • Choose patients in whom elective surgery should be delayed until obstructive sleep apnoea (OSA) treatment is started (medic only) • Manage pre-/post-operative OSA patients already diagnosed and treated • Apply post-operative protocols in the ward to prevent complications	• Clearly explain to the patient about peri-operative risks associated with obstructive sleep apnoea (OSA) • Explain to patients the value of obstructive sleep apnoea (OSA) treatment prior to elective surgery • Collaborate with colleagues including anaesthiologists and surgical teams	4	MCQ Case-based discussion Direct observation of procedural skills	• Participate in the clinical screening for obstructive sleep apnoea (OSA) in 10 pre-operative patients	Diagnose and manage a patient referred for bariatric surgery
7. Predisposing factors	• Analyse anatomic and functional factors predisposing to sleep disordered breathing (SDB) • Illustrate disease states associated with SDB	• Perform a comprehensive clinical history in patients with suspected SDB • Clinically evaluate nasal and oropharyngeal airways • Identify cases where further specialised examinations are needed	• Work within a multidisciplinary team to establish correct treatment of SDB and associated medical conditions	4	Portfolio of patients regularly reviewed in an accredited sleep centre	• Consider anatomical and functional predisposing factors in the clinical assessment of 10 patients with suspected SDB	Participate in the clinical assessment of a non-obese patient who snores loudly
8. Comorbidity assessment	• Review cardiovascular, respiratory and metabolic disorders often associated with obstructive sleep apnoea (OSA) • Detect indications for tests to assess cardiovascular and metabolic disorders • Review effects of obstructive sleep apnoea (OSA) treatment on cardiovascular, respiratory and metabolic disorders • Evaluate symptoms and signs • Re-evaluate results after sleep disordered breathing (SDB) treatment and establish if therapeutic adjustments is needed	• • Interpret cardiovascular tests (i.e. ambulatory blood pressure monitoring, echocardiography) • Interpret metabolic tests (i.e., insulin resistance, plasma lipids, liver enzymes)	• Clearly explain the high cardio-metabolic risks associated with untreated obstructive sleep apnoea (OSA) • Discuss the value of making improvements to lifestyle including weight loss, adherence to drug treatment for hypertension or diabetes for example	4	Portfolio of patients regularly reviewed in an accredited sleep centre Direct observation of procedural skills	• Assessment of comorbidities in 10 patients with obstructive sleep apnoea (OSA)	Participate in the evaluation of cardiovascular assessment e.g. echocardiography and Ambulatory Blood Pressure Monitoring (ABPM) in an OSA patient

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 5: Diagnostic techniques								
Mandatory for all								
Module Competency		**Define, differentiate, diagnose, and manage obstructive and central breathing disturbances and hypoventilation during sleep. Understand their pathophysiology, clinics and consequences, and discriminate comorbidities** **Describe, perform and interpret technical aspects of monitoring sleep, cardiorespiratory variables and movement**						
1. Polysomography (PSG) 1.1 Sensors 1.2 Measurement technique, scoring electroencephalogram (EEG) according to Rechtschaffen and Kales (R&K) and American academy of sleep medicine (AASM) criteria 1.3 Scoring EEG according to Rechtschaffen and Kales (R&K) and American academy of sleep medicine (AASM) criteria 1.4 Scoring respiratory disturbances 1.5 Scoring movements during sleep 1.6 Evaluation of ECG 1.7 Interpretation of polysomnography 1.8 PTT		• List types of sensors and how they are applied in practice • Rate the type of electrophysiological signals recorded • Describe mode of signal acquisition • Appreciate importance of infection control procedures and electrical safety in practice • Compare normal signal quality *versus* artefact of measurement techniques including filters, calibration • State technical and digital parameters of signal acquisition and their limitations • Appreciate the rules of scoring different sleep stages based on AASM rules • Be aware of the Rechtschaffen and Kales (R&K) scoring rules • Define different types of respiratory events • Define respiratory disturbances • Compare variety of different movements during sleep • Describe the influence of other diseases on measurement parameters, e.g. obesity, neurological and muscle disorders and respiratory diseases • Critique testing and discuss other appropriate tests if required	• Apply and locate correct sensors • Rate signal quality, and artefact • Perform calibration • Operate sleep acquisition systems • Troubleshoot problems with signal quality • Score the different sleep stages • Recognise artefact • Assess normal and abnormal cardiac rhythms and electrocardiogram (ECG) patterns • Interpret the multiple signal outputs of the PSG • Interpret and evaluate results in the context of the study as well as clinically • Differentiate normal from abnormal parameters and results • Evaluate appropriateness of the study and whether further studies are required • Interpret the output of measurements of pulse transit time (PTT) (Level 2 for medic and advanced practitioner, Level 1 for practitioner)	• Inform and prepare patients for polysomnography test • Show respect for the patient's dignity when applying sensors and measuring equipment • Communicate clearly with patients and members of the healthcare team • Communicate implications of results with patients • Effective communication and collaboration with the multidisciplinary team involved in measurement of sleep and treatment	4	MCQ Case-based discussion Portfolio Direct observation of procedural skills	• Perform, score and interpret 30 polysomnographies (PSGs)	• Score EEG based on AASM criteria • Score respiratory events based on AASM criteria • Interpret and report on PSG results
2. Assessment of daytime sleepiness	2.1 Multiple sleep latency test (MSLT) 2.2 MWT (Maintenance of wakefulness test) 2.3 Non-EEG-based sleep tests (question-naires)	• Describe multiple sleep latency test (MSLT) and maintenance of wakefulness test (MWT) and what constitutes an abnormal result • Identify other available tests such as the OSLER test • Test limitations	• Apply guidelines for performing tests on sleepiness including pre-assessment of the patient • Assess appropriateness of the test in the clinical context • Score the different sleep stages • Recognise artefact • Calculate and interpret results in the context of the study and clinically • Trouble-shoot problems with signal quality • Compare test outputs and ability to interpret signals	• Adequately inform and prepare the patients • Show respect for patient's dignity when applying sensors and measuring equipment • Explain impact of abnormal tests on driving	4	Case-based discussion Portfolio Direct observation of procedural skills	• Review raw data and report on 3-5 multiple sleep latency test (MSLT), maintenance of wakefulness test (MWT)	• Conduct multiple sleep latency test (MSLT) test to assess a patient presenting with daytime sleepiness

Syllabus item – content for training	Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
3. Cardiorespiratory monitoring during sleep 3.1 Polygraphy scoring: settings, trends and pitfalls 3.2 Interpretation of cardiorespiratory polygraphy 3.3 Oximetry	• Report current guidelines on use of portable devices in patients with high clinical suspicion for obstructive sleep apnoea (OSA) • Discuss systematic differences in results between polysomography (PSG) and portable monitoring • Review pros and cons of oximetry	• Evaluate indications for different diagnostic tools • Choose uncomplicated obstructive sleep apnoea (OSA) patient candidates for ambulatory management • Perform and interpret cardiorespiratory monitoring in adults • Perform and interpret oximetry and capnography	• Explain the practical aspects of ambulatory management of obstructive sleep apnoea (OSA) to eligible patients • Work cooperatively with other professionals as members of a multidisciplinary team in patient care	4	Portfolio Direct observation of procedural skills	• Score 30 polygraphy studies	
4. Actigraphy	• Review pros and cons of actigraphy	• Perform and interpret actigraphy	• Works cooperatively with other professionals as members of a multidisciplinary team in patient care	4	Portfolio Direct observation of procedural skills	• Perform actigraphy and interpret 10 actograms	
5. Nocturnal capnography	• Assess capnography in patients with nocturnal hypoventilation	• Interpret overnight TCO_2 monitoring with appropriate management of the results • Formulate a report on capnography	• Communicate clearly with the patient • Respect patient's dignity and ability to cooperate	4	Portfolio Direct observation of procedural skills	• Perform nocturnal capnography and interpret 10 capnography traces on patients with nocturnal hypoventilation	

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 6: Treatment and follow up								
Mandatory for all								
Module competency		**Define, differentiate, diagnose, and manage obstructive and central breathing disturbances and hypoventilation during sleep. Understand their pathophysiology, clinics and consequences, and discriminate comorbidities** **The participant will be able to select, start, manage and evaluate treatment modalities in respiratory and Nonrespiratory sleep disorders**						
1. Treatment of respiratory sleep disorders								
1.1 Positive airway pressure (PAP) treatment	Positive airway pressure (PAP) principles and machines, PAP interfaces, and PAP titration	• Describe types of positive pressure airway therapy and different modes *e.g.* continuous positive airway pressure (CPAP), autotitrating CPAP, bi-level positive airway pressure (BiPAP) ventilation, and other non-invasive ventilation modes • Compare the mechanism of action of different modes of positive pressure therapy • Illustrate how to match positive pressure mode to patient's pathophysiology *e.g.* continuous positive airway (CPAP) for obstructive sleep apnoea (OSA), Bi-level non-invasive ventilation (NIV) for obesity hypoventilation syndrome with hypercapnia • List different types of positive pressure interfaces including nasal masks, facemasks, nasal plugs, total facemasks and how these may suit different patients • Differentiate methods of continuous positive airway pressure (CPAP) titration: autotitration, manual titration	• Match choice of positive pressure device to patient's condition • Explain therapy to the patient and initiate therapy • Assess and fit patient with appropriate interface • Conduct titration to achieve appropriate settings for the patient • Ensure appropriate settings are achieved	• Remain up to date with new equipment • Display respect for patient's concerns about positive pressure therapy, interfaces and ensuring correct fit • Clearly explain the need for titration of pressure to patients • Is aware of and accepts that the patient is a person with important values , goals and concerns • Collaborate with the patient to obtain optimum compliance	4	MCQ MiniCEX Portfolio Direct observation of procedural skills	• Set up of 50 patients on positive pressure therapy • Carry out continuous positive airway pressure (CPAP) titration on 50 patients • Carry out non-invasive ventilation (NIV) titration in 1–5 patients	• Manage a patient with obstructive sleep apnoea (OSA) using positive airway pressure (PAP) interfaces
	Compliance	• Recognise the concepts of compliance and adherence • Assessment of compliance and reasons for poor and good compliance	• Download and interpret compliance data from positive pressure devices • Problem solve for patients with compliance problems				• Download and interpret compliance data and develop problem-solving management plan in 50 patients using positive pressure therapy	

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
1.2 Obstructive sleep apnoea (OSA)	Treatment pathways including:	• Review treatment modalities a) Continuous positive airway pressure (CPAP) b) Hypoglossal nerve stimulation (HNS) c) Oral appliance	• Recommend treatment of respiratory sleep disorders • Develop and follow a stepwise approach: standard therapies will be offered according to the obstructive sleep apnoea (OSA) severity, while alternatives can be proposed in case of ineffectiveness, intolerance, contraindications or patient reluctance to the standard procedures	• Clearly explain the risks of respiratory sleep disorders and the risks and benefits of different therapeutic options to the patient • Works cooperatively with ear nose throat (ENT) neurology and cardiology colleagues • Discuss the different treatment modalities with the members of the multidisciplinary team • Explain the impact and benefits of simple therapeutic options to the patient • Explain the impact and benefits of sleeping position to the patient • Explain the risks of respiratory sleep disorders and the risks and benefits of different therapeutic options to the patient • Work in a multidisciplinary team including *e.g.* ear nose and throat (ENT) and neurology colleagues • Explain to the patient the possibility of oral device therapy • Refer to dentists experienced in oral devices, ear nose and throat (ENT) specialists experienced in upper airway surgery, surgeons experienced in bariatric surgery • Remain up to date with research in drug treatment • Display sensitivity in communicating the consequences of comorbidity in obstructive sleep apnoea (OSA) • Refer to colleagues in the management of comorbidity • Balance patient tolerance of therapy and alternative approaches • • Advise the patient on the risks of surgery and discuss alternative treatments for example mandibular advancement device	4	MCQ Case-based discussion MiniCEX Direct observation of procedural skills Portfolio		• Management of an obese patient with OSA
	Patient education including lifestyle modification, sleep hygiene, Positive airway pressure (PAP) use	• Summarise the impact of life style modification • Describe the risks of obstructive sleep apnoea (OSA) and benefits of simple therapeutic interventions	• Justify treatment modalities for obstructive sleep apnoea (OSA)		4		• Documentation of educating the patient and family in the management of 50 obstructive sleep apnoea (OSA) cases	
	Positional treatment	• Recognise the impact of sleeping position on the pathophysiology of respiratory sleep disorders • Recognise the determinants of positional obstructive sleep apnoea (OSA)	• Demonstrate supine position dependency of obstructive sleep apnoea (OSA) • Apply tools to modify sleeping position and their short-term and long-term outcome, for example tennis ball method, supine position alarms, position trainers, pillows, elevated head position (sleep angle change)		4		• Observe and participate using positional treatment strategies in the management of 15 obstructive sleep apnoea syndrome (OSAS) cases	
	PAP treatment (including CPAP, auto-CPAP and BPAP)	•Review indications and application of PAP therapy according to the current guidelines in the field.	• Initiate continuous positive airway pressure (CPAP) (titration guided with in-hospital polysomnography, auto- continuous positive airway pressure (CPAP) based or with prediction formula) and select the appropriate device and interface • Choose a stepwise approach: continuous positive airway pressure (CPAP) as a first-line therapy, or auto- continuous positive airway pressure (CPAP) and bilevel positive airway pressure therapy in case of ineffectiveness control (complex sleep apnoea, continuous positive airway pressure (CPAP) emergent apnoea) or intolerance		4		• Treatment and follow up of 20 cases using continuous positive airway pressure (CPAP) and bilevel positive airway pressure (BPAP)	

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
	Oral devices/ mandibular repositioning splints	• Describe indications and use of oral device therapy according to the current guidelines in the field	• Choose a stepwise approach: oral device can be offered as standard therapy in mild to moderately severe OSA, or as a salvage therapy in patients with CPAP intolerance, ineffectiveness, or reluctant to use CPAP or and oral devices.		4		• Observe and participate using oral devices in the management of 5 –10 obstructive sleep apnoea syndrome (OSAS) cases, if a sleep clinic uses oral devices	
	Surgery of the upper airway	• Identify upper airway techniques (including radiofrequency ablation techniques) • Review indications and use of upper airway interventions according to the current guidelines in the field	• Complete appropriate evaluation for upper airway surgery in mild to moderately severe OSA, or as a salvage therapy in patients with intolerance for CPAP, ineffectiveness or reluctant to use CPAP or oral devices		4		• Pre and post follow up management of 5 treatment cases with surgery to the upper airway	• Selection and management of an obstructive sleep apnoea (OSA) patient for upper airway surgery
	Bariatric surgery	• Interpret indications and use/application of bariatric surgery according to the current guidelines in the field	• Choose a stepwise approach: bariatric surgery can be recommended.		4	MCQ Case-based discussion MiniCEX Direct observation of procedural skills Portfolio		• Select and manage an obstructive sleep apnoea (OSA) patient using PAP therapy
	Drug treatment	• Interpret indications and application of pharmacotherapy according to the current guidelines in the field • Appraise different mechanisms involved in drug treatment					• Pre and post follow up management of 5 treatment cases with bariatric surgery	• Select and manage an obstructive sleep apnoea (OSA) patient using oral devices
	Recognition and initial treatment of comorbidities	• Critique possibilities and limitations of treatment modalities of comorbidities	• Elicit side effects and establish a follow up plan				• Screen and assess 30 patients presenting with obstructive sleep apnoea (OSA)	• Select a patient with obstructive sleep apnoea (OSA) for upper airway surgery as a first-line treatment
	Follow-up and compliance	• Explain objective and subjective compliance • Discuss side effects • Estimate tolerance of treatment						• Pre and post-surgical management of an obese patient presenting with arterial hypertension and OSA

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
1.3 Central sleep apnoea (CSA)	• Treatment algorithms • Optimising treatment of underlying disorders • Positive airway pressure (PAP) treatment (including continuous positive airway pressure (CPAP) and bilevel positive airway pressure (BiPAP) • Adaptive servo ventilation (ASV) • Oxygen therapy • Drug treatment	• Describe treatment algorithms • Explain cardiac treatment options; pain management in opioid central sleep apnoea (CSA) • Critique possibilities and limitations of treatment modalities • Analyse indications, titration and limitations of continuous positive airway pressure (CPAP) and bilevel positive airway pressure (BiPAP) , adaptive servo ventilation (ASV) in CPAP/ BiPAP failure and oxygen therapy • Describe different sources to apply oxygen therapy • Describe indication and dosing of drug therapy • Compare different mechanisms involved in drug treatment	• Apply suitable algorithms • Choose cases who can benefit from optimising treatment • Prescribe drug therapy or skip harmful drugs (for medic only) • Identify, titrate and define the limitations of positive airway pressure (CPAP) and bilevel positive airway pressure (BiPAP) • Identify and titrate adaptive servo ventilation (ASV) in CPAP/BiPAP failure • Measure the limited evidence • Prescribe nocturnal oxygen therapy (for medic only)		4	MCQ Case-based discussion Portfolio	• Participate in the treatment of 20 cases presenting with CSA • Management of 20 CSA patients using continuous positive airway pressure (CPAP) and bilevel positive airway pressure (BiPAP) pressure treatments • Management of 5 central sleep apnoea (CSA) cases using adaptive servo ventilation (ASV) • Manage 10 patients with central sleep apnoea (CSA using oxygen therapy • Treat 10 central sleep apnoea (CSA) cases using pharmaceutical options	• Set up an effective treatment and management plan of a CSA patient • Management of an CSA patient under treatment
	Follow-up and compliance	• Explain objective and subjective compliance • Discuss side effects • Estimate tolerance of treatment	• Design follow up treatment effects • Diagnose side effects					
1.4 Hypoventilation/chronic respiratory insufficiency	Treatment pathways	• Compare different methods of non-invasive ventilation and additional oxygen supply indication	• Select treatment methods including change of inappropriate life styles and body weight reduction	• Realise the advantages and disadvantages of different treatment options according to patient tolerance	2	MCQ Case-based discussion	• Participate in 10 case-based discussions to manage treatment plans for hypoventilation/chronic respiratory insufficiency conditions	• Set up an effective treatment plan for a patient with severe nocturnal hypoventilation
	Non-invasive ventilation (NIV)	• Illustrate different non-invasive ventilation methods applied through various interfaces • Review indications for continuous positive airway pressure (CPAP), bilevel pressure, adaptive servo ventilation (ASV) and pressure support • Classify ventilatory modes (spontaneous S, Time T, ST)	• Apply treatment modalities and perform proper device settings and adjustment		4	Portfolio including continuous positive airway pressure (CPAP), bilevel pressure support, adaptive servo ventilation (ASV)	• Apply non-invasive ventilation (NIV) and nocturnal non-invasive ventilation (NIV) to 10 patients with hypoventilation/ respiratory insufficiency conditions	• Select NIV in treatment and management of a patient with scoliosis
	Follow-up and compliance	• Explain objective and subjective compliance • Discuss side effects • Estimate tolerance	• Evaluate efficiency of selected treatment method and non-invasive ventilation method, mask comfort *etc.* based on patient interviewing and polysomnography		2	Case-based discussion Feedback letters		• Manage of a patient with chronic respiratory insufficiency under treatment

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MODULE: 6 **2 Treatment of nonrespiratory sleep disorders**								
Mandatory for medics only **Optional for the advanced practitioner and practitioner**								
2.1 Non-pharmacological		• Discuss non-pharmacological e.g. sleep hygiene, (Level 3) • Describe treatment possibilities available for insomnia, hypersomnia of central origin, sleep-related movement disorders and miscellaneous conditions • Illustrate stepped care approach including general recommendations, specific recommendations, and structured psychological and behavioural interventions	• Match non-pharmacological treatments with the disorders	• Work collaboratively with multidisciplinary team including medical psychologists	2	MCQ Case-based Discussion	• Participate in 10 case-based discussions to manage treatment plans using non-pharmacological interventions	• Select a treatment protocol and manage a patient with chronic insomnia using a variety of techniques
2.2 Pharmacological		• Review different pharmaceutical options including side effects	• Propose pharmacological treatments with the disorders				• Participate in 20 case-based discussions to manage treatment plans using pharmacological interventions	• Short-term management of a patient with chronic insomnia using hypnotic drug treatment

Syllabus item – content for training	Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 7: Medicolegal aspects of sleep disorders							
Mandatory for medics only **Optional for the advanced practitioner and practitioner**							
Module competency	**Define, differentiate, diagnose, and manage obstructive and central breathing disturbances and hypoventilation during sleep. Understand their pathophysiology, clinics and consequences, and discriminate comorbidities**						
Medicolegal aspects of sleep disorders	• Describe the effects of sleep conditions on cognitive function e.g. operating equipment, driving • Remain up to date with relevant legislation *e.g.* members states and at EU level • Identify possible medical legal consequences of parasomnias	• Perform a comprehensive assessment • Investigate the link between the patient sleep disorder and its impact on functional status especially in safety critical working environment *e.g.* surgeons, professional drivers, machine operators	• Encourage patients to consider limitations imposed by sleep disorders and act accordingly • Clearly explain the importance of adherence to treatment and/ or lifestyle modification (where applicable) in modifying the legal consequences of sleep disorders • Reflect on medical legal consequences of adherence	2	MCQ Case-based discussion	• Assess and manage 50 sleep conditions that have medicolegal and economic implications	Participate in management of a sleepy driver
						• Participate in the management of 5 parasomnia cases with legal considerations/ implications	

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 8: Paediatrics								
For those working with paediatric patients, this module is mandatory **Optional module for medics, practitioners and advanced practitioners not working with paediatric patients**								
Module competency		**Define, differentiate, diagnose, and manage obstructive and central breathing disturbances and hypoventilation during sleep. Understand their pathophysiology, clinics and consequences, and discriminate comorbidities** **Diagnosis, treatment and management of paediatric patients presenting with sleep disordered breathing SDB**						
1. Physiology	1.1 Ontogenesis and maturation of sleep in the first years of life 1.2 Ontogenesis and maturation of control of breathing in the first years of life	• Recognise sleep processes during the first years of life • Appreciate the development of maturation and control of breathing	• Integrate knowledge into assessment and clinical management	• Initiates self-directed learning • Openness to questions from parents/children • Explain assessment and clinical management to the child and parents	**2**	MCQ Case-based discussion	• Keep up to date with advances in physiology • Observe and participate in the diagnosis of 20 cases of apnoea in infants or apparent life threatening event (ALTE)	

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2. Respiratory conditions	2.1 Physiopathology, diagnosis, and assessment of apnoea in infants/ apparent life threatening events (ALTE)	• Detect the underlying mechanisms causing apnoeas and apparent life threatening event (ALTE)	• Recognise the clinical aspects and consequences of apnoeas and apparent life threatening event (ALTE) • Initiate appropriate investigations and management of apnoea and apparent life threatening event (ALTE)	• Display sensitivity in communicating the consequences of apnoeas/ apparent life threatening event (ALTE) • Effectively communicate with parents and children in a clear and considerate manner	4	MCQ MiniCEX Direct observation of procedural skills	• Observe and participate in the diagnosis of 20 cases of apnoea in infants or apparent life threatening event (ALTE)	• Sleep history and clinical management of a child with suspected occurance of an apparent life threatening event (ALTE) and exclusion of underlying causes
	2.2 Physiopathology, epidemiology, diagnosis and assessment of sleep disordered breathing (SDB)	• Distinguish mechanisms underlying sleep disordered breathing (SDB) • Describe pathophysiology of sleep disordered breathing (SDB) • Recognise presenting symptoms of sleep disordered breathing (SDB) in different age groups • List the advantages and limitations of different diagnostic tools for sleep disordered breathing (SDB) • Assess conditions at high risk of sleep disordered breathing (SDB) where screening may be appropriate	• Conduct a sleep history • Distinguish the clinical aspects and consequences of sleep disordered breathing (SDB) • Synthesise the mechanisms underlying sleep disordered breathing (SDB) to patients and colleagues	• Interacts effectively with the patient and child to communicate the diagnosis • Reflects on priorities in professional and academic learning activities linked to epidemiology and pathophysiology of sleep disordered breathing (SDB)	4	MCQ MiniCEX Direct observation of procedural skills	• Observe and participate in the diagnosis of 50 cases of sleep disordered breathing (SDB)	• Manage of a child presenting with sleep disordered breathing (SDB)
	2.3 Obstructive sleep apnoea including risks, clinical aspects and consequences (*e.g.* neurocognitive and cardiovascular)	• Consider different mechanisms underlying obstructive sleep apnoea (OSA) • Describe associated conditions which may be risks factors and/or consequences of obstructive sleep apnoea syndrome (OSAS) • Appraise risks and clinical aspects and consequences of obstructive sleep apnoea (OSA) • Evaluate obstructive sleep apnoea (OSA) associated conditions	• Perform clinical assessment and examination of a patient presenting with OSA. • Recognise the clinical aspects and consequences of OSA in patients • Prepare and implement a treatment plan for patient	• Utilises the expertise of other professionals and experts as appropriate	4	MCQ Case-based discussion Direct observation of procedural skills	• Participate in the management of 100 cases of obstructive sleep apnoea (OSA)	• Clinical assessment and examination of a child with suspected OSA including craniofacial anatomy and oropharynx
	2.4 Sleep hypoventilation syndromes and central sleep apnoea including neuromuscular conditions and congenital central hypoventilation syndrome (CCHS)	• Identify conditions leading to nocturnal hypoventilation and likely rate of progression • Specify conditions including muscular dystrophies, myopathies, spinal muscular atrophy, myasthenia, congenital central hypoventilation syndrome (CCHS) and neuropathies leading to hypoventilation and the effects of hypoventilation on arterial blood gas tensions	• Evaluate, investigate and diagnose nocturnal hypoventilation using appropriate techniques • Assess neuromuscular conditions, and monitor and diagnose nocturnal hypoventiltation • Monitor and interpret oximetry and PCO_2 overnight using transcutaenous/ end tidal CO2 monitoring and assess need for NIV	• Displays sensitivity in explaining diagnosis and consequences to patients and family • Adopts a professional manner in each patient encounter that is empathic in explaining the diagnosis, consequences and prognosis of nocturnal hypoventilation • Explain and discuss possible treatments to patients and family	4	MCQ MiniCEX Direct observation of procedural skills	• Participate in the management of 50 cases of sleep hypoventilation syndromes and central sleep apnoeas	• Investigate and diagnose sleep hypoventilation syndromes
	2.5 Comorbid respiratory disorders including allergic respiratory disorders and asthma, bronchopulmonary dysplasia (BPD), interstitial lung disease and cystic fibrosis	• Classify conditions and their impact on sleep quality and sleep disordered breathing • Analyse effects of these disorders on nocturnal gas exchange and sleep quality, and the impact of exacerbations	• Diagnose and assess comorbid conditions and evaluate impact on sleep disordered breathing • Adapt a management plan to comorbid condition • Diagnose and assess asthma, rhinitis, other allergic conditions, cystic fibrosis and evaluate impact on sleep disordered breathing • Adapt a management plan to comorbid condition and titrate treatment to exacerbations				• Participate in the management of 20 cases with co-morbid disorders including asthma, rhinitis, interstitial lung disease, bronchopulmonary dysplasia (BPD) and cystic fibrosis	• Long-term management of a patient with rhinitis or asthma affecting sleep quality

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3. Non-respiratory conditions	3.1 Narcolepsy and other hypersomnias	• Describe physiological mechanisms underlying narcolepsy and other hypersomnias and their presentation	• Diagnose the clinical aspects of narcolepsy and hypersomnias	• Explain the symptoms and complications of hypersomnias to the parents/colleagues	4	MCQ MiniCEX Direct observation of procedural skills	• Management of 5 patients diagnosed with narcolepsy, idiopathic hypersomnia, and recurrent hypersomnia	• Clinical assessment and diagnosis of a child presenting with excessive daytime sleepiness (EDS), and/or attention/cognitive problems
	3.2 Attention deficit hyperactivity disorder (ADHD) and other behavioural disorders	• Discuss the physiological mechanisms underlying ADHD and behavioural disorders and their presentation	• Diagnose the clinical aspects of attention deficit hyperactivity disorder (ADHD)				• Management of 10 patients with Attention deficit hyperactivity disorder (ADHD), parasomnia and other behavioural disorders	
	3.3 Cross-over between hypersomnias, behavioural disorders and sleep disordered breathing (SDB) in a paediatric patient	• Illustrate the interactions between sleep disordered breathing (SDB) and hypersomnias and behavioural disorders	• Evaluate complex sleep disordered breathing (SDB)				• Participation in 10 presented case studies with cross overs between hypersomnias, behavioural disorders and sleep disordered breathing	
4. Clinical assessment	4.1 Sleep history and clinical assessment of an infant (1 - 12 months of age)	• Appreciate signs, symptoms, clinical findings of sleep disorders	• Produce a specialised history, including symptoms of secondary diseases and perform physical examination • Formulate a critical appraisal of questionnaires tools	• Explain and discuss values and limitations of investigative procedures to patients and families • Discuss sleep history with patients and families	4	Case-based discussion Portfolio	• 30 sleep histories and clinical assessments of infant patients between 1 and 12 months	• Neurological examination and neurobehavioural assessment of a child
	4.2 Sleep history and clinical assessment of a child						• 50 sleep histories and clinical assessments	
	4.3 Indications for respiratory and non-respiratory investigations	• Define diagnostic algorithms	• Assess limitations and recommend investigations				• Participate in the diagnosis and management 50 patients	

Syllabus item – content for training		Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
5. Diagnostic techniques	5.1 Polysomnography current recommended scoring criteria for sensors, electroencephalography (EEG), scoring breathing, normative data, interpretation and report of polysomnography in an infant/child	• List indications for polysomnography and polysomnographic procedures • Compare benefits and pitfalls of different types of sensors • Discuss electroencephalography (EEG) scoring rules across the paediatric age range • Discuss breathing disorders during sleep and their scoring rules • Recognise age related normative data on sleep and breathing • Assess PSG criteria for diagnosis of different conditions in a paediatric population • Explain diagnostic thresholds for OSA in children	• Perform and interpret cardiorespiratory polysomography across paediatric age range • Choose appropriate sensor and interpret their output, signal quality and artefacts • Score the different sleep stages and recognise artefacts and signal quality • Score the different respiratory events • Integrate normative data in the clinical management plan • Prepare a comprehensive report based upon the clinical history and results of polysomnography	• Explain the process of polysomnography to the child and parents • Select when to compromise between patient distress and less rigorous investigation • Inform non-sleep specialists on the indications of polysomnography • Display sensitivity in applying sensors to various body areas and willingness to explain rationale for use of sensors to the parents and child • Communicate clearly and explain the results of polysomnography to colleagues, patients and patient's family.	4	MCQ Case-based discussion Portfolio Direct observation of procedural skills	• Interpret 30 polysomnographies across the paediatric age range • Application of 30 sensors • Application and interpretation of electroencephalography (EEG) sleep scoring rules of 30 infants/children • Application and interpretation of scoring breathing rules of 30 infants/children • Use of 30 cases of age-related normative data in clinical management of patients	• Manage home-based monitoring techniques to study sleep disorders of a patient in their home environment • Score and interpret electroencephalography (EEG) • Interpret and report polysomnography in an infant child
	5.2 Cardiorespiratory monitoring in children	• Appraise validity and reliability of polygraphy • Reproduce polygraphy scoring rules and report • Compare benefits and pitfalls of cardiorespiratory monitoring • Critique studies related to home-based and portable monitoring studies	• Establish cardiorespiratory monitoring procedures	• Clearly explain and prepare patients and families for cardiorespiratory monitoring • Share information on non-sleep specialists on the indications and end results of cardiorespiratory monitoring			• Scoring and interpretation of 30 cases	
	5.3 Oximetry	• Compare benefits and pitfalls of oximetry • Report current guidelines on use of portable devices in patients with suspected OSA	• Demonstrate oximetry procedure • Perform and interpret oximetry and oxicapnography recordings				• Participate in the diagnosis and screening • Report on diagnostic oximetry, 100 studies	
	5.4 Assessment of daytime sleepiness	• Compare benefits and pitfalls of MSLT and MWT scoring rules and normative data	• Recommend indications for assessment of daytime sleepiness				• Scoring and interpretation of 15 cases	

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6. Management of sleep disordered breathing (SDB) in patients	6.1 Apnoeas in infants	• Describe treatment options for apnoea in infants • Explain pathogenetic mechanisms	• Recommend treatment of infants apnoea • Perform endoscopic examination	• Explain the risks and benefits of therapeutic interventions to the patient and their parents • Work in a multidisciplinary team including ear nose and throat (ENT), cardiology, neurology colleagues • Adopt a professional and empathetic manner towards patients and families in discussing treatment options, including non-invasive ventilation (NIV) and tracheostomy ventilation and the advanced care plan • Reflect on patient and family needs in management decisions		MCQ Case-based discussion Portfolio	• Management of 10 cases of different ages and causes of apnoeas in infants	• Set up a long-term management protocol for a child with obstructive sleep apnoea (OSA), including monitoring of efficacy therapy and appropriate continuing education for family
	6.2 OSA	• Select treatment modalities of SDB • Appraise definitions of SDB across age categories • Explain indications, risks and benefits of procedures including: tonsillectomy and/ or adenoidectomy and other ear nose and throat (ENT), procedures, craniofacial, orthodontic,continuous positive airway pressure (CPAP) treatment • Discuss principles of lifestyle modifications in obstructive sleep apnoea (OSA), particularly in elderly population (active ambient life)	• Design treatment of SDB • Choose a stepwise approach for OSA • Provide recommendations on nutrition, sleep and exercise		4		• Management of 20 cases of different ages and causes of obstructive sleep apnoea (OSA)	
	6.3 Sleep hypoventilation syndromes	• Review factors determining choice of invasive *versus* non-invasive • List indications, risks and benefits of treatment options for sleep hypoventilation syndromes including: positive pressure ventilation *via* tracheostomy, non-invasive ventilation, negative pressure ventilation, respiratory pacing • Catalogue the indications of non invasive ventilation (NIV) in the treatment of nocturnal hypoventilation • Recognise complications of non invasive ventilation (NIV) and tracheostomy ventilations and their management					• Management of 10 patients with nocturnal hypoventilation	

Syllabus item – content for training	Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 9: Management **Mandatory for medic and advanced practitioner** **Optional for the practitioner**							
Module competency	**Essential management concepts that are important in the practice of respiratory sleep**						
1 Evaluation of health cost and economics	• Describes quality of life (QOL) • Analyses cost-benefits • Assesses the indirect and direct costs in sleep and breathing clinics	• Determine effects of quality of life • Evaluate new implemented treatments	• Appreciate the cost-benefit ratio of treatment • Optimise use of resources within sleep and breathing clinics • Promote safety for patients and staff	2	Case-based discussion	• Participation in sleep audit at least twice • Involvement in quality control programme	• Decide to admit a patient to a sleep clinic
2 Resource allocation	• Evaluate the organisation of sleep and breathing clinics • Identify different levels of care • Identify economic factors impacting decision making as a health care provider	• Identify quality of care parameters • Assemble rapid response team • Identify early detection of patients at risk	• Willingness to participate in multidisciplinary teams • Prevent silo mentality	2	Case-based Discussion	• Participate in the decision process of 5 interdisciplinary patient transfers	
3 Team management	• Follow a team approach in the delivery of guidelines • Consider, review and manage the work content of the team members. • Have insight into interpersonnel and group dynamics	• Stimulate team work • Ability to motivate and lead team members • Demonstrate professional maturity and diplomacy to take appropriate steps to resolve tensions and conflicts • Ability to stimulate communication and the exchange of information between team members • Utilises the expertise and strengths of the team and other professionals as appropriate being aware of their specific abilities, skills and role • Recognise the social factors that impact decision making and ability to influence decisions • Ability to take initiatives	• Willingness to coach and mentor team members • Have an overview of the team • Possess a strategic view with respect to past and future developments • Ensures all team members respect patient's rights and privacy	2	Case-based Discussion Portfolio	• Participate in a sleep team • Participate in the decision process of sleep team	Discuss within the team the decision to stop treatment of a patient

Syllabus item – content for training	Knowledge	Skills	Attitudes	Level of assessment	Assessment methods	Minimum clinical/ educational exposure	Teaching and learning opportunity
MODULE 10: Communications and ethics **Mandatory for medic and advanced practitioner** **Optional for the practitioner**							
Module competency	**Essential communication and ethical concepts applied in the practice of respiratory sleep medicine**						
1 Appropriate verbal and written communication	• Demonstrate familiarity with informed consent procedures • Describe institutional ethical committee procedures • Explain medicolegal aspects relevant to the local setting • Describe procedures in using understandable language • Discuss and explain to patients the procedures and manoeuvres that could be avoided or suspended • Explain the diagnosis and treatment using an understandable language		• Awareness and acceptance that the patient is a person with important values, goals and concerns • Consideration of views of patient, family and other team members • Respects patient's rights and privacy	2	Case-based Discussion	• Explain diagnosis, treatment and management to 10 patients	• A policlinical visit to discuss the results of a sleep study to patient and partner.
2 Handling emotional effects of illness that impacts on patient lifestyle	• Describe the concept of "burn out" • Assess psychological needs and support of patient family and team • Explain the role of team debriefing exercises	• Organise supporting personnel to handle emotional effects of illness in patients and their family	• Recognise personal limitations, whether they are intellectual, physical or emotional and seek additional consultation where appropriate • Appreciate the impact of stress on team members, patients and family	2			• A patient reluctant to start continuous positive airway pressure (CPAP) therapy and to use it life-long.
3 Handling of unfavourable messages and complaints	• Describe timing, appropriate content of information and support to patient and family	• Adopt different strategies according the reactions of the patient and/or family • Follow principles of communicating bad news	• Adopts a professional manner in each patient encounter that allows each patient to feel he/ she has received satisfactory, empathetic professional service	2			• A patient lost weight after gastric bypass, but is not cured from sleep apnoea and needs to continue continuous positive airway pressure (CPAP) therapy.

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4 Understanding medical ethics in due consideration of socioeconomic, cultural and religious differences	• Explain principles of ethics. • Demonstrate an understanding of ethical beliefs and religious and, cultural points of views • Identify alternative courses of action with regard to care of individual patients and team members	• Adapt appropriate communication in circumstances and take into account personal values, social background and beliefs of the patient	• Recognises different values, obligations moral rights and personal principles in presented choices for treatment • Express empathy and support towards patients, showing that you understand that your background may be different • Consider and accept patient's views in decision making	2	Case-based Discussion	• Participate in one ethics meeting	• A Jewish patient with severe OSA who doesn't want to use CPAP on the Sabbath
5 Respect of patient autonomy	• Apply principles of patient-centred care	• Seek patient views and provide appropriate balanced information to facilitate decision-making by the patient					• A patient with severe obstructive sleep apnoea (OSA) who absolutely wants to receive pharyngeal surgery in due time
6 Assessment of utility and futility of diagnostic and therapeutic procedures	• Define terms and principles of ethics including value or lack of value of an intervention and escalation to an individual	• Provide information to allow patient to make informed decision on value of treatment options					• A patient with mild obstructive sleep apnoea (OSA) who gets life style advice and proposal for a local therapy of the pharynx (surgery, oral device)
7 Informed consent	• Describe the role of consent for interventions • Demonstrate understanding of the concept of "capacity" of patient to consent to procedures and how to assess this competence • Describe risks and advantages of an intervention in a balanced and appropriate way to the patient or family			4	Case-based Discussion Direct observation of procedural skills	• 5 clinical study protocols with informed consent and ethical committee approval	• A treated patient with moderately severe obstructive sleep apnoea (OSA) who can participate in a clinical study

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MODULE 11: Research							
Mandatory for medic and advanced practitioner **Optional for the practitioner**							
Module Competency	**Ensuring that the best medical practice is applied in patient care**						
1 Scientific literature appraisal	• Explain the basic principles of medical literature interpretation	• Appraisal of the quality of research	• Consider research evidence and advances applicable to patient care	2	Case-based Discussion	• Participate in 10 scientific papers	• Appraisal of a scientific article related to the clinical presentation of a patient currently being managed
2 Application of evidence based medicine (EBM) publications	• Analyse international and national guidelines • Describe the methodology of producing guidelines • Distinguish between types of evidence based medicine publications (i.e. recommendations, guidelines, position papers) • Explain the legal implications in evidence based medicine (EBM)	• Interpret and apply recommendations from evidence based publications to patient care	• Willingness to be up to date and undergo continuous medical education • Readiness to change practice habits based on evidence based medicine			• Discuss of 5 cases using evidence based medicine (EBM) • Participate in 2 seminars using an evidence based medicine (EBM) approach	
3 Use of information technology	• Describe electronic based resources and their application in health care • Judge the quality of information	• Retrieval of information from electronic based resources	• Share information gathered with other professionals			• 10 hours use of information technology such as dedicated websites (*e.g.* PubMed)	