

**14<sup>th</sup>**  
EDITION

**Harrison's**

**PRINCIPLES of  
INTERNAL  
MEDICINE**

**Fauci  
Braunwald  
Isselbacher  
Wilson  
Martin  
Kasper  
Hauser  
Longo**



**COMPANION HANDBOOK**

**14<sup>TH</sup>**  
**EDITION**

**Harrison's**

**PRINCIPLES of  
INTERNAL  
MEDICINE**

**COMPANION HANDBOOK**

## **EDITORS**

### **Anthony S. Fauci, MD**

Chief, Laboratory of Immunoregulation;  
Director, National Institute of Allergy and Infectious Diseases,  
National Institutes of Health, Bethesda

### **Eugene Braunwald, MD, MD(Hon), ScD(Hon)**

Distinguished Hersey Professor of Medicine,  
Faculty Dean for Academic Programs at Brigham  
and Women's Hospital and Massachusetts General Hospital,  
Harvard Medical School; Vice-President for Academic Programs,  
Partners HealthCare System, Boston

### **Kurt J. Isselbacher, AB, MD**

Mallinckrodt Professor of Medicine, Harvard Medical School;  
Physician and Director, Massachusetts General Hospital  
Cancer Center, Boston

### **Jean D. Wilson, MD**

Charles Cameron Sprague Distinguished Chair and Clinical  
Professor of Internal Medicine, The University of Texas  
Southwestern Medical Center, Dallas

### **Joseph B. Martin, MD, PhD, FRCP(C), MA(Hon)**

Dean of the Faculty of Medicine; Caroline Shields Walker  
Professor of Clinical Neuroscience and Neurobiology,  
Harvard Medical School, Boston

### **Dennis L. Kasper, MD, MA(Hon)**

William Ellery Channing Professor of Medicine,  
Professor of Microbiology and Molecular Genetics, and  
Executive Dean for Academic Programs, Harvard Medical School;  
Director, Channing Laboratory and Co-Director,  
Division of Infectious Diseases,  
Brigham and Women's Hospital, Boston

### **Stephen L. Hauser, MD**

Chairman and Betty Anker Fife Professor,  
Department of Neurology, University of California-  
San Francisco, San Francisco

### **Dan L. Longo, AB, MD, FACP**

Scientific Director, National Institute on Aging,  
National Institutes of Health, Gerontology Research Center,  
Bethesda and Baltimore

**14<sup>TH</sup>  
EDITION**

**Harrison's**

# **PRINCIPLES of INTERNAL MEDICINE**

**COMPANION HANDBOOK**

**EDITORS**

**Anthony S. Fauci, MD**

**Eugene Braunwald, AB, MD, MA(Hon), MD(Hon), ScD(Hon)**

**Kurt J. Isselbacher, AB, MD**

**Jean D. Wilson, MD**

**Joseph B. Martin, MD, PhD, FRCP(C), MA(Hon)**

**Dennis L. Kasper, MD, MA(Hon)**

**Stephen L. Hauser, MD**

**Dan L. Longo, AB, MD, FACP**

**McGraw-Hill**

**HEALTH PROFESSIONS DIVISION**

New York St. Louis San Francisco Auckland Bogotá

Caracas Lisbon London Madrid Mexico City Milan Montreal

New Delhi San Juan Singapore Sydney Tokyo Toronto

# McGraw-Hill



A Division of The McGraw-Hill Companies

**NOTE:** Dr. Fauci and Dr. Longo's works as editors and authors were performed outside the scope of their employment as U.S. government employees. These works represent their personal and professional views and not necessarily those of the U.S. government.

**Harrison's**  
**PRINCIPLES OF INTERNAL MEDICINE**  
**Fourteenth Edition**  
**COMPANION HANDBOOK**

Copyright © 1998, 1995, 1991, 1988 by *The McGraw-Hill Companies*. All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a data base or retrieval system, without the prior written consent of the author.

1 2 3 4 5 6 7 8 9 0 DOCDOC 9 9 8 7

ISBN 0-07-021530-8

This book was set in Times New Roman by Monotype Composition Company. The editors were J. Dereck Jeffers, Martin J. Wonsiewicz, and Mariapaz Ramos Englis; the production supervisor was Helene Landers; the designer was Marsha Cohen. The index was prepared by Irving Conde Tullar.

R. R. Donnelley & Sons, Inc., was printer and binder.

**Library of Congress Cataloging-in-Publication Data**

Harrison's principles of internal medicine, fourteenth edition.

Companion handbook / editors, Anthony S. Fauci ... [et al.].

p. cm.

An extension of: Harrison's principles of internal medicine, 14th ed. © 1998.

Includes bibliographical references and index.

ISBN 0-07-021530-8

1. Internal medicine—Handbooks, manuals, etc. I. Fauci, Anthony S. II. Principles of internal medicine, 14th ed.

[DNLM: 1. Internal Medicine—handbooks. WB 115 H322

1998 Suppl.]

RC46.H333 1998 Suppl. 2

616—DC21

DNLM/DLC

for Library of Congress

97-42634

CIP



## NOTICE

Medicine is an ever-changing science. As new research and clinical experience broaden our knowledge, changes in treatment and drug therapy are required. The editors and the publisher of this work have checked with sources believed to be reliable in their efforts to provide information that is complete and generally in accord with the standards accepted at the time of publication. However, in view of the possibility of human error or changes in medical sciences, neither the editors nor the publisher nor any other party who has been involved in the preparation or publication of this work warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or the results obtained from the use of such information. Readers are encouraged to confirm the information contained herein with other sources. For example and in particular, readers are advised to check the product information sheet included in the package of each drug they plan to administer to be certain that the information contained in this book is accurate and that changes have not been made in the recommended dose or in the contraindications for administration. This recommendation is particularly important in connection with new or infrequently used drugs.

## CONTRIBUTORS

Numbers in brackets refer to the chapters written or co-written by the contributor.

**BRUCE T. ADORNATO, MD**

Director, Stanford Health Services Sleep Disorders Center, San Francisco; Clinical Associate Professor of Neurology, Stanford University, Stanford [187]

**EUGENE BRAUNWALD, MD, MD(Hon), ScD(Hon)**

Distinguished Hersey Professor of Medicine, Faculty Dean for Academic Programs at Brigham and Women's Hospital and Massachusetts General Hospital, Harvard Medical School; Vice-President for Academic Programs, Partners HealthCare System, Boston [2, 14-17, 27-29, 104-117, 196]

**GLENN CHERTOW, MD, MPH**

Assistant Professor of Medicine, Instructor in Surgery, Harvard Medical School; Assistant Director of Dialysis, Renal Division, Metabolic Support Services, Brigham and Women's Hospital, Boston [24, 25, 128-133, 135-137]

**ROBERT L. DERESIEWICZ, MD**

Assistant Professor of Medicine, Harvard Medical School; Associate Physician, Channing Laboratory and the Division of Infectious Diseases, Brigham and Women's Hospital, Boston [40, 68, 72, 75, 81, 85, 88, 89, 91, 100, 102, 103, 134]

**ROBERT L. DOBBINS, MD, PhD**

Research Fellow, Department of Internal Medicine, The University of Texas Southwestern Medical Center, Dallas [19, 34, 35, 44-47, 160-170]

**JOHN W. ENGSTROM, MD**

Associate Professor and Vice-Chairman, Department of Neurology, University of California-San Francisco, San Francisco [4, 5, 67, 175, 179, 180, 186, 189, 191]

**ANTHONY S. FAUCI, MD**

Chief, Laboratory of Immunoregulation; Director, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda [7, 8, 38, 39, 42, 43, 78, 148-159]

**HOWARD L. FIELDS, MD, PhD**

Professor of Neurology and Physiology, University of California-San Francisco, San Francisco [1]

**LAWRENCE FRIEDMAN, MD**

Associate Professor of Medicine, Harvard Medical School; Associate Physician, Massachusetts General Hospital, Boston [21, 23, 138, 141, 144–147]

**DARYL R. GRESS, MD**

Assistant Professor of Neurology, University of California-San Francisco, San Francisco [30, 174]

**STEPHEN L. HAUSER, MD**

Chairman and Betty Anker Fife Professor, Department of Neurology, University of California-San Francisco, San Francisco [178, 181, 188, 191]

**JONATHAN C. HORTON, MD, PhD**

Associate Professor of Ophthalmology, Neurology, and Physiology, University of California-San Francisco, San Francisco [11]

**KURT J. ISSELBACHER, AB, MD**

Mallinckrodt Professor of Medicine, Harvard Medical School; Physician and Director, Massachusetts General Hospital Cancer Center, Boston [3, 18, 20–23, 138–147]

**LEE KAPLAN, MD**

Assistant Professor of Medicine, Harvard Medical School; Associate Chief for Research, Gastrointestinal Unit, Massachusetts General Hospital, Boston [3, 20, 22]

**DENNIS L. KASPER, MD, MA(Hon)**

William Ellery Channing Professor of Medicine, Professor of Microbiology and Molecular Genetics, and Executive Dean for Academic Programs, Harvard Medical School; Director, Channing Laboratory, and Co-Director, Division of Infectious Diseases, Brigham and Women's Hospital, Boston [73, 84, 87, 90, 92, 93, 97, 99]

**WALTER J. KOROSHETZ, MD**

Associate Professor of Neurology, Massachusetts General Hospital, Harvard Medical School, Boston [10, 13, 31, 185]

**CAROL LANGFORD, MD**

National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda [7, 8, 42, 43, 150–159]

**LEONARD LILLY, MD**

Associate Professor of Medicine, Harvard Medical School; Physician, Cardiovascular Division, Brigham and Women's Hospital, Boston [2, 17, 27–29, 104–116]



**DAN L. LONGO, AB, MD, FACP**

Scientific Director, National Institute on Aging, National Institutes of Health, Gerontology Research Center, Bethesda and Baltimore [26, 36, 48-66]

**DANIEL H. LOWENSTEIN, MD**

Associate Professor of Neurology, Anatomy, and Neurosurgery; Robert B. and Ellinor Aird Chair in Neurology; University of California-San Francisco, San Francisco [9, 32, 173]

**LAWRENCE C. MADOFF, MD**

Assistant Professor of Medicine, Harvard Medical School; Channing Laboratory, Brigham and Women's Hospital; Division of Infectious Diseases, Beth Israel Deaconess Medical Center, Boston [6, 41, 69-71, 74, 76, 77, 79, 80, 82, 83, 86, 94-96, 98, 101, 122]

**JOSEPH B. MARTIN, MD, PhD, FRCP (C), MA(Hon)**

Dean of the Faculty of Medicine, Caroline Shields Walker Professor of Clinical Neuroscience and Neurobiology, Harvard Medical School, Boston [172, 176, 177, 181-187, 190]

**NORMAN NISHIOKA, MD**

Assistant Professor of Medicine, Harvard Medical School; Associate Physician in Medicine, Massachusetts General Hospital, Boston [18, 142, 143]

**ANN N. PONCELET, MD**

Assistant Clinical Professor of Neurology, University of California-San Francisco, San Francisco [172]

**THOMAS A. RANDO, MD, PhD**

Assistant Professor of Neurology, Stanford University Medical Center, Stanford [12, 37, 190]

**MICHAEL SNELLER, MD**

National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda [38, 39, 78, 148, 149]

**KENNETH L. TYLER, MD**

Professor of Neurology, Medicine, and Microbiology & Immunology, University of Colorado Health Sciences Center; Chief, Neurology Service, Veterans Affairs Medical Center, Denver [171, 176, 177, 182, 183]

**SOPHIA VINOGRADOV, MD**

Assistant Professor of Psychiatry, Department of Psychiatry,  
University of California-San Francisco, San Francisco  
[192-195]

**J. WOODROW WEISS, MD**

Associate Professor of Medicine, Harvard Medical School;  
Medical Director of the Pulmonary MICU, Beth Israel-  
Deaconess Medical Center, Boston [14-16, 118-121, 123-127]

**JEAN D. WILSON, MD**

Charles Cameron Sprague Distinguished Chair and Clinical  
Professor of Internal Medicine, The University of Texas South-  
western Medical Center, Dallas [19, 33, 34, 35, 44-47,  
160-170, 197]

## PREFACE

It would certainly be ideal to have a copy of the 14th edition of *Harrison's Principles of Internal Medicine (HPIM)* available at all times. This is particularly true for students and residents who are constantly on the move from outpatient clinics to inpatient wards to emergency rooms and other specialized facilities. However, the sheer weight and size of the book make this quite impractical. It is for this reason that the Editors have condensed the clinical portions of *HPIM* into this pocket-sized *Companion Handbook* that contains key features of the diagnosis and treatment of the major diseases that are likely to be encountered on a medical service. We have developed this handbook with the able assistance of selected contributors.

*HPIM* is updated every 3 to 4 years and the total amount of information continues to grow. It has been a challenge to distill the broad field of internal medicine with each new edition in which we provide a solid base of classic and established principles while providing important updates in pathogenesis, treatment, and prevention of a broad range of diseases. In the *Companion Handbook*, we try to distill this body of knowledge even further so that summaries of this important information can be available to the student and resident within the easy reach of a coat pocket.

The purpose of the *Companion Handbook* is to provide on-the-spot summaries in preparation for a more in-depth analysis of the clinical problem. Therefore, it is important to point out that this book is not considered to be a replacement for a full textbook of medicine. Rather, it is an extension of the fourteenth edition of *HPIM*. The amount and depth of material are not adequate to stand on their own; however, it is an excellent introduction to or reminder of some aspects of clinical medicine. It has been written with easy reference to the full text of *HPIM* and it is recommended that the full textbook be consulted as soon as time permits. Thus, we consider *HPIM* and the *Companion Handbook* as a combination that is complementary, but not interchangeable.

THE EDITORS

**14TH  
EDITION**

**Harrison's**

# **PRINCIPLES of INTERNAL MEDICINE**

**COMPANION HANDBOOK**

## ABBREVIATED CONTENTS

### SECTION

1	IMPORTANT SYMPTOMS AND SIGNS	1
2	MEDICAL EMERGENCIES	131
3	DERMATOLOGY	213
4	NUTRITION	227
5	HEMATOLOGY AND ONCOLOGY	247
6	INFECTIOUS DISEASES	351
7	CARDIOVASCULAR DISEASES	621
8	RESPIRATORY DISEASES	715
9	RENAL DISEASES	767
10	GASTROINTESTINAL DISEASES	813
11	ALLERGY, CLINICAL IMMUNOLOGY, AND RHEUMATOLOGY	867
12	ENDOCRINOLOGY AND METABOLISM	913
13	NEUROLOGY	985
14	PSYCHIATRIC AND DEPENDENCY DISORDERS	1099
15	ADVERSE DRUG REACTIONS	1125
16	LABORATORY VALUES OF CLINICAL IMPORTANCE	1139
	INDEX	1147



# CONTENTS

<i>Abbreviated Contents</i>	v
<i>Contributors</i>	xv
<i>Preface</i>	xix

## SECTION I

### IMPORTANT SIGNS AND SYMPTOMS

1 Pain and Its Management	1	14 Dyspnea	61
2 Chest Pain	6	15 Cough and Hemoptysis	63
3 Abdominal Pain	11	16 Cyanosis	69
4 Headache and Facial Pain	15	17 Edema	71
5 Low Back Pain	22	18 Nausea and Vomiting	76
6 Fever and Hyperthermia	32	19 Weight Loss and Weight Gain	78
7 Skin Rash	36	20 Diarrhea, Constipation, and Malabsorption	81
8 Pain or Swelling of Joints	37	21 Gastrointestinal Bleeding	89
9 Syncope and Seizures	42	22 Jaundice and Evaluation of Liver Function	94
10 Dizziness and Vertigo	45	23 Ascites	100
11 Visual Loss and Disorders of Ocular Motility	47	24 Overt Manifestations of Renal Disease	105
12 Paralysis and Movement Disorders	52	25 Electrolytes/Acid-Base Balance	111
13 Alterations in Consciousness (Confusion, Stupor, and Coma)	57	26 Lymphadenopathy and Splenomegaly	127

## SECTION 2

## MEDICAL EMERGENCIES

27	Cardiovascular Collapse and Sudden Death	131	35	Hypoglycemia	176
28	Shock	136	36	Oncologic Emergencies	180
29	Acute Pulmonary Edema	142	37	Drug Overdose	184
30	Emergency Room Evaluation of Stroke	145	38	Drowning and Near-Drowning	190
31	Increased Intracranial Pressure and Head Trauma	149	39	Anaphylaxis and Transfusion Reactions	193
32	Status Epilepticus	151	40	Bites, Envenomations, Stings, and Ectoparasite Infestations	196
33	Poisoning and Its Management	154	41	Hypothermia	210
34	Diabetic Ketoacidosis and Hyperosmotic Coma	173			

## SECTION 3

## DERMATOLOGY

42	General Examination of the Skin	213	43	Common Skin Conditions	219
----	------------------------------------	-----	----	---------------------------	-----

## SECTION 4

## NUTRITION

44	Nutritional Requirements and Assessment	227	46	Obesity	236
45	Anorexia Nervosa and Bulimia	232	47	Diet Therapy	240

## SECTION 5

## HEMATOLOGY AND ONCOLOGY

48	Examination of Blood Smears and Bone Marrow	247	57	Head and Neck Cancer	301
49	Red Blood Cell Disorders	250	58	Lung Cancer	303
50	Leukocytosis and Leukopenia	258	59	Breast Cancer	307
51	Bleeding and Thrombotic Disorders	262	60	Tumors of the Gastrointestinal Tract	311
52	Transfusion and Pheresis Therapy	268	61	Genitourinary Tract Cancer	323
53	Cancer Chemotherapy	271	62	Gynecologic Cancer	327
54	Myeloid Leukemias, Myelodysplasia, and Myeloproliferative Syndromes	275	63	Prostate Hyperplasia and Carcinoma	331
55	Lymphoid Malignancies	284	64	Cancer of Unknown Primary Site	335
56	Skin Cancer	298	65	Sarcomas of Bone and Soft Tissues	339
			66	Paraneoplastic Syndromes	342
			67	Neurologic Manifestations of Systemic Neoplasia	345

## SECTION 6

## INFECTIOUS DISEASES

68	Diagnosis	351	75	Sexually Transmitted Diseases	405
69	Antimicrobial Therapy	362	76	Infections of Skin, Soft Tissues, Joints, and Bones	421
70	Immunization and Advice to Travelers	372	77	Infections in the Immunocompromised Host	429
71	Sepsis and Septic Shock	381	78	HIV Infection and AIDS	435
72	Infective Endocarditis	387	79	Hospital-Acquired Infections	447
73	Intraabdominal Infections	396			
74	Infectious Diarrheas	399			

80	Pneumococcal Infections	450	90	Lyme Disease and Other Spirochetal Infections	520
81	Staphylococcal Infections	454	91	Rickettsial Infections	527
82	Streptococcal and Enterococcal Infections and Diphtheria	464	92	<i>Mycoplasma</i> Infections	536
83	Meningococcal and Listerial Infections	473	93	Chlamydial Infections	538
84	Infections Caused by <i>Haemophilus</i> , <i>Bordetella</i> , <i>Moraxella</i> , and HACEK Group Organisms	477	94	Herpesvirus Infections	541
85	Diseases Caused by Gram-Negative Enteric Bacteria, <i>Pseudomonas</i> , and <i>Legionella</i>	481	95	Cytomegalovirus and Epstein-Barr Virus Infections	549
86	Diseases Caused by Other Gram-Negative Bacteria	490	96	Influenza and Other Viral Respiratory Diseases	554
87	Anaerobic Infections	495	97	Rubeola, Rubella, Mumps, and Parvovirus Infections	561
88	Nocardiosis and Actinomycosis	503	98	Enteroviral Infections	568
89	Tuberculosis and Other Mycobacterial Infections	507	99	Insect- and Animal-Borne Viral Infections	571
			100	Fungal Infections	583
			101	<i>Pneumocystis carinii</i> Infection	593
			102	Protozoal Infections	595
			103	Helminthic Infections	612

**SECTION 7**

**CARDIOVASCULAR DISEASES**

104	Physical Examination of the Heart	621	107	Arrhythmias	638
105	Electrocardiography and Echocardiography	627	108	Congestive Heart Failure and Cor Pulmonale	649
106	Preoperative Evaluation of Cardiovascular Disease	635	109	Congenital Heart Disease in the Adult	655
			110	Valvular Heart Disease	658