LeMone & Burke’s
Medical-Surgical Nursing
Clinical Reasoning in Patient Care

Seventh Edition

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Pearson
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Gerene Bauldoff, RN, PhD, FAAN

Gerene Bauldoff is a Professor of Clinical Nursing at The Ohio State University College of Nursing in Columbus, Ohio. She has been a nurse educator for 19 years, teaching medical-surgical nursing, clinical and research methods and measurement, and evidence-based practice courses at the baccalaureate, master’s, and doctoral levels. Prior to her nursing educator role, her clinical background included home health nurse, lung transplant coordinator, and pulmonary rehabilitation coordinator. Dr. Bauldoff has a diploma from the Western Pennsylvania Hospital School of Nursing in Pittsburgh, Pennsylvania, and a BSN from LaRoche College in Pittsburgh. Her graduate education is from the University of Pittsburgh, with a MSN in medical-surgical nursing (cardiopulmonary clinical nurse specialist) and PhD in nursing in 2001, training under Leslie Hoffman, PhD, RN, FAAN.

Dr. Bauldoff is an active member of multiple professional organizations including the American Academy of Nursing (AAN), Sigma Theta Tau International Honor Society of Nursing, the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR), the American Thoracic Society Nursing Assembly, and the American College of Chest Physicians (ACCP). She is a recognized expert in medical-surgical nursing, focusing on the care of the patient with chronic pulmonary disease, serving on committees focusing on international standards for and patient-centered outcomes in pulmonary rehabilitation. She has been honored with fellowships in AAN and ACCP and is a master fellow in AACVPR. Dr. Bauldoff has conducted several international presentations related to evidence-based practice and clinical outcomes.

Dr. Bauldoff considers nursing as the greatest profession, using scientific evidence to provide the highest quality of care while maintaining the personal relationship with patients and their families. Her experiences provide her with insights and lessons that she shares with her students.

Dr. Bauldoff resides in central Ohio. She enjoys international travel, walking, bicycling, golfing, and spending time with her family and friends.

I dedicate this book to the memory of my parents, to my sisters, and to my friends, especially Vicki von Sadovszky, Linda Daley, Patty Orndoff, and Eileen Collins—you are my touchstones to the world and are my greatest sounding boards. You help me keep my feet on the ground and my face turned toward new opportunities. You mean the world to me!

Paula Gubrud, RN, MS, EdD, FAAN

Paula Gubrud is Senior Associate Dean for Academic Affairs and an Associate Professor at Oregon Health and Science University (OHSU) School of Nursing. She has more than 25 years of experience as a nurse educator involving multiple levels of programs from LPN to doctoral education. Dr. Gubrud is a founding leader and co-director of the Oregon Consortium for Nursing Education, an award-winning consortium that includes the five campuses of OHSU and nine community colleges. She also has more than 20 years of experience in medical-surgical nursing, critical care, home health, and hospice. Dr. Gubrud earned a baccalaureate degree in nursing from Walla Walla University (1980), an MS in community-based nursing from OHSU (1993), and an EdD in postsecondary education from Portland State University (2008). She is a frequent invited speaker at national and international nursing education conferences and consults with other states and countries on the development of competency-based curriculum and nursing education consortiums designed to promote academic progression in nursing education. Her research activity is focused on clinical education redesign and the integration of simulation into nursing curriculum.

Dr. Gubrud is passionate about nursing and the opportunities it provides members of the profession. She values the sacred relationship nurses experience with patients as they promote health, treat illness, and provide comfort and palliative care. She believes the nation’s health depends on highly qualified nurses who are dedicated to lifelong learning in pursuit of evidence-based, patient-centered care.

Dr. Gubrud lives in the Pacific Northwest and enjoys reading, camping, hiking, and fishing. She catches really big salmon year round!

I dedicate this book to my husband Leland Howe and my children Elizabeth Gubrud-Howe, Gabriel Howe, and Caleb Howe for encouraging me to pursue my professional passions and goals. I also dedicate this book to my father, Allan Gubrud, who instilled insatiable curiosity, a love of learning, and a passion to teach.
Margaret-Ann Carno, PhD, MBA, MJ, RN, CPNP, D,ABSM, ATSF, FAAN

Margaret-Ann Carno is Professor of Clinical Nursing and Pediatrics as well as Co-Director of Baccalaureate Programs at the University of Rochester, School of Nursing. Dr. Carno has over 20 years of teaching across baccalaureate, master’s, and doctoral levels of nursing education in medical-surgical nursing, pediatrics, ethics, health law, sleep across the lifespan, and research. Seeing students be successful gives Dr. Carno the greatest joy.

Dr. Carno earned her baccalaureate in nursing at Syracuse University and then went on to complete an MBA in Operations Management and an MS in Nursing (Pediatric Critical Care) also from Syracuse University. She received her PhD from the University of Pittsburgh under the guidance of Leslie Hoffman, PhD, RN, FAAN. Dr. Carno also holds a Masters in Jurisprudence in Health Law from University of Loyola–Chicago and a post Masters certification as a Pediatric Nurse Practitioner from the University of Rochester, School of Nursing. She is a Fellow of the American Academy of Nursing and of the American Thoracic Society. Dr Carno is a Diplomate of the American Board of Sleep Medicine.

When she is not teaching or working on other duties, Dr. Carno enjoys traveling the world with her beloved cousins as shown in the accompanying photo, where Dr. Carno is on the left.

I dedicate this book to my father Joseph, who while was in my life only a short time instilled the idea I could be anything I wanted and to never stop learning. Also to my mom, Libera, who has been my champion and support throughout my life.
Thank You

We wish to thank the editorial team. First and foremost, our intrepid publisher, Pamela Fuller, has provided fearless leadership and a forward-thinking strategy. This book would not exist without the expert editorial and organizational skills of Laura Horowitz, our development editor who brought this project to fruition with passion and graceful patience. The editorial assistance of Erin Sullivan who helped us keep all the balls in the air. We appreciate the work of Studio Montage on the cover and interior design. They brought the new structure to life! We also wish to thank our contributors and reviewers who shared their expert knowledge.

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Preface

Why We Wrote This Book

Dr. LeMone-Koeplin developed the original vision for Medical-Surgical Nursing: Clinical Reasoning in Patient Care based on the belief that nursing is a holistic, evidence-based, person-centered profession. Nursing care, therefore, is provided for the whole person, not just for a malfunction of one or more body systems. We chose the cover and unit opener images to reflect this emphasis on the whole person.

The revisions and updates reflected in the seventh edition of Medical-Surgical Nursing: Clinical Reasoning in Patient Care further reflect our belief that nurses should possess the necessary knowledge, skills, and attitudes to continuously improve the quality and safety of care in healthcare systems. We believe that nurses need to be able to use evidence-based practice, apply clinical reasoning skills, and understand nursing care standards to safely perform complex skills and tasks.

In Unit 1, Dimensions of Medical-Surgical Nursing, Chapter 2, Health and Illness in Adults, includes a section on critical care with a table to easily find critical care–related topics like shock and sepsis, burns, cardiac and pulmonary disorders, as well as disorders of the liver/pancreas, acute kidney injury, and spinal cord injury. Unit 2, Alterations in Patterns of Health, has been revised to include a new, comprehensive chapter on caring for the patient with alterations in sleep (Chapter 3) to emphasize the impact that inadequate sleep has on the patient in a multitude of ways.

In this textbook, discussions of the human responses to illness and disease are structured within the framework of clinical reasoning and the nursing process. Nursing care is presented within the context of nursing problems or diagnoses, emphasizing the importance of developing individualized evidence-based plans of care. The quality and safety implications for nursing care are addressed. Throughout the text, nursing care planning is based on a philosophy that individuals, their families, and communities are active participants in health and illness as well as consumers of healthcare services.

Regardless of the type of healthcare service or setting, medical-surgical nurses must use knowledge and skills to provide competent and safe patient care. The ability to effectively prioritize activities and patient care needs is critical. Nursing care is structured by the activities planned and carried out through clinical reasoning and multiple thinking strategies when applying the nursing process. Care of the medical-surgical patient is based on established professional ethics and standards and is focused on promoting or returning the patient to a state of functional health or providing palliative care at the end of life. Transitions of care are addressed for selected topics related to nursing based on prevention, acute, chronic, and end-of-life foci.
Throughout the text, we make every effort to communicate that both nurses and patients may be male or female and that patients require holistic, individualized care regardless of their age, gender, or racial, cultural, or socioeconomic background. Where indicated, we addressed issues related to special populations including older adults, the LGBTQI population, veterans, and adult survivors of pediatric conditions and congenital disorders. Our goal is to help students acquire the knowledge, resources, and competencies that ensure a solid base for clinical reasoning and that are applied to provide safe, individualized, and competent nursing care. We use understandable language and a consistent format, focusing on the most commonly encountered conditions. We have developed multiple learning strategies to facilitate success—audio, illustrations, teaching tips, and video and animation media.

Starting with the first edition, we have held fast to our vision that this textbook:

- Maintains a strong focus on nursing care as the essential element in learning and doing nursing, regardless of the gender, age, race, culture, or socioeconomic background of the patient or the setting for care.
- Provides a balance of pathophysiology, pharmacology, and interprofessional care to support interdependent and independent nursing interventions.
- Emphasizes the nurse’s role as a caregiver, educator, advocate, leader and manager, and as an essential member of the interprofessional healthcare team.
- Uses functional health patterns and the nursing process as the structure for providing nursing care in today’s world by prioritizing nursing interventions specific to altered responses to illness.
- Fosters clinical reasoning and decision making as the basis for safe, knowledgeable, individualized clinical practice.

Organization of This Book

The 50 chapters in this text are organized into units based on alterations in human structure and function. To increase student learning, each chapter in the book includes key terms, learning outcomes and clinical competencies, chapter highlights, test yourself NCLEX-type questions, and references with supporting evidence. Each chapter is grouped into sections, and each section has a learning outcome.

Each unit with a focus on altered health opens with an assessment chapter. This chapter draws on the student’s prerequisite knowledge and serves to reinforce basic principles of anatomy and physiology as applied to assessment in both health and illness. Following the assessment chapter, nursing care chapters provide information about major illnesses and traumatic injuries. Each nursing care chapter follows a consistent format, including the following key components:

**Pathophysiology and Risk Factors**

The discussion of each major illness or injury begins with incidence and prevalence, risk factors, and an overview of pathophysiology, followed by manifestations (signs and symptoms) and complications. Selected Focus on Cultural Diversity boxes demonstrate how race, age, and gender affect differences in incidence, prevalence, and mortality.

**Manifestations and Complications**

To further describe major illnesses, manifestations including signs and symptoms, antecedents, and subsequent clinical symptoms commonly seen are described for each condition. Common complications are also described to provide important information to allow anticipation of potential problems.

**Interprofessional Care**

Interprofessional care considers diagnosis and treatment by the healthcare team. The section includes information, as appropriate, about specific tests necessary for diagnosis, medications, surgery and other treatments, fluid management, dietary management, and complementary and alternative therapies. Specific information with related nursing care is highlighted in Medication Administration boxes and boxes focused on the nursing care of patients having a specific treatment or surgery.

**Nursing Care**

We discuss nursing assessment and care within a context of priorities of care, diagnoses, outcomes, and interventions, with rationales provided for each intervention. Boxes throughout each illness discussion section present information essential to patient care. These features include Nursing Care of the Patient, Genetic Considerations, Focus on Cultural Diversity, Safety Alerts, Multisystem Effects, Pathophysiology Illustrated, and Moving Evidence into Action.

Last, for 80 major disorders or types of trauma, we provide a narrative Case Study & Nursing Care Plan. Clinical reasoning
questions specific to the care plan are provided in a section called Clinical Reasoning in Patient Care (with suggestions for decision-making provided in Appendix B under Evaluate Your Response to Clinical Reasoning in Patient Care). The nursing care section ends with information about continuity of care with essential patient and caregiver education, and suggestions for referrals and additional patient resources.

Transitions of Care
New to the seventh edition, this section addresses critical issues for patients and families along the care continuum. For identified disorders, we describe care needs related to prevention, acute and chronic disease, and end-of-life considerations to support planning for and implementing comprehensive care transition.

End-of-Chapter Sections
Each chapter ends with Chapter Highlights, a bulleted list of key points for each section/learning outcome; Test Yourself NCLEX-RN Review, 10 NCLEX-style review questions that reinforce comprehension of the chapter content (the correct answers with rationales are found in Appendix B); References to support all evidence presented in the chapter; and Additional Resources for students who need or want additional study.

What’s New in the Seventh Edition
We are delighted to welcome Margaret-Ann Carno as a coauthor of this book. Information about Dr. Carno is included in About the Authors on page x. New features of the seventh edition include:

- A consistent chapter structure with numbered sections, a matching learning outcome for each, and a new design that emphasizes the structure, making it easier for students to navigate the book.
- Chapter 3, Nursing Care of the Patient with Alterations of Sleep, which describes commonly seen sleep disorders. The greatest strength of the chapter is that it demonstrates the linkage between sleep and health and the bidirectional nature of sleep and health.
- Recognizing the overwhelming number and variety of medications nurses must safely administer, the most commonly prescribed drugs are printed in blue type in the Medication Administration features.
- Transitions of Care replaces the section previously titled Continuity of Care. This section focuses on the nurse’s responsibility for preparing the patient and caregivers for transitions of care from one healthcare setting to another or to the home.
Chapter Features

Assessment Addressing the first step in the nursing process, the assessment feature provides a review of the objective and subjective data needed to provide a clear clinical picture of the condition. Techniques and normal findings are compared to abnormal findings. Selected assessments include detailed guidelines for psychomotor skills used to assess the organ system.

Integumentary Assessments

<table>
<thead>
<tr>
<th>Technique and Normal Findings</th>
<th>Abnormal Findings</th>
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<tr>
<td>Palpate skin texture.</td>
<td>Pearly edged nodules with a central ulcer are seen in basal cell carcinoma.</td>
</tr>
<tr>
<td>Palpate skin temperature.</td>
<td>Ulceration, eczematous plaques appear on the scalp, knees, back, and genitals.</td>
</tr>
<tr>
<td>Palpate skin vascularity.</td>
<td>Ulcerations, crusty-appearing plaques may be seen.</td>
</tr>
<tr>
<td>Palpate skin pigmentation.</td>
<td>Ulcerations, crusty-appearing plaques may be seen.</td>
</tr>
<tr>
<td>Palpate skin moisture.</td>
<td>Ulcerations, crusty-appearing plaques may be seen.</td>
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Diagnostic Tests

### Pituitary Tests

**NAME OF TEST**

- Growth hormone (GH)
- Human growth hormone (hGH)

**PURPOSE AND DESCRIPTION**

In this blood test, GH levels (affected by food, stress, and activity) are measured to identify GH deficiency (short stature) or GH excess (gigantism, acromegaly). Normal value: Men - <10 μg/L, Women - <15 μg/L.

**RELATED NURSING INTERVENTIONS**

Tell patient not to eat or drink 3–4 h prior to having blood drawn. Have patient rest for 30–60 min before blood is drawn.

Diagnostic Tests This feature identifies commonly used diagnostic tests for specific disorders. The tests are identified while the values of characteristics related to the specific disorder are emphasized, making a clear connection between the significance of the test and the disorder.

Genetic Considerations

**Examples of Inherited Endocrine System Disorders**

- Type 1 and type 2 diabetes mellitus are classified as multifactorial inheritance disorders because both genetic and environmental factors are necessary for onset of these disorders.
- Hashimoto disease (chronic thyroiditis) is believed to have a genetic component.
- Multiple endocrine neoplasia is a group of rare diseases caused by genetic defects leading to hyperplasia and hyperfunction of two or more components of the endocrine system (especially the parathyroid, pancreas, and pituitary gland).
- Fragile X syndrome is a genetic condition that causes developmental problems including learning disabilities and mental retardation. Males are usually more severely affected than females.

Focus on Cultural Diversity

**Estimates of Prevalence of Diabetes Mellitus**

- 13.1% of American Indians and Alaska Natives have DM. The rate varies; only 6% of Alaska natives have DM, whereas 22.2% of Native Americans in southern Arizona have DM.
- 12.7% of non-Hispanic Blacks ages 18 years or older have DM.
- 12.1% of Hispanic/Latino Americans ages 18 years or older have DM. Rates of diabetes are lower among Cuban Americans (9%) and Central and South Americans (6.9%) and higher for Mexican Americans (13.8%) and Puerto Rican Americans (15%).
- 8% of Asian Americans ages 18 years or older have DM.
- 7.4% of non-Hispanic Whites ages 18 years or older have DM (CDC, 2017b).

Genetic Considerations With the expanding knowledge of genetic impact on disease, the Genetics Considerations feature provides examples of system-specific disorders. This feature is found in both the assessment chapters as well as the detailed disorder chapters.

Focus on Cultural Diversity This feature provides essential guidelines for nurses to help them provide culturally sensitive care.
19.1 Disorders of the Thyroid Gland

**Neurologic**
- Nervousness
- Emotional lability
- Anxiety

**Cardiovascular**
- Hypertension
- Tachycardia
- Dysrhythmias
- Palpitations
- Amenorrhea (female)
- Fertility (female)
- Impotence (male)

**Metabolic Processes**
- Hyperthermia
- Diaphoresis
- Hunger
- Weight loss
- Fluid volume deficit

**Musculoskeletal**
- Muscle wasting
- Loss of strength
- Fatigue

**Gastrointestinal**
- Vomiting
- Diarrhea
- Abdominal pain
- Nausea

**Respiratory**
- Dyspnea

**Endocrine**
- Goiter

**Integumentary**
- Perspiration
- Hair loss

**Reproductive**
- Libido (male and female)
- Azoospermia (male)
- Erectile dysfunction (male)

**Sensory**
- Blurred vision
- Photophobia
- Lacrimation
- Exophthalmos (Graves disease)
- Hand and eye tremors
- Nervousness
- Insomnia
- Emotional lability
- Anxiety

**Pathophysiology Illustrated**

**Peptic Ulcer Disease**

*Normal gastric mucosa*: In the stomach and duodenum, the mucosal barrier protects the gastric mucosa (including the epithelial, vascular, and smooth muscle layers) from damage. Specialized mucus cells throughout the gastric mucosa produce a mucus (a mixture of water, lipids, and glycoproteins) that serves as a barrier to the diffusion of ions (such as hydrogen ion) and molecules (such as pepsin). A layer of bicarbonate, secreted by surface epithelial cells, forms between the mucus and cell membranes. Blood flow to the gastric mucosa is vital to maintain this barrier. Prostaglandins and nitric oxide stimulate mucus and bicarbonate production, helping maintain it as well. The mucosal barrier constantly bathes surfaces of the gastric epithelial lining.

**Disruption of mucosal barrier**: The mucosal barrier can be disrupted by a number of factors. Ischemia of the gastric mucosa (e.g., due to hemorrhage, hypotension, or shock) impairs mucous production, increasing the risk of damage to the mucosa. Aspirin disrupts the mucosal barrier, and, along with other nonsteroidal anti-inflammatory drugs, inhibits prostaglandins which are necessary to maintain mucous production. Alcohol and bile acids also damage the mucosal barrier (Helicobacter pylori), a common pathogen to infect the gastric mucosa, disrupts the mucosal barrier.

**Pathophysiology Illustrated**

Pathophysiology illustrated art brings changes in physiologic processes to life, helping the student develop a visual memory of the disorder and its effects.
Medication Administration 22.A

**Diseases To Treat Obesity**

**SPECIFIC SUPPLEMENTS**

- Adipose tissue and adipocyte release inhibitor (Crouyjan et al., 2018)
- Sustained-release calcium channel blockers (Soriano et al, 2018)
- Rapid-release calcium channel blockers (Soriano et al, 2018)
- Reduced polypotential fat-derived (Gaynor et al, 2018)

**NURSING RESPONSIBILITIES**

- Patients with diabetes mellitus type 2 (PPG-1) that causes increased meal release and decreased glucose peaks (Oppenheimer et al, 2018)
- It also helps to predict a higher dietary sugar, triglyceride, and cholesterol levels (Van der Linden et al, 2018)

**SUGGESTIONS**

- Control diabetes with increased blood sugar and improved cholesterol levels (Van der Linden et al, 2018)
- It is also associated with elevated blood sugar and improved cholesterol levels (Van der Linden et al, 2018)

**SAFETY ALERT:** Sublingual nitroglycerin tablets and nitroglycerin spray are the only medications appropriate to treat an acute anginal attack.

### Case Study & Nursing Care Plan

**A Patient with Hypertension**

Maggie Spurz is a married, 41-year-old woman with eight children whose ages range from 3 to 18 years. For the past 2 months, Mrs. Spurz has had frequent morning headaches, which usually resolve within the hour. She has had similar headaches for the past 10 years. She has been diagnosed with hypertension on 1 examination month 1 ago, her blood pressure was 164/104.

**ASSESSMENT**

While recording Mrs. Spurz’s blood pressure and obtaining her weight, blood pressure, and laboratory values, Lisa CHRISTOS, RN, noticed that Mrs. Spurz looked tense and said, “You look upset about something, isn’t it OK?” Mrs. Spurz responded, “Yes, my head is pounding, and I’m sort of dizzy. I think I’m just overworking it and not getting enough rest. You know, raising eight children is a lot of work and expenses. I started working part-time so we wouldn’t get buried in our bills through the extra money might make some of my stress, but I’m not sure that’s truly happening. I’m not getting any better and I’m not sure what else I have to do to take care of us. I can’t get the help I need to go home, but I can’t get the help that I need to stay home.”

**DIAGNOSIS**

- Fatigue due to effects of hypertension and increase of stress and emotional disorder
- Overabundance of control
- Difficulty to maintain a healthy lifestyle

**OUTCOMES EXPECTED**

- Patient will reduce blood pressure readings to 130/80 mm Hg with medication
- Patient will engage in regular exercise
- Patient will maintain a plan for regular exercise
- Patient will maintain an understanding of the effects of prescribed drug, dietary restrictions, exercise, and follow-up care to help maintain patient adherence.
The visuals in LeMone & Burke’s Medical-Surgical Nursing have been updated for currency, accuracy, realism, and style. Visual learners in particular will be delighted to see the detailed illustrations, vivid photos, and numerous tables.
MyLab Nursing

MyLab Nursing is an online learning and practice environment that works with the text to help students master key concepts, prepare for the NCLEX-RN exam, and develop clinical reasoning skills. Through a new mobile experience, students can study LeMone & Burke’s Medical-Surgical Nursing anytime, anywhere. New adaptive technology with remediation personalizes learning, moving students beyond memorization to true understanding and application of the content. MyLab Nursing contains the following features:

**Dynamic Study Modules**

New adaptive learning modules with remediation that personalize the learning experience by allowing students to increase both their confidence and their performance while being assessed in real time.

**NCLEX-Style Questions**

Practice tests with more than 1000 NCLEX-style questions of various types build student confidence and prepare them for success on the NCLEX-RN exam. Questions are organized by chapter.
Decision Making Cases

Clinical case studies that provide opportunities for students to practice analyzing information and making important decisions at key moments in patient care scenarios. These 15 unfolding case studies are designed to help prepare students for clinical practice.

Pearson eText

The eText enhances student learning both in and outside the classroom. Students can take notes, highlight, and bookmark important content, or engage with interactive and rich media to achieve greater conceptual understanding of the text content. Interactive features include audio clips, pop-up definitions, figures, questions and answers, the nursing process, hotspots, and video animations. Some examples of video animations include:

- **Congenital Heart Defect Animations** illustrate the many congenital heart defects that may occur in newborns and provide students the opportunity to see, hear, and understand how congenital heart defects impair the correct functioning of the heart and how they may be corrected.

Instructor Resources

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