

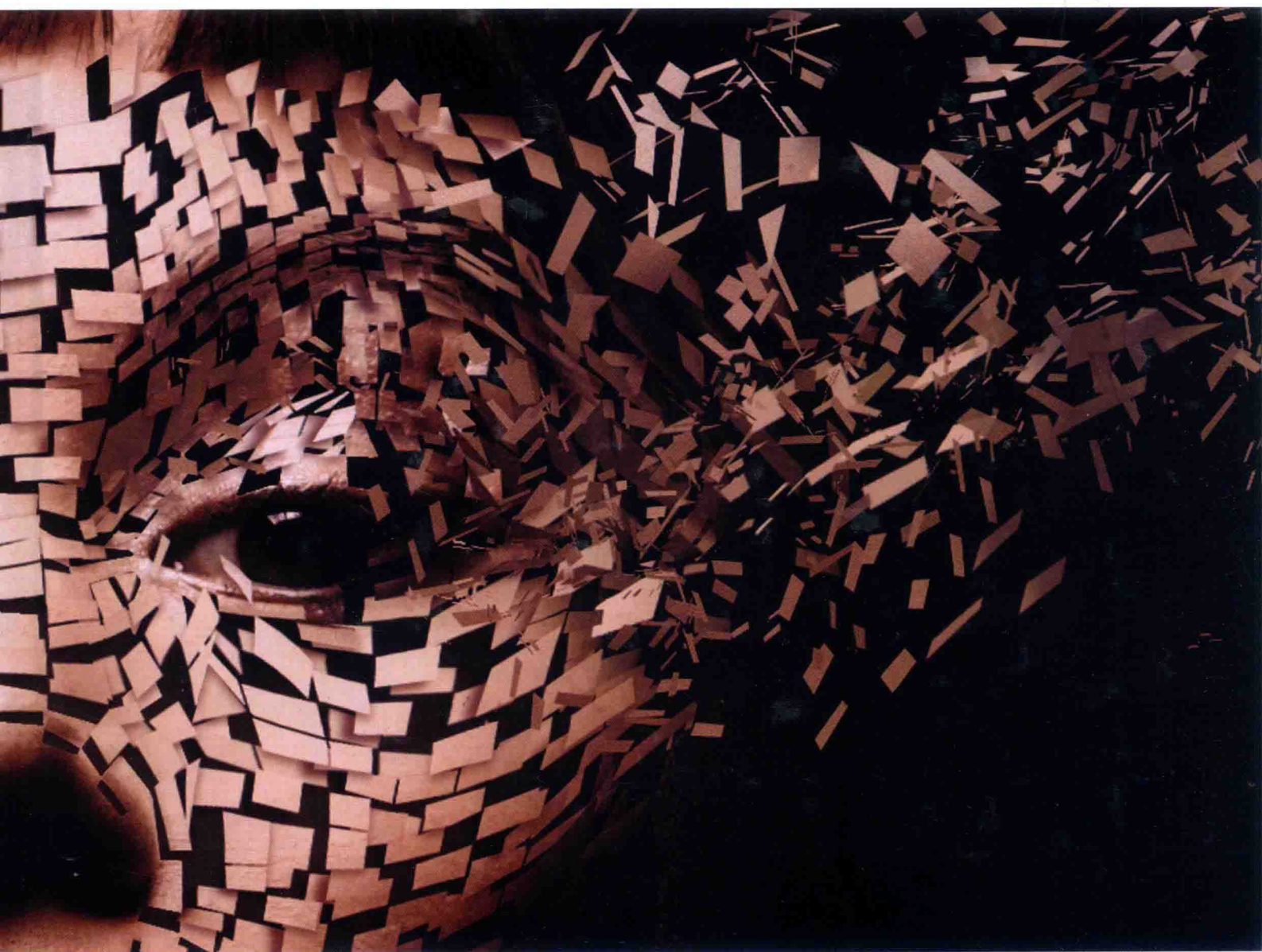
英文原版

# Evidence Based Dermatology

## 循证皮肤病学

第 2 版

Howard I. Maibach  
Farzam Gorouhi



人民卫生出版社  
PEOPLE'S MEDICAL PUBLISHING HOUSE

英文原版

# Evidence Based Dermatology

## 循证皮肤病学

第 2 版

Howard I. Maibach, M. D.

Professor

Department of Dermatology

University of California, San Francisco

Farzam Gorouhi, M. D.

Postdoctoral Scholar

Department of Dermatology

University of California, Davis



人民卫生出版社

PEOPLE'S MEDICAL PUBLISHING HOUSE

English reprinted edition of Evidence Based  
Dermatology, second edition by Howard I. Maibach and  
Farzam Gorouhi

The original English language work has been published  
by People's Medical Publishing House-USA, Ltd.  
© 2011 PMPH-USA, LTD

Reprinted by People's Medical Publishing House  
© 2017 People's Medical Publishing House  
Beijing, China

### 图书在版编目 (CIP) 数据

循证皮肤病学: 英文/(美) 霍华德·I. 梅巴克  
(Howard I. Maibach) 主编. —北京: 人民卫生出版  
社, 2017

ISBN 978-7-117-25739-8

I. ①循… II. ①霍… III. ①皮肤病学-研究-  
英文 IV. ①R751

中国版本图书馆 CIP 数据核字(2017)第 308997 号

人卫智网 [www.ipmph.com](http://www.ipmph.com) 医学教育、学术、考试、健康,  
购书智慧智能综合服务平台  
人卫官网 [www.pmph.com](http://www.pmph.com) 人卫官方资讯发布平台

版权所有, 侵权必究!

图字号: 01-2014-2978

### Evidence Based Dermatology

#### 循证皮肤病学

主 编: Howard I. Maibach

出版发行: 人民卫生出版社(中继线 010-59780011)

地 址: 北京市朝阳区潘家园南里 19 号

邮 编: 100021

E - mail: [pmph@pmph.com](mailto:pmph@pmph.com)

购书热线: 010-59787592 010-59787584 010-65264830

印 刷: 北京画中画印刷有限公司

经 销: 新华书店

开 本: 889×1194 1/16 印张: 71

字 数: 2505 千字

版 次: 2017 年 12 月第 1 版 2017 年 12 月第 1 版第 1 次印刷

标准书号: ISBN 978-7-117-25739-8/R·25740

定 价: 899.00 元

打击盗版举报电话: 010-59787491 E-mail: [WQ@pmph.com](mailto:WQ@pmph.com)

(凡属印装质量问题请与本社市场营销中心联系退换)



# Contributors

**Farah R. Abdulla, M.D. [47]**  
Cutaneous Lymphoma Fellow  
Department of Dermatology  
Stanford Medicine  
Stanford, California, USA

**Brian B. Adams, M.D., M.P.H. [25]**  
Associate Professor  
Department of Dermatology  
University of Cincinnati;  
Chief, Section of Dermatology  
VAMC-Cincinnati  
Cincinnati, Ohio, USA

**Hina Ahmad, M.D. [41]**  
Department of Dermatology  
Rush University Medical Center  
Chicago, Illinois, USA

**Murad Alam, M.D., M.S.C.I. [38]**  
Associate Professor  
Department of Dermatology  
Surgery and Otolaryngology;  
Chief, Section of Cutaneous and Aesthetic Surgery  
Northwestern University  
Chicago, Illinois, USA

**Nadia Aldoori, M.B.Ch.B., M.R.C.P. [55]**  
Registrar in Dermatology  
Department of Dermatology  
Royal Hallamshire Hospital  
Sheffield, U.K.

**S. Iris Ale, M.D. [3]**  
Professor, Department of Dermatology  
School of Medicine  
Republic University of Uruguay  
Montevideo, Uruguay

**Tina S. Alster, M.D. [39]**  
Director, Washington Institute of Dermatologic  
Laser Surgery;  
Clinical Professor of Dermatology  
Georgetown University Medical Center  
Washington D.C., District of Columbia, USA

**Nancy Anderson, M.D. [24]**  
Professor and Residency Program Director  
Department of Dermatology  
Loma Linda University Medical Center  
Loma Linda, California, USA

**Shahab Babakoochi, M.D. [20]**  
Research Fellow  
Center for Research and Training in Skin Diseases  
and Leprosy  
Tehran University of Medical Sciences  
Tehran, Iran

**Jennifer D. Bahner, M.D. [5, 45]**  
Department of Dermatology  
University Hospitals Case Medical Center  
Cleveland, Ohio, USA

**Rajesh Balkrishnan, Ph.D. [70, 72]**  
Director, Center for Medication Use  
Policy & Economics; Associate Professor  
Clinical, Social Administrative Sciences;  
Department of Health Management & Policy  
University of Michigan  
Ann Arbor, Michigan, USA

**Victoria H. Barbosa, M.D., M.P.H., M.B.A. [41]**  
Millennium Park Dermatology  
Assistant Professor  
Department of Dermatology  
Rush University Medical Center  
Chicago, Illinois, USA

**Ardeshir Bayat, B.Sc. (Hons), M.B.B.S., M.R.C.S. (Eng, Edin), Ph.D. [51, 66]**  
Principal Investigator/NIHR Clinician Scientist  
Plastic & Reconstructive Surgery Research  
Manchester Interdisciplinary Biocentre  
University of Manchester  
Manchester, England, UK

**Ana Junqueira Bertin, M.D. [19]**

Clinical & Research Fellow - Department  
of Dermatology  
University of Minnesota  
Minneapolis, Minnesota, USA

**Jeremy Bordeaux, M.D., M.P.H. [43, 45]**

Assistant Professor  
Department of Dermatology;  
Director, Mohs and Dermatologic Surgery;  
Director, Melanoma Program University Hospitals Case  
Medical Center  
Case Western Reserve University  
Cleveland, Ohio, USA

**William Brintnell, B.Sc., Ph.D. [31]**

Senior Clinical Research Scientist  
Mediprobe Research Inc.  
London, Ontario, Canada

**Craig G. Burkhart, M.S.P.H., M.D. [27]**

Clinical Professor  
Department of Medicine  
The University of Toledo College of Medicine  
Toledo, Ohio, USA

**Craig N. Burkhart, M.S., M.D. [27]**

Assistant Professor  
Director of Medical Student Education  
Department of Dermatology  
The University of North Carolina at Chapel Hill  
Chapel Hill, North Carolina, USA

**Jeffrey P. Callen, M.D. [34, 59]**

Professor of Medicine (Dermatology)  
Chief, Division of Dermatology  
University of Louisville School of Medicine  
Louisville, Kentucky, USA

**Sean W. Carlson, D.O. [5, 43]**

Post Doctoral Researcher  
Comprehensive Cancer Center  
The Ohio State University Medical Center  
Columbus, Ohio, USA

**Yuin-Chew Chan, M.D. [26]**

Consultant Dermatologist  
Dermatology Associates  
Gleneagles Medical Centre  
Singapore

**Derek V. Chan, M.D., Ph.D. [5]**

Department of Dermatology  
University Hospitals Case Medical Center  
Case Western Reserve University School of Medicine  
Cleveland, Ohio, USA

**Suephy C. Chen, M.D., M.S. [58]**

Associate Professor  
Department of Dermatology  
Emory University  
Division of Dermatology and Department of HSR&D;  
Atlanta VA Medical Center  
Atlanta, Georgia, USA

**Mei Chen, Ph.D. [18]**

Professor and Director of Research  
Department of Dermatology  
USC/Norris Comprehensive Cancer Center  
University of Southern California  
Los Angeles, California, USA

**Ai-Lean Chew, M.B., Ch.B. [75]**

Department of Dermatology  
UCSF School of Medicine  
San Francisco, California, USA

**Sonal Choudhary, M.D. [44, 52]**

Clinical Research Fellow  
Department of Dermatology and Cutaneous Surgery  
University of Miami  
Miller School of Medicine  
Miami, Florida, USA

**Tsu-Yi Chuang, M.D., M.P.H. [21]**

Clinical Professor  
Department of Dermatology  
University of Southern California  
Los Angeles, California, USA;  
Staff Physician  
Department of Dermatology  
Desert Oasis Healthcare  
Palm Springs, California, USA

**Jennie T. Clarke, M.D. [59]**

Assistant Professor of Dermatology  
Department of Dermatology  
Penn State Hershey Medical Center  
Hershey, Pennsylvania, USA

**Christa De Cuyper, M.D. [40]**

Department of Dermatology  
AZ Sint-Jan  
Brugge, Belgium

**Parastoo Davari, M.D. [16]**

Postdoctoral Scholar  
Department of Dermatology  
University of California, Davis  
Sacramento, California, USA

**Mark Davis, M.D. [10]**

Professor of Dermatology  
Mayo Clinic  
Rochester, Minnesota, USA



**Brittney DeClerck, M.D. [42]**

Dermatopathology Fellow  
University of Colorado  
Denver, Colorado, USA

**Robert P. Dellavalle, M.D., Ph.D., M.S.P.H. [4, 46, 74]**

Department of Dermatology  
University of Colorado School of Medicine  
Aurora, Colorado, USA;  
Chief, Dermatology Service  
Department of Veteran Affairs Medical Center  
Denver, Colorado, USA

**Yahya Dowlati, M.D., Ph.D. [28]**

Consultant Dermatologist and Dermatopathologist  
Director, Center for Research and Training in Skin  
Diseases and Leprosy  
Tehran University of Medical Sciences  
Tehran, Iran

**Jodi K. Duke, M.P.H., C.P.H. [4]**

University of Colorado School of Pharmacy  
Aurora, Colorado, USA

**Cory A. Dunnick, M.D. [74]**

Associate Professor  
Department of Dermatology  
School of Medicine  
University of Colorado Denver  
Denver, Colorado, USA

**Julia Escandon, M.D. [50]**

Research Fellow  
Department of Dermatology & Cutaneous Surgery  
University of Miami Miller School of Medicine  
Miami, Florida, USA

**Dina Farshidi, M.D. [13]**

Student, David Gerten School of Medicine-UCLA;  
Anderson School of Management-UCLA  
Los Angeles, California, USA

**Nasim Fazel, M.D., D.D.S. [16]**

Clinical Associate Professor  
Department of Dermatology  
University of California, Davis  
Sacramento, California, USA

**Steven R. Feldman, M.D., Ph.D. [15, 70, 72]**

Professor, Department of Dermatology, Pathology,  
Public Health Sciences  
Wake Forest University Health Sciences  
Winston-Salem, North Carolina, USA

**Hermann Feldmeier, M.D. [7, 30]**

Professor of Tropical Medicine  
Institute of Microbiology and Hygiene  
Charité University Medicine Berlin  
Buchholz, Germany

**Nicole Fett, M.D [33]**

Assistant Professor  
Department of Dermatology  
University of Pennsylvania;  
Staff Dermatologist  
Department of Medicine  
Philadelphia VA Medical Center  
Philadelphia, Pennsylvania, USA

**David Fiorentino, M.D., Ph.D. [35]**

Assistant Professor  
Departments of Dermatology and Medicine  
(Rheumatology)  
Stanford University School of Medicine  
Stanford, California, USA

**Alireza Firooz, M.D. [20, 28]**

Associate Professor of Dermatology  
Center for Research and Training in Skin Diseases  
and Leprosy  
Tehran University of Medical Sciences  
Tehran, Iran

**Rene Gonzalez, M.D. [46]**

Professor of Medicine  
University of Colorado Denver  
Denver, Colorado, USA

**Farzam Gorouhi, M.D. [1, 11, 16, 20, 75]**

Postdoctoral Scholar  
Department of Dermatology  
University of California, Davis  
Sacramento, California, USA

**Alice B. Gottlieb, M.D., Ph.D. [62]**

Chair and Dermatologist in Chief  
Harvey B Ansell Professor of Dermatology  
Tufts Medical Center and Tufts University School  
of Medicine  
Boston, Massachusetts, USA

**Marta Grazzini, M.D. [63, 65]**

Department of Dermatology  
University of Florence  
Firenze, Italy

**Aditya K. Gupta, M.D., Ph.D., F.A.A.D., F.R.C.P.(C) [31]**

Division of Dermatology  
 Department of Medicine  
 University of Toronto  
 Toronto, Ontario, Canada;  
 Mediprobe Research Inc.  
 London, Ontario, Canada

**Rebat M. Halder, M.D. [73]**

Professor and Chairman  
 Department of Dermatology  
 College of Medicine  
 Howard University  
 Washington DC, USA

**Anne Han, M.D. [49]**

Wound Fellow  
 Department of Dermatology  
 Johns Hopkins Medical Institutions  
 Baltimore, Maryland, USA

**Christopher B. Hansen, M.D. [6]**

Assistant Professor  
 Department of Dermatology  
 University of Utah School of Medicine  
 Salt Lake City, Utah, USA

**Cameron Harrison, M.D [47]**

Department of Dermatology  
 Stanford University  
 Redwood City, California, USA

**Masoumeh Hassani, M.D. [20]**

Research Fellow  
 Center for Research and Training in Skin Diseases  
 and Leprosy  
 Tehran University of Medical Sciences  
 Tehran, Iran

**Tom Hodgkinson, M.Sc. B.Sc. (Hons) [66]**

Post Graduate Student  
 Bayat Laboratory  
 Plastic & Reconstructive Surgery Research  
 Manchester Interdisciplinary Biocentre  
 University of Manchester  
 Manchester, England, UK

**Maria Hordinsky, M.D. [19]**

Professor and Chair  
 Department of Dermatology  
 University of Minnesota  
 Minneapolis, Minnesota, USA

**Ahmad Reza Hossani-Madani, M.D., M.S. [36, 73]**

Clinical Research Fellow  
 Department of Dermatology  
 College of Medicine  
 Howard University  
 Washington DC, USA

**William W. Huang, M.D., M.P.H. [41]**

Chief Resident  
 Department of Dermatology  
 Rush University Medical Center  
 Chicago, Illinois, USA

**Sara Hylwa, B.S. [10]**

Visiting Medical Student for Research  
 Mayo Clinic  
 Rochester, Minnesota, USA  
 Medical Student  
 University at Buffalo  
 Buffalo, New York, USA

**Ala Iaconi, M.S. [70]**

Doctoral Fellow  
 Department of Clinical  
 Social and Administrative Sciences;  
 College of Pharmacy  
 University of Michigan  
 Ann Arbor, Michigan, USA

**Yuri T. Jadotte, M.D. [14]**

Department of Dermatology  
 New Jersey Medical School  
 Newark, New Jersey, USA

**Evan C. Jones M.D.-M.P.H. [71]**

Associate Professor and Chair  
 Department of Dermatology  
 Stony Brook University Hospital  
 East Setauket, New York, USA

**Swetha Kandula, M.D., F.A.C.P. [8]**

Dermatology Resident  
 Indiana University School of Medicine  
 Department of Dermatology  
 Indianapolis, Indiana, USA

**Ravneet Kaur, M.D. [13]**

Resident  
 UCLA-Olive View Medical Center  
 Sylmar, California, USA

**Ali Khamesipour, Ph.D. [28]**

Microbiology/Immunology  
 Associate Professor  
 Center for Research and Training in Skin Diseases  
 and Leprosy (CRTSDL)  
 Tehran University of Medical Sciences (TUMS)  
 Tehran, Iran



**David A. Khan, M.D. [12]**

Professor, Department of Medicine  
Division of Allergy & Immunology  
University of Texas Southwestern Medical Center  
Dallas, Texas, USA

**Alireza Khatami, M.D., M.S.P.H. [1, 28]**

Assistant Professor of Dermatology  
Center for Research and Training in Skin Diseases  
and Leprosy  
Tehran University of Medical Sciences  
Tehran, Iran

**Gene Kim, M.D [18]**

Assistant Professor of Dermatology and Pathology  
University of Southern California  
Los Angeles, California, USA

**Youn H. Kim, M.D. [47]**

Professor of Dermatology  
Stanford Cancer Center;  
Director, Multidisciplinary Cutaneous Lymphoma  
Program  
Stanford, California, USA

**Alexandra B. Kimball, M.D., M.P.H. [69]**

Associate Professor of Dermatology  
Massachusetts General Hospital  
Harvard Medical School  
Boston, Massachusetts, USA

**Seema Kini, M.D., M.S [58]**

Department of Dermatology  
Emory University  
Atlanta, Georgia, USA

**Robert S. Kirsner, M.D., Ph.D. [50]**

Vice Chairman & Stiefel Laboratories Professor  
Department of Dermatology & Cutaneous Surgery  
University of Miami Miller School of Medicine  
Miami, Florida, USA

**Sailesh Konda, M.D [39]**

Resident, Department of Medicine  
Boston University Medical Center  
Boston, Massachusetts, USA

**Carrie Kovarik, M.D. [48]**

Assistant Professor  
Dermatology, Dermatopathology, and Infectious  
Diseases  
University of Pennsylvania  
Philadelphia, Pennsylvania, USA

**Michael Krathen, M.D. [62]**

Dermatology Resident  
Tufts University School of Medicine  
Boston, Massachusetts, USA

**Joseph C. Kvedar, M.D. [2]**

Associate Professor of Dermatology  
Harvard Medical School;  
Director, Center for Connected Health  
Partners HealthCare Systems, Inc.  
Boston, Massachusetts, USA

**Athanassios Kyrgidis, M.D., D.D.S., M.Sc. [54]**

Research Fellow  
Clinic of Oral Maxillofacial Surgery;  
Faculty of Dentistry;  
1st Clinic of Otorhinolaryngology-Head and  
Neck Surgery;  
Faculty of Medicine  
Aristotle University of Thessaloniki  
Thessaloniki, Greece

**Gerald S. Lazarus, M.D. [49]**

Professor of Dermatology;  
Chair Dermatology  
Johns Hopkins  
Bayview Medical Center;  
Director Johns Hopkins Wound Center  
Johns Hopkins Medical Institutions  
Baltimore, Maryland, USA

**Delphine J. Lee, M.D., Ph.D. [67]**

Director  
Department of Translational Immunology  
John Wayne Cancer Institute  
Santa Monica, California, USA

**Tracy Leong, M.D. [24]**

PGY-2, Department of Dermatology  
Loma Linda University Medical Center  
Loma Linda, California, USA

**Michelle M. Levender, M.D. [72]**

Clinical Research Fellow  
Center for Dermatology Research  
Department of Dermatology  
Wake Forest University School of Medicine  
Winston-Salem, North Carolina, USA

**Anna Levin, M.D. [19]**

Department of Dermatology  
Mayo Clinic Arizona  
Scottsdale, Arizona, USA



**Xinaida T. Lima, M.D. [69]**

Department of Dermatology  
Massachusetts General Hospital  
Harvard Medical School  
Boston, Massachusetts, USA

**Torello Lotti, M.D. [63, 65]**

Professor  
Department of Dermatology  
University of Florence  
Firenze, Italy

**Jacqueline De Luca, M.D. [15]**

Transitional Year Resident  
University of Hawaii  
Honolulu, Hawaii, USA

**Boris D. Lushniak, M.D., M.P.H. [56]**

Assistant Commissioner FDA;  
Assistant Surgeon General USPHS;  
Adjunct Professor Dermatology USUHS  
Bethesda, Maryland, USA

**Howard I. Maibach, M.D. [3, 11, 68, 75]**

Professor, Department of Dermatology  
UCSF Medical Center  
San Francisco, California, USA

**Kavita Mariwalla, M.D. [71]**

Assistant Professor  
Department of Dermatology  
Dermatologic Surgery  
State University of New York  
Stony Brook University Hospital  
East Setauket, New York, USA

**Nicole Mau, M.D. [42]**

Department of Dermatology  
Medical College of Wisconsin  
Wauwatosa, Wisconsin, USA

**Shawna McCarty, M.D. [24]**

PGY3 Resident  
Department of Dermatology  
Loma Linda University Medical Center  
Loma Linda, California, USA

**Lauren McLaughlin, OMS-I, B.S. [74]**

Student  
Rocky Vista University College of Osteopathic  
Medicine  
Parker, Colorado, USA

**Michael Patrick McLeod, B.S., M.S. [44]**

University of Miami Miller School of Medicine  
Miami, Florida, USA

**Terri Lynn Meinking, M.D., Ph.D. [29]**

President  
Global Health Associates of Miami (GHAM)  
Miami, Florida, USA

**Natalia Mendoza, M.D. [23]**

Center for Clinical Studies  
Houston, Texas, USA

**Andrew Messenger, M.B.B.S., M.D., F.R.C.P. [55]**

Consultant Dermatologist  
Department of Dermatology  
Royal Hallamshire Hospital  
Sheffield, UK

**Michael Messina, M.D., [24]**

PGY3 Resident  
Department of Dermatology  
Loma Linda University Medical Center  
Loma Linda, California, USA

**Danielle M. Miller, Ph.D., M.D. [32]**

Instructor, Harvard Medical School  
Department of Dermatology  
Lahey Clinic Medical Center  
Burlington, Massachusetts, USA

**Dean S. Morrell, M.D. [27]**

Associate Professor  
Residency Director  
The University of North Carolina at Chapel Hill  
Department of Dermatology  
Chapel Hill, North Carolina, USA

**L. Katie Morrison, M.D. [23, 57]**

Department of Dermatology  
University of Texas Houston;  
Managing Director  
Anderson Cancer Center  
Houston, Texas, USA

**Samuel L. Moschella, M.D. [32]**

Clinical Professor Dermatology  
Harvard Medical School (Emeritus)  
Lahey Clinic (Senior Consultant)  
Burlington, Massachusetts, USA

**Eliot N. Mostow, M.D., M.P.H. [5]**

Professor and Chair  
Northeastern Ohio University College of Medicine  
Akron, Ohio, USA; Associate Professor Clinical  
Dermatology  
Case Western University  
Cleveland, Ohio, USA

**Jyoti P. Mundi, M.D. [67]**

Resident  
New York University  
Department of Dermatology  
New York City, New York, USA

**Dedee F. Murrell, M.A., B.M.B.Ch, F.A.A.D., M.D., F.A.C.D. [17]**

Professor and Chair  
Department of Dermatology  
St. George Hospital  
University of NSW  
Sydney, New South Wales, Australia

**Mansour Nassiri-Kashani, M.D [28]**

Associate Professor of Dermatology  
Fellowship in Allergy  
Center for Research and Training in Skin Diseases and Leprosy (CRTSDL)  
Tehran University of Medical Sciences (TUMS)  
Tehran, Iran

**Tamar Nijsten, M.D. [9]**

Associate Professor  
Department of Dermatology  
Erasmus MC  
Rotterdam, The Netherlands

**Keyvan Nouri, M.D. [44, 52]**

Professor of Dermatology and Otolaryngology;  
Director of Mohs  
Dermatologic and Laser Surgery;  
Director of Surgical Training  
Department of Dermatology and Cutaneous Surgery  
University of Miami  
Miller School of Medicine  
Miami, Florida, USA

**Sara B. Olack, Ph.D. [5]**

University of Chicago Pritzker School of Medicine  
Chicago, Illinois, USA

**John Thomas O'Malley, M.D., Ph.D. [37]**

Transitional Year Resident  
Indiana University/Methodist Hospital Transitional  
Residency Program  
Indianapolis, Indiana, USA

**Tejas Patel, B.S. L. [23]**

Center for Clinical Studies  
Houston, Texas, USA

**David Peng, M.D. [13, 42]**

Clinical Associate Professor  
Department of Dermatology  
Stanford University School of Medicine  
Redwood City, California, USA

**Donna Perry, B.Sc. (Hons), PG.Dip. M.C.S.P. [51]**

Research Therapist  
Bayat Laboratory  
Plastic & Reconstructive Surgery Research  
Manchester Interdisciplinary Biocentre  
University of Manchester  
Manchester, England, U.K.

**Rupa Pugashetti, M.D [15, 35]**

University of California Irvine School of Medicine  
Irvine, California, USA

**David J. Rayhan, M.D. [70]**

School of Medicine  
University of California, Irvine  
Irvine, California, USA

**Balvinder Rehal, M.D. [68]**

University of California Davis School of Medicine  
Sacramento, California, USA

**Riccardo Rossi, M.D. [63, 65]**

Division of Dermatology 2  
Department of Critical Care  
Medicine and Surgery  
University of Florence  
Florence, Italy

**Neil Sandhu, M.D [61]**

Resident Physician  
Department of Dermatology  
New Jersey Medical School  
Newark, New Jersey, USA

**Robert A. Schwartz, M.D., M.P.H. [14, 61]**

Professor & Head  
Dermatology  
Professor of Pathology  
Professor of Medicine  
Professor of Pediatrics  
Professor of Preventive Medicine and Community Health  
New Jersey Medical School  
Newark, New Jersey, USA

**Deshan F. Sebaratnam, M.B.B.S. (Hons) [17]**

Medical Student  
Department of Dermatology  
St. George Hospital  
University of New South Wales  
Sydney, New South Wales, Australia

**Michael Shelling, M.D. [52]**

Department of Dermatology and Cutaneous Surgery  
University of Miami  
Miller School of Medicine  
Miami, Florida, USA



**Philip D. Shenefelt, M.D., M.S. [22, 64]**

Associate Professor  
Department of Dermatology and Cutaneous  
Surgery  
School of Medicine  
University of South Florida  
Tampa, Florida, USA

**Jeffrey R. Smith, M.P.H [24]**

Senior Medical Student  
Texas Tech University School of Medicine  
Lubbock, Texas, USA

**Ally-Khan Somani, M.D., Ph.D., F.A.A.D. [8]**

Assistant Professor, Department of Dermatology  
Director, Dermatologic Survey and Cutaneous  
Oncology Division  
Indiana University School of Medicine  
Indianapolis, Indiana, USA

**Najwa Somani, M.D., F.R.C.P.C. [8, 37]**

Assistant Professor  
Departments of Dermatology and Anatomic  
Pathology  
Indiana University  
Indianapolis, Indiana, USA

**Richard D. Sontheimer, M.D. , Ph.D. [6]**

Professor, Department of Dermatology  
University of Utah School of Medicine  
Salt Lake City, Utah, USA

**Phyllis Spuls, M.D., Ph.D. [9]**

Dermatologist  
Department of Dermatology  
Academic Medical Centre  
University of Amsterdam  
Amsterdam, The Netherlands

**Berndt Stenberg, M.D., Ph.D. [53]**

Associate Professor  
Department of Public Health and Clinical Medicine  
Dermatology and Venereology  
Umea University  
Umea, Sweden

**Andrea L. Suárez, M.D., Ph.D [46]**

New York Presbyterian Hospital/Weill  
Cornell Medical College of Dermatology  
New York, New York, USA

**Hong-Liang Tey, M.D. [26]**

Associate Consultant  
National Skin Center  
Clinical Tutor  
National University of Singapore  
Singapore

**Patricia Ting, M.Sc., M.D. [69]**

Division of Dermatology & Cuatneous Sciences  
University of Alberta  
Edmonton, Alberta, Canada

**Diane Turvy, M.D., M.S. [8]**

Indiana University School of Medicine  
Indianapolis, Indiana, USA

**Stephen Tyring, M.D., Ph.D. [57, 23]**

Clinical Professor of Dermatology  
Microbiology & Molecular Genetics and Internal  
Medicine  
University of Texas Health Science Center  
Webster, Texas, USA

**David Vidal, M.D., Ph.D. [60]**

Department of Dermatology  
Hospital de Sant Joan Despí Moisès Broggi  
Barcelona, Spain

**Ruth Ann Vleugels, M.D [34]**

Director, Connective Tissue Disease Clinic  
Department of Dermatology  
Brigham and Women's Hospital  
Harvard Medical School  
Boston, Massachusetts, USA

**Victoria P. Werth, M.D. [17, 33]**

Chief of Dermatology  
Philadelphia V.A. Medical Center;  
Professor of Dermatology  
Department of Dermatology  
University of Pennsylvania  
Philadelphia, Pennsylvania, USA

**Gregory J. Wing, B.S. [4, 46]**

Department of Dermatology  
University of Colorado School of Medicine;  
Denver Veteran Affairs Medical Center  
Denver, Colorado, USA

**Uwe Wollina, M.D. [40]**

Professor and Head  
Department of Dermatology and Allergology/Academic  
Teaching Hospital Dresden-Friedrichstadt  
Dresden, Germany

**David T. Woodley, M.D. [18]**

Professor and Chair  
Department of Dermatology  
The Keck School of Medicine  
University of Southern California  
Los Angeles, California, USA



**Chung-Hsuen Wu, Ph.D. [70]**

Humana/CHA/The University of North Carolina  
Pharmaceutical Outcomes Post-Doctoral Fellow  
Division of Pharmaceutical Outcomes & Policy  
Eshelman School of Pharmacy  
The University of North Carolina at Chapel Hill  
Chapel Hill, North Carolina, USA

**Jashin J. Wu, M.D. [13]**

Director of Clinical Research  
Associate Residency Program Director  
Department of Dermatology  
Kaiser Permanente Los Angeles Medical Center  
Los Angeles, California, USA

**Brad Yentzer, M.D. [70]**

Department of Dermatology  
Wake Forest University School of Medicine  
Winston-Salem, North Carolina, USA

**Hamed Zartab, M.D., M.Sc. [28]**

Post-Doctoral Fellow  
Center for Research and Training in Skin Diseases and  
Leprosy (CRTSDL)  
Tehran University of Medical Sciences (TUMS)  
Tehran, Iran

# Preface

This book is for practitioners at any stage of their career who have clinical, teaching, or research interests in the management of cutaneous diseases. It is critical to attempt to manage patients based on evidence based principles; however, it is even more important to remember that relying on the best evidence is not the only factor in delivering the best care for each patient. Patients' beliefs and preferences should also be considered. This is why the individual patient is the central focus of evidence based decision making. Physicians are not only dealing with facts and odds (e.g. handling a computerized stock market trading system) but also a human being with feelings, intelligence, judgment, fears, preferences, and values. Having said that, we believe this book will be more useful for patients if the physician applies the recommendations in the light of the patient's conditions and healthcare provider's competencies. Additionally, the hierarchy of evidence is always important. This basically means that even though systematic reviews and randomized controlled trials are the best available resources, it is not enough to limit your analyses to the best evidence. In a recent study, Golder et al. performed a comprehensive meta-analysis to assess the level of agreement or disagreement in the estimates of harm derived from meta-analysis of RCTs as compared to meta-analysis of observational studies. They noted that observational research can be as credible as randomized trials when investigating side effects of a drug. It is also essential to utilize the major models to report different types of studies such as CONSORT for randomized controlled trials, PRISMA (formerly QUOROM) for systematic reviews and meta-analyses, STROBE for observational studies and STARD for diagnostic studies. These guidelines were not created to impose rigid structural disciplines. They only require the authors to include all of the items from a checklist properly and explicitly anywhere in the manuscript. We suggest that our readers use these tools to interpret any published report or to design and report their own projects. "Evidence based medicine" is a growing phenomenon; however, it has not been fully integrated into medical education in the field of dermatology. We encourage all dermatology faculty members specifically dermatology-epidemiology experts to

develop a well defined explicit strategy to integrate EBM better into their residency/clerkship training programs.

In this second edition, we have reduced the content of the chapters on "principles of evidence based medicine", as we assume many of those principles have been engraved in the minds of our readers. Additionally, we avoid using detailed epidemiological language unless it is necessary to convey a specific concept. Thus, you will find a small number of introductory chapters in parts of this book. We have introduced new sections including a section entitled "Diagnosis of a cutaneous disease," where diagnostic evidence in dermatology is briefly reviewed. Studies on risk factor analysis for cutaneous diseases are also reviewed in a new section. Furthermore, specific modalities were examined in order to obtain more detailed evidence based details on efficacy and safety. At last but not least, cost effectiveness studies are another new focus in this book. We do not attempt to review all dermatological diseases in this book but rather bring up new horizons in evidence based dermatology. Our mission is to introduce and encourage the use of different evidence-based strategies among our readers in their daily practice and, if applicable, in their teaching/education. Please remember that evidence based learning is a lifelong process not a two day workshop.

We are honored to be a part of a legendary team of 140 outstanding contributors from the States and 14 other countries.

We would also like to thank Mr. Martin Wonsiewicz, President of PMPH-USA, Mr. Jason Malley, Executive Editor, Ms. Shirley Blum, Executive Assistant – Editorial, and Ms. Surinder Sharma, Production Manager, for their extraordinary and visionary insight, full support and hard work.

The editors strongly encourage the readers to comment on the contents of the book and inform them of any corrections. They will be acknowledged in the next edition. We also welcome any general recommendations to help improve the next edition.

Howard I. Maibach, M.D.  
Farzam Gorouhi, M.D.  
May 2011

# Contents

## PART I

### Diagnosis 1

---

#### CHAPTER 1

- Alireza Khatami, and Farzam Gorouhi*  
Studies and Systematic Reviews on  
Diagnostic Test Accuracy 3

#### CHAPTER 2

- Joseph C. Kvedar*  
Diagnostic Accuracy of Teledermatology 19

#### CHAPTER 3

- S. Iris Ale, and Howard I. Maibach*  
Evidence-Based Patch Testing 31

#### CHAPTER 4

- Gregory J. Wing, Jodi K. Duke, and Robert P. Dellavalle*  
Diagnosis of Melanoma 43

#### CHAPTER 5

- Derek V. Chan, Sara B. Olack, Jennifer D. Bahner,  
Sean W. Carlson, and Eliot N. Mostow*  
Diagnosis of Cutaneous T-Cell Lymphoma 51

#### CHAPTER 6

- Christopher B. Hansen, and Richard D. Sontheimer*  
Diagnostic Criteria for Cutaneous  
Lupus Erythematosus 65

#### CHAPTER 7

- Hermann Feldmeier*  
Diagnosis of Parasitic Skin Diseases 73

#### CHAPTER 8

- Diane Turvy, Ally-Khan Somani, Swetha Kandula,  
and Najwa Somani*  
Diagnosis of Hirsutism 87

## PART II

### Therapy 109

---

#### CHAPTER 9

- Phyllis Spuls, and Tamar Nijsten*  
Systematic Review and Meta-Analysis 111

#### CHAPTER 10

- Sara Hylwa, and Mark Davis*  
Treatment of Hand Dermatitis 125

#### CHAPTER 11

- Farzam Gorouhi, and Howard I. Maibach*  
Treatment of Acute Urticaria and Angioedema 155

#### CHAPTER 12

- David A. Khan*  
Treatment of Chronic Urticaria 167

#### CHAPTER 13

- Dina Farshidi, Ravneet Kaur, Jashin J. Wu, and David Peng*  
Atopic Dermatitis 187

#### CHAPTER 14

- Yuri T. Jadotte, and Robert A. Schwartz*  
Treatment of Melasma 205

#### CHAPTER 15

- Rupa Pugashetti, Jacqueline De Luca, and  
Steven R. Feldman*  
Treatment of Psoriasis 213

#### CHAPTER 16

- Parastoo Davari, Farzam Gorouhi, and Nasim Fazel*  
Treatment of Lichen Planus 235



**CHAPTER 17**

*Deshan F. Sebaratnam, Dedee F. Murrell, and Victoria P. Werth*  
Treatment of Pemphigus 261

**CHAPTER 18**

*David T. Woodley, Gene Kim, and Mei Chen*  
Treatment of Dystrophic Epidermolysis Bullosa 277

**CHAPTER 19**

*Maria Hordinsky, Ana Junqueira Bertin, and Anna Levin*  
Treatment of Alopecia Areata 283

**CHAPTER 20**

*Alireza Firooz, Masoumeh Hassani, Shahab Babakoohi, and Farzam Gorouhi*  
Treatment of Female Androgenetic Alopecia 301

**CHAPTER 21**

*Tsu-Yi Chuang*  
Treatment of Genital Warts 311

**CHAPTER 22**

*Philip D. Shenefelt*  
Treatment of Nongenital Warts 317

**CHAPTER 23**

*Tejas Patel, Katie Morrison Natalia Mendoza, and Stephen Tyring*  
Treatment of Herpes Simplex 327

**CHAPTER 24**

*Nancy Anderson, Shawna McCarty, Michael Messina, Jeffrey R. Smith, and Tracy Leong*  
Treatment of Herpes Zoster 337

**CHAPTER 25**

*Brian B. Adams*  
Treatment of Impetigo 349

**CHAPTER 26**

*Hong-Liang Tey, and Yui-Chew Chan*  
Treatment of Tinea Capitis 353

**CHAPTER 27**

*Craig N. Burkhart, Craig G. Burkhart, and Dean S. Morrell*  
Treatment of Tinea Versicolor 365

**CHAPTER 28**

*Alireza Khatami, Alireza Firooz, Hamed Zartab, Ali Khamesipour, Mansour Nassiri-Kashani, and Yahya Dowlati*  
Treatment of Cutaneous Leishmaniasis 373

**CHAPTER 29**

*Terri Lynn Meinking*  
Treatment of Head Lice 401

**CHAPTER 30**

*Hermann Feldmeier*  
Treatment of Scabies 409

**CHAPTER 31**

*Aditya K. Gupta, and William Brintnell*  
Treatment of Onychomycosis 417

**CHAPTER 32**

*Danielle M. Miller, and Samuel L. Moschella*  
Treatment of Leprosy (Hansen's Disease) 437

**CHAPTER 33**

*Nicole Fett, and Victoria P. Werth*  
Treatment of Cutaneous Lupus Erythematosus 455

**CHAPTER 34**

*Ruth Ann Vleugels, and Jeffrey P. Callen*  
Treatment of Cutaneous Dermatomyositis 467

**CHAPTER 35**

*Rupa Pugashetti, and David Fiorentino*  
Treatment of Systemic Sclerosis 483

**CHAPTER 36**

*Ahmad Reza Hossani-Madani, and Rebat M. Halder*  
Treatment of Vitiligo 501

**CHAPTER 37**

*John Thomas O'Malley, and Najwa Somani*  
Treatment of Hirsutism (Medical Interventions) 519

**CHAPTER 38**

*Murad Alam*  
Evidence-Based Procedural Dermatology 539

**CHAPTER 39**

*Sailesh Konda, and Tina S. Alster*  
Treatment of Unwanted Hair (Nonmedical Interventions) 547

**CHAPTER 40**

*Uwe Wollina, and Christa De Cuyper*  
Tattoo Removal 557

**CHAPTER 41**

*Hina Ahmad, William W. Huang, and Victoria H. Barbosa*  
Treatment of Photodamage 571

**CHAPTER 42**

*Brittney DeClerck, Nicole Mau, and David Peng*  
Chemoprevention of Skin Cancer 589

**CHAPTER 43**

*Sean Carlson, and Jeremy Bordeaux*  
Treatment of Actinic Keratosis

615

**CHAPTER 44**

*Keyvan Nouri, Sonal Choudhary, and Michael Patrick McLeod*  
Treatment of Basal Cell Carcinoma

649

**CHAPTER 45**

*Jennifer D. Bahner, and Jeremy Bordeaux*  
Treatment of Cutaneous Squamous Cell Carcinoma

673

**CHAPTER 46**

*Andrea L. Suárez, Greg Wing, Robert P. Dellavalle, and Rene Gonzalez*  
Treatment of Cutaneous Melanoma

689

**CHAPTER 47**

*Farah R. Abdulla, Cameron Harrison, and Youn H. Kim*  
Treatment of Mycosis Fungoides and Sézary Syndrome

697

**CHAPTER 48**

*Carrie Kovarik*  
Treatment of Kaposi's Sarcoma

729

**CHAPTER 49**

*Anne Han, and Gerald S. Lazarus*  
Treatment of Chronic Wounds

739

**CHAPTER 50**

*Julia Escandon, and Robert S. Kirsner*  
Treatment of Venous Leg Ulcers

751

**CHAPTER 51**

*Donna Perry, and Ardeshir Bayat*  
Treatment of Hypertrophic and Keloid Scarring

765

**CHAPTER 52**

*Sonal Choudhary, Michael Shelling, and Keyvan Nouri*  
Treatment of Acne (Non-Medical Interventions)

819

**CHAPTER 53**

*Berndt Stenberg*  
Sick Building Syndrome: Cutaneous Manifestations

839

**PART III****Risk Factor Analysis**

845

**CHAPTER 54**

*Athanassios Kyrgidis*  
Risk Factors for Nonmelanoma Skin Cancer

847

**CHAPTER 55**

*Nadia Aldoori, and Andrew Messenger*  
Risk Factors for Alopecia

875

**CHAPTER 56**

*Boris D. Lushniak*  
Risk Factors for Occupational Contact Dermatitis

885

**CHAPTER 57**

*L. Katie Morrison, and Stephen Tyring*  
Viral Infections and Skin Cancer

891

**PART IV****Pharmacoepidemiology**

905

**CHAPTER 58**

*Seema Kini, and Suephy C. Chen*  
Principles of Pharmacoepidemiology

907

**CHAPTER 59**

*Jennie T. Clarke, and Jeffrey P. Callen*  
Azathioprine

913

**CHAPTER 60**

*David Vidal*  
Imiquimod

925

**CHAPTER 61**

*Neil Sandhu, and Robert A. Schwartz*  
Topical Tar

935

**CHAPTER 62**

*Michael Krathen, and Alice B. Gottlieb*  
Biologics

943

**CHAPTER 63**

*Marta Grazzini, Riccardo Rossi, and Torello Lotti*  
Topical Immunomodulators

961

**CHAPTER 64**

*Philip D. Shenefelt*  
Hypnosis

969

**CHAPTER 65**

*Riccardo Rossi, Marta Grazzini, and Torello Lotti*  
Photodynamic Therapy

979

**CHAPTER 66**

*Tom Hodgkinson, and Ardeshir Bayat*  
Skin Substitutes

997

**CHAPTER 67**

*Jyoti P. Mundi, and Delphine J. Lee*  
Thalidomide

1019

**CHAPTER 68**

*Balvinder Rehal, and Howard I. Maibach*  
Percutaneous Hormone Transfer

1031

**PART V****Cost Effectiveness Studies 1035****CHAPTER 69**

*Xinaida T. Lima, Patricia Ting, and  
Alexandra B. Kimball*

Cost-effectiveness of Psoriasis Treatments

1037

**CHAPTER 70**

*Ala Iaconi, Chung-Hsuen Wu, David J. Rayhan,  
Brad Yentzer, Steve R. Feldman, and  
Rajesh Balkrishnan*

Cost-effectiveness of Rosacea Treatments

1055

**CHAPTER 71**

*Kavita Mariwalla, and Evan C. Jones*

Cost Effectiveness of Treatment for  
Non-Melanoma Skin Cancer

1063

**PART VI****Evidence Based Approach 1071****CHAPTER 72**

*Michelle M. Levender, Rajesh Balkrishnan,  
and Steven R. Feldman*

Adherence to Treatment

1073

**CHAPTER 73**

*Ahmad Reza Hossani-Madani, and  
Rebat M. Halder*

Ethnic Issues in Evidence-based  
Dermatology

1081

**CHAPTER 74**

*Lauren McLaughlin, Robert P. Dellavalle, and Cory A. Dunnick*

Dermatoepidemiology and Evidence-based  
Dermatology Training During Residency

1093

**CHAPTER 75**

*Farzam Gorouhi, Ai-Lean Chew, and Howard I. Maibach*

Electronic Resources for Evidence-Based  
Dermatology

1095

Index

1099