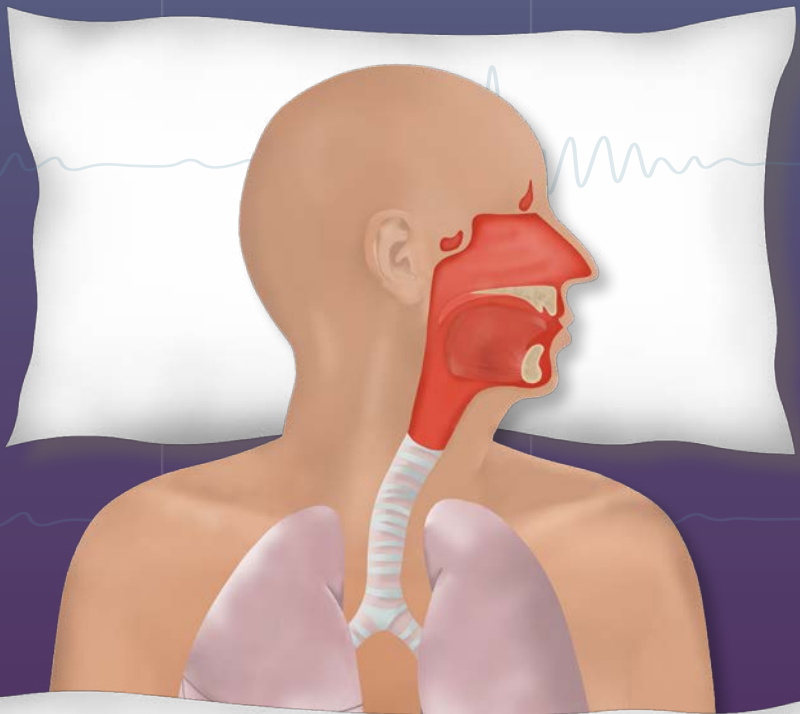




# ERS|handbook

## Respiratory Sleep Medicine

2nd Edition



**Editors**

Maria R. Bonsignore, Winfried Randerath,  
Sophia E. Schiza and Anita K. Simonds



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Respiratory  
Sleep  
Medicine

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## **PUBLISHED BY THE EUROPEAN RESPIRATORY SOCIETY**

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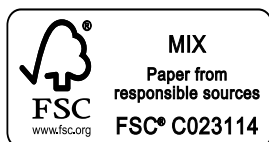
Design by Claire Marchant and Clarissa Charles, ERS  
Typeset by Nova Techset Private Limited, India  
Indexed by Merrall-Ross International, UK  
Printed by Page Bros Group Ltd, Norwich, UK

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Print ISBN: 978-1-84984-163-4  
Online ISBN: 978-1-84984-164-1  
ePub ISBN: 978-1-84984-165-8



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Disclosures for all authors are given at  
<https://doi.org/10.1183/9781849841641.coi>

# List of abbreviations

<b>AHI</b>	apnoea-hypopnoea index	<b>HF</b>	heart failure
<b>ASV</b>	adaptive servo ventilation	<b>ICSD</b>	International Classification of Sleep Disorders
<b>BMI</b>	body mass index	<b>IPAP</b>	inspiratory positive airway pressure
<b>BP</b>	blood pressure	<b>MRI</b>	magnetic resonance imaging
<b>BPAP</b>	bilevel positive airway pressure	<b>MSLT</b>	Multiple Sleep Latency Test
<b>CHF</b>	congestive heart failure	<b>NIV</b>	noninvasive ventilation
<b>CPAP</b>	continuous positive airway pressure	<b>NREM</b>	non-rapid eye movement
<b>CSA</b>	central sleep apnoea	<b>OHS</b>	obesity hypoventilation syndrome
<b>CSR</b>	Cheyne-Stokes respiration	<b>OSA</b>	obstructive sleep apnoea
<b>CVD</b>	cardiovascular disease	<b>OSAS</b>	OSA syndrome
<b>COPD</b>	chronic obstructive pulmonary disease	<b>OSLER</b>	Oxford Sleep Resistance Test
<b>DBP</b>	diastolic BP	<b><math>P_{aCO_2}</math></b>	arterial carbon dioxide tension
<b>EDS</b>	excessive daytime sleepiness	<b><math>P_{aO_2}</math></b>	arterial oxygen tension
<b>EEG</b>	electroencephalography	<b>PAP</b>	positive airway pressure
<b>EMG</b>	electromyography	<b>PSG</b>	polysomnography
<b>ENT</b>	ear, nose and throat	<b><math>P_{tcCO_2}</math></b>	transcutaneous carbon dioxide tension
<b>EOG</b>	electrooculography	<b>REM</b>	rapid eye movement
<b>EPAP</b>	expiratory positive airway pressure	<b>SAHS</b>	sleep apnoea-hypopnoea syndrome
<b>ESS</b>	Epworth Sleepiness Scale	<b><math>S_{aO_2}</math></b>	arterial oxygen saturation
<b>FVC</b>	forced vital capacity	<b>SDB</b>	sleep disordered breathing
<b>FRC</b>	functional residual capacity	<b>SBP</b>	systolic blood pressure
<b>FEV<sub>1</sub></b>	forced expiratory volume in 1 s	<b><math>V'_E</math></b>	minute ventilation

# Preface

Respiratory sleep medicine is a rapidly evolving discipline in pneumology. Since the first edition of the *ERS Handbook of Respiratory Sleep Medicine*, we have seen significant progress in the pathophysiological understanding of the various endotypes of obstructive sleep apnoea, described distinct phenotypes based on symptoms and comorbidities, and gained insights into the limitations and potential of biomarkers. This helps us to reformulate a pure mechanistic understanding of the disease. Moreover, we have proceeded from a generic definition of the disease based on the apnoea-hypopnoea index to its replacement by outcome-oriented or patient-related biomarkers. Similarly, we are currently discovering important information about the different phenotypes of central sleep apnoea and its optimal, personalised treatment. Finally, large randomised controlled studies have produced unexpected results, that underline the urgent need for a change in study design and use of refined statistical analysis based on large number of patients. Therefore, an update of the *ERS Handbook of Respiratory Sleep Medicine* is clearly necessary.

Sleep medicine is a true multidisciplinary field. Sleep physicians are referred and treat patients from all specialties of medicine. Therefore, we are grateful for the contributions from colleagues, not only from pulmonary medicine, but also from neurology, paediatrics, psychiatry and ENT, among others.

We have worked to ensure the book provides a valuable update, not only for experienced sleep specialists, but also for trainees, nurses and allied healthcare professionals. Our aim is to focus on practical aspects, tips and advice based on clinical practice and up-to-date guidelines.

We are really grateful to everyone who contributed to this edition.

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Chief editors





# Conflicts of interest

Tiina Andersen reports receiving the following, outside the submitted work: honoraria for lectures from BREAS and Philips. Tiina Andersen was a member of the BREAS advisory board on airway clearance techniques (March 2022), and held roles on the organisation committees of the JIVD/ERCA 2022 Congress and the ERS course on Respiratory Failure and Mechanical Ventilation 2022.

Sébastien Baillieul is supported by: 'My Way to Health' via the French National Research Agency in the framework of the 'Investissements d'avenir' programme (ANR-15-IDEX-02); and the 'e-health and integrated care and trajectories medicine and MIAI artificial intelligence' Chairs of Excellence from the Grenoble Alpes University Foundation. Chapter 16.3 was partially supported by MIAI@Grenoble Alpes (ANR-19-P3IA-0003). Sébastien Baillieul would like to thank Alison Foote (Aide-à-la-Pub, Grenoble, France) for critically editing chapter 16.1 and improving English usage.

Sébastien Bailly is supported by: 'My Way to Health' via the French National Research Agency in the framework of the 'Investissements d'avenir' programme (ANR-15-IDEX-02); and the 'e-health and integrated care and trajectories medicine and MIAI artificial intelligence' Chairs of Excellence from the Grenoble Alpes University Foundation. Chapter 16.4 was partially supported by MIAI@Grenoble Alpes (ANR-19-P3IA-0003).

Maria R. Bonsignore reports receiving the following, outside the submitted work: payment or honoraria for lectures from Bioprojet for pitolisant and Jazz Pharmaceuticals for solriamfetol; and support for attending meetings from Bioprojet. Maria R. Bonsignore is a participant on the data safety monitoring board or advisory board of Bioprojet for Pitolisant.

Silvia V. Conde reports receiving the following, outside the submitted work: grants or contracts from Cambridge Electronics Design Limited, Oxford Optronics, Caltecnica/Controltecnica and SICGEN Antibodies; and support for attending meetings and/or travel from The Physiological Society, Keystone and MDPI.

Marieke L. Duiverman reports receiving the following, outside the submitted work: research grants from RESMED Ltd, Philips BV, Löwenstein BV and Vivisol BV; payment for lectures from Chiesi, Vivisol and RESMED Ltd; and equipment, materials, drugs, medical writing, gifts or other services from Philips BV, Löwenstein BV and Vivisol BV.

Francesco Fanfulla reports receiving the following, outside the submitted work: payment for lectures, presentations, speaker's bureaus, manuscript writing or educational events from GSK and Jazz Pharmaceuticals. Francesco Fanfulla is the President of AIMS (the Associazione Italiana di Medicina del Sonno).

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Maelle Guellerin is supported by: ‘My Way to Health’ via the French National Research Agency in the framework of the ‘Investissements d’avenir’ programme (ANR-15-IDEX-02) and the ‘e-health and integrated care and trajectories medicine and MIAI artificial intelligence’ Chairs of Excellence from the Grenoble Alpes University Foundation. Chapters 16.2 and 16.3 were partially supported by MIAI@Grenoble Alpes (ANR-19-P3IA-0003). Maelle Guellerin would like to thank Alison Foote (Aide-à-la-Pub, Grenoble, France) for critically editing chapter 16.2 and improving English usage.

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Ulf Kallweit reports receiving honoraria for consulting and lecturing from AOP Health, Bioprojet, Jazz Pharmaceuticals and Takeda.

Barry Kennedy received re-imbusement for registration fees, flights and accommodation for ESRS 2022 from Bioprojet, outside the submitted work.

Brian D. Kent reports receiving the following, outside the submitted work: educational travel bursaries from Boehringer Ingelheim, Chiesi and Napp; and research funding from Itamar Medical. Brian D. Kent has participated in advisory boards and/or received speakers’ fees from AstraZeneca, Chiesi, GSK, Novartis and Teva. Brian D. Kent is the Chief Editor of Breathe (published by the European Respiratory Society)

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Annabel H. Nickol was provided with accommodation and meeting registration to participate in the CARE conference 2022, supported by Fisher & Pykel; she was offered an honorarium which was donated to local charities. Annabel H. Nickol is a medical advisor and trustee of the patient charity the Sleep Apnoea Trust.

Jean-Louis Pépin has received lecture fees or conference travel grants from ResMed, Philips, ITAMAR, Somnomed, Jazz Pharmaceuticals, Agiradom, and Bioprojet. He has also received unrestricted research funding from ResMed, Philips and Bioprojet. Jean-Louis Pépin is supported by: 'My Way to Health' via the French National Research Agency in the framework of the 'Investissements d'avenir' programme (ANR-15-IDEX-02); and the 'e-health and integrated care and trajectories medicine and MIAI artificial intelligence' Chairs of Excellence from the Grenoble Alpes University Foundation. Chapter 16.3 "Digital health innovations for optimisation and follow-up of therapy" was partially supported by MIAI@Grenoble Alpes (ANR-19-P3IA-0003). Jean-Louis Pépin would like to thank Alison Foote (Aide-à-la-Pub, Grenoble, France) for critically editing chapters 16.1 and 16.2 and improving English usage.

Winfried Randerath reports receiving the following, outside the submitted work: consulting fees from Jazz Pharmaceuticals, Bioprojet and Philips; payment or honoraria from Jazz Pharmaceuticals, Bioprojet, Philips Respironics and Desitin Pharma; and support for attending meetings and/or travel from Jazz Pharmaceuticals, Bioprojet and Philips Respironics.

Renata L. Riha has received payment or honoraria for lectures, presentations, speakers' bureaus, manuscript writing or educational events from Jazz Pharmaceuticals (one-off payment in 2021); has participated on a data safety monitoring board or advisory board for Jazz Pharmaceuticals (completed 2020); is co-director of Sleep Consultancy Ltd (ongoing, payments to business); and is the current Editor-in-Chief of the European Respiratory Review. All disclosures made outside the submitted work.

Joerg Steier is the named inventor on a patent for an apparatus to treat snoring and sleep apnoea (King's College London/Guy's & St Thomas' NHS Foundation Trust).

Renaud Tamisier has received unrestricted research grants from ResMed, Vitalaire, Philips and the AGPMC Foundation, consultant fees from ResMed, Inspire, Navigant, Bioprojet and Jazz Pharmaceuticals, and travel grants from Agiradom. Renaud Tamisier is supported by: 'My Way to Health' via the French National Research Agency in the framework of the 'Investissements d'avenir' programme (ANR-15-IDEX-02) and the 'e-health and integrated care and trajectories medicine and MIAI artificial intelligence' Chairs of Excellence from the Grenoble Alpes University Foundation. Chapters 16.2 and 16.3 were partially supported by MIAI@Grenoble Alpes (ANR-19-P3IA-0003). Renaud Tamisier would like to thank Alison Foote (Aide-à-la-Pub, Grenoble, France) for critically editing chapters 16.1 and 16.2 and improving English usage.

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Timothy I. Morgenthaler reports receiving the following, outside the submitted work: honoraria and consulting fees in support of lectures and as a member of a research design committee from Respicardia, Inc.. Timothy I.. Morgenthaler also reports receiving funding from AR Medical, Withings, and Respicardia, Inc to his institution in support of research projects.

Ivana Rosenzweig reports the following, outside the submitted work: a paid or unpaid leadership or fiduciary role in the board, society, committee or advocacy group, for Frontiers Journals.

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Olivier Vanderveken reports receiving the following, outside the submitted work: grants or contracts from Philips, Somnomed and ProSomnus; payment or honoraria for lectures, presentations, speaker's bureaus, manuscript writing or educational events from SomnoMed, Philips, Inspire Medical Systems and Nyxoah; and equipment, materials, drugs, medical writing, gifts or other services from Philips.

Johan Verbraecken reports receiving the following, outside the submitted work: institutional fees and educational grants from AirLiquide, AstraZeneca, Bekaert Deslee Academy, Bioprojet, Desitin, Epilog, Fisher & Paykel, Heinen & Löwenstein, Idorsia, Inspire, Jazz Pharmaceuticals, Medidis, Mediq Tefa, OSG, Philips, ResMed, Sefam, SomnoMed, Total Care, UCB Pharma, Vivisol, Wave Medical, Westfalen Medical and Withings; consulting fees from Bioprojet, Epilog, Idorsia, Vemedia and Withings; payment or honoraria for lectures, presentations, speaker's bureaus, manuscript writing or educational events from AstraZeneca, Pfizer, Atos Medical, SD Worx, Bioprojet, Total Care and Idorsia; and support for attending meetings and/or travel from Bioprojet. Johan Verbraecken reports participating on a data safety monitoring board or advisory board for Desitin. Johan Verbraecken is a board member for the Belgian Association for Sleep research and Sleep medicine (BASS).

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Peter J. Wijkstra reports receiving the following, outside the submitted work: research grants from RESMED Ltd and Philips; and consulting fees from Philips. Peter J. Wijkstra is the current Treasurer of the European Respiratory Society (2022-2025).

The following authors have no disclosures to declare:

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Marta Amata  
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Stijn Verhulst