

**FOURTH EDITION**

# **Fluid, Electrolyte, and Acid-Base Physiology**

**A PROBLEM-BASED APPROACH**

**Halperin, Kamel, & Goldstein**

**SAUNDERS**  
ELSEVIER

# Contents

**List of Cases** ..... xv

**List of Flow Charts** ..... xvii

## **SECTION ONE Acid-Base**

- 1** Principles of Acid-Base Physiology..... 3
- 2** Tools to Use to Diagnose Acid-Base Disorders ..... 39
- 3** Metabolic Acidosis: Clinical Approach... 60
- 4** Metabolic Acidosis due to a Deficit of  $\text{NaHCO}_3$ ..... 75
- 5** Ketoacidosis ..... 111
- 6** Metabolic Acidosis: Acid Gain Types .... 160
- 7** Metabolic Alkalosis ..... 193
- 8** Respiratory Acid-Base Disturbances .... 222

## **SECTION TWO Salt and Water**

- 9** Sodium and Water Physiology..... 245
- 10** Hyponatremia..... 314
- 11** Hypernatremia..... 368
- 12** Polyuria..... 403

## **SECTION THREE Potassium**

- 13** Potassium Physiology ..... 425
- 14** Hypokalemia..... 460
- 15** Hyperkalemia..... 512

## **SECTION FOUR Integrative Physiology**

- 16** Hyperglycemia..... 543

**Suggested Readings** ..... 575

**Index** ..... 583