

# Contents

- Advance Praise* xi
  - About the Editors* xvii
  - List of Contributors* xix
  - Foreword* xxvii
  - Nicholas Jouriles**
  - Preface* xxix
- 

## Prologue 1

Sharon E. Mace and Michael A. Granovsky

## Section 1 Administration

- 1 **Key Concepts of Observation Medicine: How to Start (and Maintain) an Observation Unit – What You Need to Know: Clinical Issues** 5  
Sharon E. Mace
- 2 **Key Concepts of Observation Medicine: Administrative Issues** 14  
Sharon E. Mace and Michael A. Granovsky
- 3 **Development of Observation Medicine Over Time** 31  
Louis G. Graff
- 4 **Principles of Observation Medicine** 36  
Louis G. Graff
- 5 **Design: Features Common to Successful Observation Units** 39  
David J. Robinson
- 6 **Staffing Considerations** 42  
David A. Meguerdichian and Christopher W. Baugh
- 7 **Nursing** 48  
Sharon E. Mace
- 8 **Risk Management** 56  
Howard Blumstein and Bret A. Nicks

## 9 **Metrics and Performance Improvement: Patient Quality, Safety, and Experience** 59

Sharon E. Mace and Elaine Thallner

## Section 2 Clinical Setting and Education

- 10 **The Community Hospital Perspective in a Suburban/Rural Setting** 69  
Ryan Prudoff and Stephen F. Sayles III
- 11 **Observation Medicine and the Urban Community Hospital** 71  
Robert S. Bennett
- 12 **The Tertiary Care Hospital and Academic Setting** 73  
Anwar Osborne
- 13 **Rural Observation Medicine** 76  
J. Lane Schnell
- 14 **Observation Medicine and the Critical Access Hospital** 79  
Jeffrey E. Goode and Justin Rodgers
- 15 **Observation Medicine and the Hospitalist** 86  
David G. Paje
- 16 **Advanced Practice Providers** 88  
Stephanie M. Figueroa and Dean T. Harrison
- 17 **Observation Medicine Training and Education – Residents** 91  
Pawan Suri

**Contents**

- 18 **Observation Medicine Training and Education – Medical Students/Fellows** 93  
 Bradley D. Lepore and Margarita E. Pena

**Section 3 New Developments**

- 19 **Simple, Complex, and Extended Observation Services** 97  
 Pawan Suri
- 20 **Complex and Extended Observation** 99  
 Ramupriya Vaithi and Bret A. Nicks
- 21 **Hospital Readmissions** 102  
 Sharon E. Mace and Elaine Thallner
- 22 **Level of Care Determination: Medical Necessity Risk Stratification** 113  
 Louis G. Graff
- 23 **Acute Medicine in the United Kingdom** 117  
 Louella Vaughan
- 24 **Point-of-Care Ultrasound** 119  
 Courtney M. Smalley and Matthew Kostura
- 25 **Telehealth Use in Observation Medicine** 130  
 George B. Hughes

**Section 4 Clinical****Subsection 4A Clinical – Cardiac**

- 26 **Chest Pain** 135  
 Stephen Boone and W. Frank Peacock
- 27 **Acute Heart Failure** 141  
 Edgar Ordonez and W. Frank Peacock
- 28 **Atrial Fibrillation** 149  
 Catherine T. Puetz
- 29 **Syncope** 155  
 T. Andrew Windsor, Zachary Rogers, and Amal Mattu
- 30 **Cardiac Stress Testing** 162  
 Akilesh Honasoge, Kami M. Hu, and Amal Mattu

**Subsection 4B Clinical – Respiratory**

- 31 **Asthma** 171  
 Eric Anderson
- 32 **Acute Exacerbation of Chronic Obstructive Pulmonary Disease and Bronchitis** 176  
 Eric Anderson
- 33 **Community Acquired Pneumonia** 181  
 Eric Anderson
- 34 **Primary Spontaneous Pneumothorax** 185  
 Chai Chew Yian

**Subsection 4C Clinical – Vascular**

- 35 **Venous Thromboembolism** 191  
 Carol L. Clark and Hamzeh W. Omar
- 36 **Acute Pulmonary Embolism** 202  
 David G. Paje
- 37 **Anticoagulants** 210  
 David G. Paje

**Subsection 4D Clinical – Neurologic**

- 38 **Transient Ischemic Attack** 219  
 Jill A. Mohr and Jonathan Glauser
- 39 **Headaches** 228  
 Sharon E. Mace and Lucy Franjic
- 40 **Seizures** 234  
 Sharon E. Mace and Lucy Franjic
- 41 **Dizziness and Vertigo** 240  
 Saurin Bhatt
- 42 **Central Nervous System Shunts** 252  
 David A. Meguerdichian

**Subsection 4E Clinical – Metabolic, Endocrine**

- 43 **Hyperglycemia** 257  
 Pawan Suri and Taruna K. Aurora
- 44 **Hypoglycemia** 263  
 Pawan Suri and Taruna K. Aurora
- 45 **Electrolyte Abnormalities** 268  
 Grace Lambert and Jonathan Glauser

## Subsection 4F Clinical – Hematologic

- 46 **Sickle Cell Disease** 277  
 Matthew Lyon, Ann Marie Kuchinski,  
 and Robert W. Gibson
- 47 **Blood Product Transfusions** 283  
 Ryan Yavorsky and Jonathan Glauser

## 57 **Vaginal Bleeding** 337

Veronica Sikka, Chona  
 D. Macalindong, Renee Reid, and  
 Sharon E. Mace

## 58 **Hyperemesis Gravidarum** 339

Sharon E. Mace, Veronica Sikka,  
 Edward P. Cutolo, and Raaj Popli

## Subsection 4G Clinical – Oncologic

- 48 **Oncology** 289  
 Adam Klotz

## Subsection 4L Clinical – Surgical Evaluation

## 59 **Abdominal Pain** 343

Daniel Drewry and Margarita E. Pena

## Subsection 4H Clinical – Infections

- 49 **Skin and Soft Tissue Infections** 297  
 Robert S. Bennett

## Subsection 4M Clinical – Trauma

## 60 **Trauma** 355

Isra Al Jamed and Matthew A.  
 Wheatley

## Subsection 4I Clinical – Gastrointestinal

- 50 **Abdominal Pain** 303  
 Louis G. Graff
- 51 **Upper Gastrointestinal Bleeding** 307  
 Abhinav Chandra
- 52 **Lower Gastrointestinal Bleeding** 313  
 Christopher Bazzoli
- 53 **Dehydration, Gastroenteritis,  
 and Vomiting** 317  
 Maria Aini

## Subsection 4N Clinical – Pain Management

## 61 **Pain Management** 363

Benjamin Beuchler, Nathaniel  
 L. Scott, and James R. Miner

## Subsection 4J Clinical – Genitourinary

- 54 **Urolithiasis** 321  
 Claire Pearson, Laura Smylie, and  
 Robert D. Welch
- 55 **Pyelonephritis and Urinary Tract Infections** 327  
 Elizebeth Dubey, Philip A. Lewalski,  
 and Robert D. Welch

## Subsection 4O Clinical – Toxicology

## 62 **Toxicology** 369

Jennifer L. Hannum and Mary  
 A. Wittler

## Subsection 4P Clinical – Pediatrics

## 63 **Pediatric Observation Medicine** 377

Sharon E. Mace

## 64 **Pediatric Observation Medicine at a Children’s Hospital** 390

Chari Larsen and Aderonke Ojo

## Subsection 4K Clinical – Obstetrics and Gynecology

- 56 **Pelvic Inflammatory Disease** 333  
 Sharon E. Mace and Veronica Sikka

## Subsection 4Q Clinical – Geriatrics

## 65 **The Geriatric Observation Unit** 397

Abbey M. Smiley and Lauren  
 T. Southerland

## Contents

- 66 **Creating a Geriatric Care Unit for the Complex Older Patient** 407  
 Saket A. Saxena and Stephen W. Meldon

### Subsection 4R Clinical – Skilled Nursing Placement from the Observation Unit

- 67 **Skilled Nursing Facility Placement** 415  
 Anthony R. Rosania and Akiva A. Dym

### Subsection 4S Clinical – Hospice

- 68 **Transition to Hospice** 422  
 Lauren T. Southerland

### Subsection 4T Clinical – Psychiatric

- 69 **Medical Clearance of Psychiatric Patients** 427  
 Gregory Adams and Jonathan Glauser  
 70 **Psychiatric Observation: Impactful Treatment and Cost-Effective Care in Lieu of Boarding** 435  
 John S. Rozel, Tony Thrasher, Scott Zeller, and Leslie Zun

### Subsection 4U Clinical – Substance Abuse

- 71 **Opioid Use Disorder** 443  
 Brittney Gordon, Emma Sizemore, and Anwar Osborne  
 72 **Alcohol Use Disorder** 451  
 Daniel K. Colby and Elizabeth J. Johnson  
 73 **Smoking Disorders** 458  
 Nicklaus P. Ashburn and Jason P. Stopryra

### Subsection 4V Clinical – Social

- 74 **Social Observation Medicine** 463  
 Anthony R. Rosania and Akiva A. Dym

## Section 5 Disasters Including Pandemics

### Subsection 5A Disasters Including Pandemics – Clinical

- 75 **Observation Centers During a Disaster** 471  
 Constance J. Doyle

### Subsection 5B Disasters Including Pandemics – COVID-19

- 76 **Transforming Emergency Department Observation Units to Meet the Demands of the COVID-19 Pandemic** 481  
 Mallika Singh and Christopher Caspers  
 77 **Operational Flexibility of Observation Units During a Pandemic** 487  
 Maria Aini  
 78 **Using Observation Medicine for Pandemic Management** 490  
 David J. Robinson  
 79 **COVID-19 Patient Surge Emergency Management** 494  
 Robert H. Leviton  
 80 **Operational Changes in Response to COVID-19 Pandemic in Barbados** 508  
 Reginald King and Joanne M. Bradford-King

## Section 6 Financial

### Subsection 6A Financial – Coding and Reimbursement

- 81 **Observation Unit Physician Documentation and Coding** 513  
 Michael A. Granovsky and David A. McKenzie  
 82 **Observation Unit Hospital Coding and Reimbursement** 520  
 Sarah Todt and Michael A. Granovsky

## Subsection 6B Financial – Case Management

- 83 **Correct Status** 527  
Mary McLaughlin Davis
- 84 **Observational Status: Care Coordination Through Each Transition of Care** 529  
Nancy E. Skinner

## Subsection 6C Financial – Case Management: What Is the Correct Status?

- 85 **Was Observation a Good Choice?** 537  
Tibian Abramovitz
- 86 **From Observation to Inpatient** 540  
Tibian Abramovitz
- 87 **Observation versus Inpatient: “To Be or Not to Be?”** 543  
Tibian Abramovitz
- 88 **Observation: Tales from the Trenches, Common Mistakes and How to Avoid Them** 546  
Sharon E. Mace and Tibian Abramovitz

## Subsection 6D Financial – Medical Necessity, Denials, and Appeals

- 89 **Medical Necessity** 555  
Robert H. Leviton
- 90 **Denials and Appeals** 563  
Robert H. Leviton

## Subsection 6E Financial – The Business of Observation Medicine

- 91 **Ensuring Financial Viability: The Business Case for Observation Units** 567  
David A. Meguerdichian and Christopher W. Baugh
- 92 **What Your Administration C-Suite Expects from Your Observation Unit** 575  
Brian Hiestand

## Section 7 Observation Medicine Regulations and Guidelines

- 93 **Observation Care Regulations** 587  
Cheryl Grossman and Michael A. Granovsky
- 94 **Observation Care Guidelines** 599  
Robert H. Leviton
- 95 **Observation Care Documentation** 604  
Robert H. Leviton

## Section 8 Observation Medicine Administration

- 96 **Utilization Management** 611  
Matthew A. Wheatley
- 97 **Administrative Aspects of Observation** 615  
Robert H. Leviton
- 98 **Role of the Physician Advisor** 621  
Robert H. Leviton
- 99 **Leadership in Observation Medicine: Optimizing Your Team** 623  
Bret A. Nicks and Julia V. Prokesova

## Section 9 International

### Subsection 9A International – Africa

- 100 **South Africa** 629  
Lee A. Wallis and Lauren Lai King

### Subsection 9B International – Asia

- 101 **Singapore** 633  
Chai Chew Yian and Malcolm Mahadevan

### Subsection 9C International – Europe

- 102 **United Kingdom** 637  
Louella Vaughan and Dylan Jenkins

**Contents****Subsection 9D International – Middle East**

- 103 **Saudi Arabia** 641  
 Immad Shahnawaz Qureshi and  
 Yasser Masood Qureshi
- 104 **Türkiye** 645  
 Ayça Koca

**Subsection 9E International – Australia/New Zealand**

- 105 **New Zealand** 649  
 Peter Jones

**Section 10 Administrative Policies**

- Author's and Editors' Comments: Policies, Protocols, and Order Sets** 653
- 106 **Administrative Policies** 657  
 Sharon E. Mace

**Section 11 Protocols****Subsection 11A Clinical Protocols**

- 107 **Clinical Protocols** 691  
 Sharon E. Mace

**Subsection 11B Specialized Protocols**

- 108 **Protocols for Evaluation of a New Mass** 727  
 Jeffrey E. Goode
- 109 **Protocol for Low-Risk Pulmonary Embolism** 738  
 David G. Paje
- 110 **Protocol for Mild Traumatic Brain Injury** 739  
 Jason P. Stopryra
- 111 **Primary Spontaneous Pneumothorax** 740  
 Chai Chew Yian
- 112 **Protocol for Rattlesnake Bites** 747  
 Sean Bush

- 113 **Protocol for North American Crotalid (Pit Viper) Snake Bites** 751  
 Mary A. Wittler and Lisa Evans

- 114 **Protocol for Dengue** 755  
 Chai Chew Yian

**Section 12 Order Sets****Subsection 12A Order Sets – Adult**

- 115 **Adult Order Sets by Diagnosis/Clinical Condition** 759  
 Matthew J. Campbell and Sharon E. Mace
- 116 **Adult Order Sets: Electrolytes** 818  
 Matthew J. Campbell and Sharon E. Mace
- 117 **Adult Order Sets: Trauma** 820  
 Matthew J. Campbell and Sharon E. Mace
- 118 **Adult Order Sets: Intravenous Fluids, Laboratory, Radiology, and Special Studies** 836  
 Matthew J. Campbell and Sharon E. Mace
- 119 **Adult Order Sets: Medications** 839  
 Matthew J. Campbell and Sharon E. Mace
- 120 **Adult Order Sets: General Order Sets** 856  
 Matthew J. Campbell and Sharon E. Mace

**Subsection 12B Order Sets – Pediatric**

- 121 **Pediatric Order Sets: Medications** 861  
 Matthew J. Campbell and Sharon E. Mace
- 122 **Pediatric Order Sets: General Order Sets** 871  
 Matthew J. Campbell and Sharon E. Mace