



ERS | handbook

Self-Assessment in Respiratory Medicine

Editors

Konrad E. Bloch

with Paolo Palange and

Anita K. Simonds

111 patient
vignettes and
explanations

HERMES

Harmonised Education in
Respiratory Medicine for
European Specialists



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Introduction

In recent decades, medical science has advanced enormously and the knowledge and skills expected from a medical practitioner have increased accordingly. Many strive to keep pace with developments as basic training and continuous medical education require considerable effort and time. To assure a high quality of medical care, structured training programmes and formal assessments of physicians have been introduced in many countries. Physicians now have to prove that they have undergone appropriate training and evaluation of their knowledge and skills, in order to obtain/retain the right to practice.

Recognising the increasing demand for education in respiratory medicine, the European Respiratory Society has initiated the “Harmonised Education in Respiratory Medicine for European Specialists” (HERMES) project. The aim is to promote the highest possible standards of practice in the specialty and to improve harmonisation of training across European countries. The HERMES project has been implemented through a task force coordinating inputs from representatives of more than 50 countries. After describing the knowledge and skills a European respiratory specialist should have (see the index to this book)¹ and delineating requirements for the core training curriculum^{2,3}, the further phases of the project include introduction of assessments and accreditation of training centres.

The European Examination in Respiratory Medicine is one of the assessments developed within the HERMES project⁴. It was held for the first time in 2008 and now takes place annually. It is a knowledge-based test evaluating topics outlined in the European Syllabus. The examination currently consists of 90 multiple-choice questions to be solved within a 3-hour examination session. Practising respiratory specialists holding a national accreditation and aiming to receive a European Diploma are admitted to the examination. An increasing number of trainees undergoing specialist education, as well as postgraduates who wish to evaluate their knowledge, have taken the examination. All participants receive a detailed analysis of their performance in different areas of the field, but the Diploma is reserved for nationally accredited practising specialists in respiratory medicine.

The multiple-choice questions selected for the HERMES Examination are created by a panel of authors from various countries and settings, *i.e.* from academic centres, community hospitals and specialist practice. The authors undergo special training in order to produce valid questions. The HERMES Examination Committee evaluates each new question during workshops and selects those meeting high standards in terms of clinical relevance, unambiguous scientific accuracy and formal aspects. Only questions passing this evaluation are subsequently incorporated into examinations. During a post-examination evaluation, questions are further assessed for their difficulty, selectivity and formal suitability. The pass/fail limit of each year's HERMES Examination is set according to predefined rules. They incorporate difficulty scores given by committee members for each question reflecting the likelihood of a minimally qualified examinee answering any particular question correctly (Angoff method); a calibration is also performed by comparison of performance in a set of previously used questions (Rasch equating). Thus, rather than targeting any particular pass rate, the pass limit is set at a level that assures that successful candidates demonstrate a high level of knowledge.

In response to requests from candidates preparing for the HERMES Examination and in order to stimulate learning, the European Respiratory Society School has decided to prepare the current handbook, containing a collection of multiple-choice questions with answers and comments. It is intended to be a self-assessment companion to the *ERS Handbook of Respiratory Medicine*⁵, which contains a systematic discussion of topics relevant for the specialist in adult respiratory medicine. The topics within the current handbook are selected from the Syllabus and their relative representation reflects the weights attributed by the Examination Committee to the different topics, according to clinical relevance and importance in specialist education. The representation of topics is listed in the so-called 'blueprint' (see appendix 2)¹. The questions selected for this handbook have been prepared by experienced authors and have undergone a rigorous evaluation according to the principles outlined above. The majority of questions are introduced by a case vignette describing a clinical problem to be solved. The purpose is not merely to test the knowledge of facts (which could be looked-up in a textbook or on the internet), but rather to evaluate the ability of a candidate to apply knowledge and critically weigh different options in a clinical context. Accordingly, the choice of answers often contains more than one reasonable alternative, from which the candidate has to select the most appropriate one. In the comments to each question, evidence in favour of and against the various answers is discussed and literature references are provided for further reading.

We hope the readers of this handbook will enjoy solving the problems presented in the case vignettes and questions, and benefit from assessing and refreshing their knowledge in respiratory medicine.

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How to use this book

This handbook may be used in several ways: for self-assessment; to identify areas of strengths and weaknesses as a guide for further studies and to refresh and update your knowledge in respiratory medicine. Those who wish to experience how it feels to undergo the HERMES Examination may set themselves the challenge of solving 90 of the 111 multiple-choice questions (MCQs) collected here within 3 hours. The answers should be recorded on a separate sheet of paper without looking up the comments on the back of each question page. Another way of using the book is to solve the MCQs step by step, reading the comments at your convenience. The literature references listed with the comments on the reverse of each MCQ allow further reading to obtain more in-depth information. Still another approach is to use the index to locate and solve MCQs according to a particular syllabus topic of interest in order to test and consolidate knowledge in a specific area.

The MCQs in this handbook are presented according to two different formats: in the single-choice MCQ, the reader is asked to select the only correct answer, or the most appropriate answer, from 5 options (alternatively, in negatively formulated questions, the only exception or incorrect statement or the least appropriate of 5 answers has to be selected). In the HERMES Examination, a correct answer to this type of MCQ is awarded with 1 point. If more than one answer is marked on the answer sheet, 0 points are given. In the second format of MCQ, 4 answers or statements are listed and the reader must decide whether each one is correct (true) or incorrect (false). In the HERMES Examination, 4 correct true/false decisions are awarded with 1 point, 3 correct true/false decisions are awarded with 0.5 points and fewer than 3 with 0 points.

At the bottom of the comments and on each MCQ, the corresponding HERMES Syllabus topic(s) is/are listed. This allows the reader to identify related MCQs by checking the index. The Angoff score assigned to each MCQ by the handbook authors is also shown. This score reflects the estimated likelihood (in per cent) that a minimally qualified examinee would answer any particular question correctly. It is a guide to the difficulty of an MCQ and helps to appraise the requirements for passing the HERMES Examination.

List of abbreviations

AHI	apnoea–hypopnoea index
BMI	body mass index
COPD	chronic obstructive pulmonary disease
CPAP	continuous positive airway pressure
CT	computed tomography
ECG	electrocardiography
FEV₁	forced expiratory volume in 1 s
FVC	forced vital capacity
HRCT	high-resolution computed tomography
Hb	haemoglobin
KCO	Transfer coefficient of the lung for carbon monoxide
MRI	magnetic resonance imaging
NIV	noninvasive ventilation
OSAS	obstructive sleep apnoea syndrome
P_aCO₂	arterial carbon dioxide tension
P_aO₂	arterial oxygen tension
P_tCO₂	transcutaneous carbon dioxide tension
S_aO₂	arterial oxygen saturation
S_pO₂	arterial oxygen saturation measured by pulse oximetry
TLC	total lung capacity
T_LCO	Transfer factor of the lung for carbon monoxide
V_E	minute ventilation