

BRUNNER & SUDDARTH'S

# Textbook of Medical-Surgical Nursing

*Edition*

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# Textbook of Medical-Surgical Nursing

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*Edition*

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## Preface

The 1st edition of *Brunner & Suddarth's Textbook of Medical-Surgical Nursing* was published in 1964 under the leadership of Lillian Sholtis Brunner and Doris Smith Suddarth. Lillian and Doris pioneered a medical-surgical nursing textbook that has become a trusted learning resource. Lillian and Doris groomed Suzanne Smeltzer and Brenda Bare as their successors. For several decades, Suzanne and Brenda continued the legacy of medical-surgical nursing excellence established by Lillian and Doris, meticulously supervising all updates and revisions for subsequent editions of this textbook. Suzanne and Brenda, in turn, served as our mentors for the past several editions of this textbook and have passed that legacy of excellence on to us. The result of the seamless and meticulous succession planning for editorship of this textbook is this new 13th edition.

Medical-surgical nursing has significantly advanced since 1964 but continues to be strongly influenced by the expansion of a host of other disciplines and new developments in technology, as well as myriad social, cultural, economic, and environmental changes throughout the world. In today's environment, nurses must be particularly skilled in critical thinking and clinical decision making, as well as in consulting and collaborating with other members of the multidisciplinary health care team.

Along with the challenges that today's nurses confront, there are many opportunities to provide skilled, compassionate nursing care in a variety of health care settings, for patients in the various stages of illness, and for patients across the age continuum. At the same time, there are significant opportunities for fostering health promotion activities for individuals and groups; this is an integral part of providing nursing care.

Continuing the tradition of the first 12 editions, this 13th edition of *Brunner & Suddarth's Textbook of Medical-Surgical Nursing* has evolved to prepare nurses to think critically and practice collaboratively within today's challenging and complex health care delivery system. The textbook focuses on physiologic, pathophysiologic, and psychosocial concepts as they relate to nursing care, and emphasis is placed on integrating a variety of concepts from other disciplines such as nutrition, pharmacology, and gerontology. Content relative to health care needs of people with disabilities, nursing research findings, ethical considerations, evidence-based practice, bariatrics, and prioritization has been expanded to provide opportunities for the nurse to refine clinical decision making skills.

### Organization

*Brunner & Suddarth's Textbook of Medical-Surgical Nursing*, 13th edition, is organized into 17 units. These units mirror those found in previous editions with the incorporation of some changes. Content was streamlined throughout all units, with cross-references to specific chapters included as appropriate. Units 1 through 4 cover core concepts related to

medical-surgical nursing practice. Units 5 through 17 discuss adult health conditions that are treated medically or surgically. The sequential ordering of some of these units was changed so that they dovetailed more logically with each other. For instance, the musculoskeletal unit (Unit 9) follows the immunologic unit (Unit 8) so that coverage of rheumatic disorders precedes coverage of orthopedic disorders. Hematologic disorders are now no longer presented in a chapter within the cardiovascular unit but have been expanded into a separate unit with three chapters organized consistently with other units focused on adult health conditions. Each of these units is structured in the following way to better facilitate comprehension:

- The first chapter in the unit covers assessment and includes a review of normal anatomy and physiology of the body system being discussed.
- Subsequent chapters in the unit cover management of specific disorders. Pathophysiology, clinical manifestations, assessment and diagnostic findings, medical management, and nursing management are presented. Nursing Process sections, provided for selected conditions, clarify and expand on the nurse's role in caring for patients with these conditions.

### Special Features

When caring for patients, nurses assume many different roles, including practitioner, educator, advocate, and researcher. Many of the features in this textbook have been developed to help nurses fulfill these varied roles. Key updates to practice-oriented features in the 13th edition include new unit-opening Case Studies and QSEN Competency Focus—a feature that highlights a competency from the Quality and Safety Education for Nurses (QSEN) Institute that is applicable to the case study and poses questions for students to consider about relevant knowledge, skills, and attitudes (KSAs). New Obesity Considerations icons identify content related to obesity or to the nursing care of obese patients. In addition, Quality and Safety Nursing Alerts, Genetics in Nursing Practice charts, and Ethical Dilemma charts offer updated formats and information.

The text also provides pedagogical features developed to help readers engage and learn critical content. New to this edition are Concept Mastery Alerts, which clarify fundamental nursing concepts to improve the reader's understanding of potentially confusing topics, as identified by Misconception Alerts in Lippincott's Adaptive Learning Powered by PrepU. Data from hundreds of actual students using this program in medical-surgical courses across the United States identified common misconceptions for the authors to clarify in this new feature. In addition, prioritization questions have also been added to chapter-ending Critical Thinking Exercises. An enhanced suite of online, interactive multimedia resources is also highlighted with icons placed in text near relevant topics.

Read the User's Guide that follows the Preface for a full explanation and visual representation of all special features.

## A Comprehensive Package for Teaching and Learning

To further facilitate teaching and learning, a carefully designed ancillary package has been developed to assist faculty and students.





### Instructor Resources

Tools to assist you with teaching your course are available upon adoption of this text on **thePoint** at <http://thePoint.lww.com/Brunner13e>.

- A thoroughly revised and augmented **Test Generator** contains more than 2,900 NCLEX-style questions mapped to chapter learning objectives.
- An extensive collection of materials is provided for each book chapter:
  - **Lesson Plans** outline learning objectives and identify relevant resources from the robust instructor and student resource packages to help you prepare for your class.
  - **Pre-Lecture Quizzes** (and answers) allow you to check students' reading.
  - **PowerPoint Presentations** provide an easy way to integrate the textbook with your students' classroom experience; multiple-choice and true/false questions are included to promote class participation.
  - **Guided Lecture Notes** are organized by objective and provide corresponding PowerPoint slide numbers to simplify preparation for lecture.
  - **Discussion Topics** (and suggested answers) can be used in the classroom or in online discussion boards to facilitate interaction with your students.
  - **Assignments** (and suggested answers) include group, written, clinical, and Web assignments to engage students in varied activities and assess their learning.
  - **Case Studies** with related questions (and suggested answers) give students an opportunity to apply their knowledge to a client case similar to one they might encounter in practice.
- Sample **Syllabi** are provided for one- and two-semester courses.
- A **QSEN Competency Map** identifies content and special features in the book related to competencies identified by the QSEN Institute.
- An **Image Bank** lets you use the photographs and illustrations from this textbook in your course materials.
- **Strategies for Effective Teaching** provides general tips for instructors related to preparing course materials and meeting student needs.
- Access to all **Student Resources** is provided so that you can understand the student experience and use these resources in your course as well.

### Student Resources

An exciting set of free learning resources is available on **thePoint** to help students review and apply vital concepts in medical-surgical nursing. For the 13th edition, multimedia engines have been optimized so that students can access many of these resources on mobile devices. Students can activate the codes printed in the front of their textbooks at <http://thePoint.lww.com/activate> to access these resources:

- **NCLEX-Style Review Questions** for each chapter, totaling more than 1,800 questions, help students review important concepts and practice for NCLEX.
- Interactive learning resources appeal to a variety of learning styles. Icons in the text direct readers to relevant resources:
  -  **Concepts in Action Animations** bring physiologic and pathophysiologic concepts to life.
  -  **Interactive Tutorials** review key information for common or complex medical-surgical conditions. Tutorials include graphics and animations and provide interactive review exercises as well as case-based questions.
  -  **Practice & Learn Case Studies** present case scenarios and offer interactive exercises and questions to help students apply what they have learned.
  -  **Watch & Learn Video Clips** reinforce skills from the textbook and appeal to visual and auditory learners. With the 13th edition, all content from *Lippincott's Video Series for Brunner & Suddarth's Textbook of Medical-Surgical Nursing* is included!
- A **Spanish-English Audio Glossary** provides helpful terms and phrases for communicating with patients who speak Spanish.
- **Journal Articles** offer access to current articles relevant to each chapter and available in Lippincott Williams & Wilkins journals to familiarize students with nursing literature.

### Study Guide

A comprehensive study aid for reviewing key concepts, **Study Guide for Brunner & Suddarth's Textbook of Medical-Surgical Nursing, 13th edition**, has been thoroughly revised and presents a variety of exercises, including case studies and practice NCLEX-style questions, to reinforce textbook content and enhance learning.

### Quick Reference Tools

**Clinical Handbook for Brunner & Suddarth's Textbook of Medical-Surgical Nursing, 13th edition**, presents need-to-know information on nearly 200 commonly encountered disorders in an easy-to-use, alphabetized outline format that is perfect for quick access to vital information in the clinical setting. **Brunner & Suddarth's Handbook of Laboratory and Diagnostic Tests, 2nd edition**, includes a review of specimen collection procedures, followed by a concise, alphabetical presentation of tests and their implications. Information for each test includes reference values or normal findings, abnormal findings and related nursing implications, critical values, purpose, description, interfering factors, precautions, and nursing considerations.

Both quick references are available in print or e-book format. An enhanced e-book format is available to facilitate mobile use for on-the-go reference. For more information on these two quick references and available formats, please visit **thePoint**, <http://thePoint.lww.com>.

### Adaptive Learning Powered by PrepU

Updated to accompany the 13th edition, Lippincott's Adaptive Learning Powered by PrepU helps every student learn

more, while giving instructors the data they need to monitor each student's progress, strengths, and weaknesses. The adaptive, formative quizzing program allows instructors to assign quizzes or students to take quizzes on their own that adapt to each student's individual mastery level. Visit [thePoint](http://thePoint.lww.com/PrepU) at <http://thePoint.lww.com/PrepU> to learn more.

### Computer-Based Simulations

Lippincott | Laerdal Computer-Based Simulations for Medical-Surgical Nursing offers innovative scenario-based learning modules consisting of Web-based virtual simulations, course learning materials, and curriculum tools designed to develop critical thinking and promote clinical confidence and competence. The medical-surgical module includes 10 virtual simulations based on the National League for Nursing Volume I Complex scenarios. In addition, students can progress through suggested readings, pre- and post-simulation assessments, documentation assignments, and guided reflection and debriefing questions, as well as receive an individualized feedback log from the simulation. Throughout the learning experience, the product offers remediation back to trusted Lippincott resources, including *Brunner & Suddarth's Textbook of Medical-Surgical Nursing* as well as Lippincott's Nursing Advisor and Lippincott's Nursing Procedures and Skills—two online, evidence-based, clinical information solutions used in health care facilities throughout the United States. This innovative product provides a comprehensive solution for learning and integrating simulation into the classroom.

Contact your Lippincott Williams & Wilkins sales representative or visit [thePoint](http://thePoint.lww.com), <http://thePoint.lww.com>, for bundling options that can bring all resources together in money-saving packages for students.

### A Comprehensive, Integrated Course Solution

Lippincott's CoursePoint is the only integrated digital course solution for nursing education, combining the power of enhanced eBook, interactive resources, Adaptive Learning Powered by PrepU, and Computer-Based Simulation. Pulling these resources together into one solution, the integrated product offers a seamless experience for learning, studying, applying, and remediating.

Users get seamless access to an enhanced eBook for this textbook and the incredible learning resources that accompany it, providing the content and tools that students need to study more effectively, score higher on exams, and prepare for clinical practice. In the enhanced eBook, learning resources are embedded in context within the textbook, allowing students with varied learning styles to interact with different media types to review and apply information at the point of learning. Students will find everything they need to succeed in class—animations, interactive case studies, videos, journal articles, and more.

Lippincott's CoursePoint brings Adaptive Learning Powered by PrepU and Computer-Based Simulations (described earlier) together on the same platform to provide all of the resources that students need to study more effectively, score higher on exams, and prepare for clinical practice. The SmartSense Links feature included throughout CoursePoint makes additional learning resources only a click away. In Adaptive Learning Powered by PrepU, this means that when students take a quiz and receive feedback on their performance, they can link directly to their eBook or other learning resources at the moment they confirm they do not understand a concept. Similarly, in Computer-Based Simulations, students receive feedback with remediation to the eBook and other trusted Lippincott resources. With Lippincott's CoursePoint, these resources are one click away. Whether learning content, preparing for a test, or engaging in a simulation, students using Lippincott's CoursePoint have access to the specific information or resource they need from Lippincott Williams & Wilkins' library of respected educational and clinical content. This unique offering creates an unparalleled learning experience for students.

Contact your Lippincott Williams & Wilkins sales representative or visit [thePoint](http://thePoint.lww.com), <http://thePoint.lww.com>, for more information about the Lippincott's CoursePoint solution.

It is with pleasure that we introduce these resources—the textbook, ancillary resources, and additional supplements and learning tools—to you. One of our primary goals in creating these resources has been to help nurses and nursing students provide quality care to patients and families across health care settings and in the home. We hope that we have succeeded in that goal, and we welcome feedback from our readers.

**Janice L. Hinkle, PhD, RN, CNRN**  
**Kerry H. Cheever, PhD, RN**

Nursing diagnoses in text are from Herdman, T. H. (Ed.). *Nursing Diagnoses: Definitions and Classification 2012–2014*. Copyright © 2012, 1994–2012 by NANDA International. Used by arrangement with John Wiley & Sons Limited. In order to make safe and effective judgments using NANDA-I nursing diagnoses, it is essential that nurses refer to the definitions and defining characteristics of the diagnoses listed in this work.





# User's Guide

*Brunner & Suddarth's Textbook of Medical-Surgical Nursing*, 13th edition, has been revised and updated to reflect the complex nature of nursing practice today. This textbook includes many features to help you gain and apply the knowledge that you need to pass NCLEX and successfully meet the challenges and opportunities of clinical practice. In addition, features have been developed specifically to help you fulfill the varied roles that nurses assume in practice.

## Opening Features That Start With the End in Mind

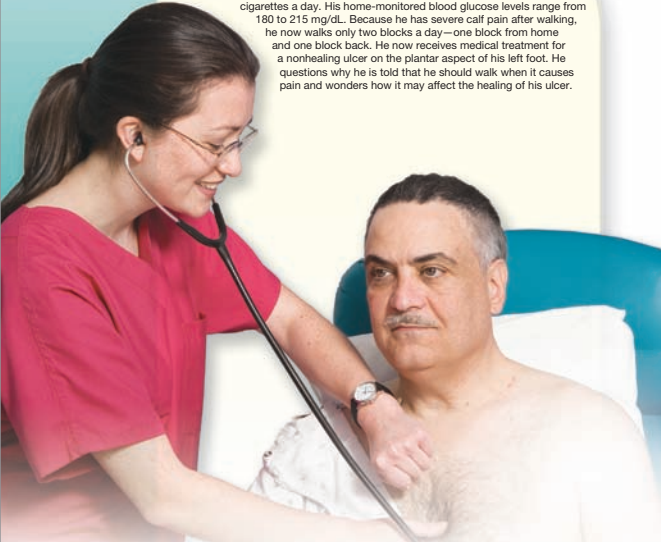
Unit opening features put the patient first and highlight competent nursing as well as application of the nursing process.

- **New! A Case Study with QSEN Competency Focus** opens each unit and provides discussion points focusing on one competency from the QSEN Institute: patient-centered care, interdisciplinary teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics. This feature helps you consider the KSAs required for the delivery of safe, quality patient care.
- **Applying Concepts from NANDA-I, NIC, and NOC** offers additional online case study content on nursing classifications and languages (NANDA-I, NIC, and NOC) as well as concept maps illustrating the nursing process.

### Unit 6 Cardiovascular and Circulatory Function

**Case Study** **A PATIENT WHO HAS INTERMITTENT CLAUDICATION AND ULCERATION**

*Mr. Black*, age 63 years, has a history of peripheral arterial occlusive disease (2 years), hypertension, hypercholesterolemia, type 2 diabetes, and smoking. He eats low-fat foods and has cut back on smoking to half a pack of cigarettes a day. His home-monitored blood glucose levels range from 180 to 215 mg/dL. Because he has severe calf pain after walking, he now walks only two blocks a day—one block from home and one block back. He now receives medical treatment for a nonhealing ulcer on the plantar aspect of his left foot. He questions why he is told that he should walk when it causes pain and wonders how it may affect the healing of his ulcer.



#### QSEN Competency Focus: Evidence-Based Practice

The complexities inherent in today's health care system challenge nurses to demonstrate integration of specific interdisciplinary core competencies. These competencies are aimed at ensuring the delivery of safe, quality patient care (Institute of Medicine, 2003). The concepts from the Quality and Safety Education for Nurses (QSEN) Institute (2012) provide a framework for the knowledge, skills, and attitudes (KSAs) required for nurses to demonstrate competency in these key areas, which include patient-centered care, interdisciplinary teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics.

**Evidence-Based Practice Definition:** Integrate best current evidence with clinical expertise and patient/family preferences and values for delivery of optimal health care.

RELEVANT PRE-LICENSURE KSAs	APPLICATION AND REFLECTION
<b>Knowledge</b>	
Discriminate between valid and invalid reasons for modifying evidence-based clinical practice based on clinical expertise or patient/family preferences.	What is the strength of the evidence that suggests that walking is therapeutic for patients with peripheral arterial occlusive disease? Is the pain that Mr. Black is experiencing a reason for him to stop walking? Identify the pathophysiologic relationships between his multiple comorbidities, the pain he experiences, and the presence of his nonhealing ulcer. How might his continued smoking, albeit less than it had been, also affect his disease processes?
<b>Skills</b>	
Consult with clinical experts before deciding to deviate from evidence-based protocols.	Identify members of the health care team you would consult with to help you craft the most appropriate, individualized plan of care for Mr. Black.
<b>Attitudes</b>	
Acknowledge own limitations in knowledge and clinical expertise before determining when to deviate from evidence-based best practices.	Reflect on the complexity of the interrelationships between Mr. Black's many comorbid conditions. Think about your own desire to relieve a patient's pain. How might your desire to make Mr. Black comfortable potentially hamper his odds of achieving his best outcomes?

Cronenwett, L., Sherwood, G., Bamstler, J., et al. (2007). Quality and safety education for nurses. *Nursing Outlook*, 55(3), 122-131.  
 Institute of Medicine. (2003). *Health professions education: A bridge to quality*. Washington, DC: National Academies Press.  
 QSEN Institute. (2012). *Competencies: Prelicensure KSAs*. Available at: [qsen.org/competencies/pre-licensure-ksas](http://qsen.org/competencies/pre-licensure-ksas)

**Read More About This Case**


More information about this case study and the relationships between nursing diagnoses, interventions, and expected outcomes is available online. Visit [thePoint](#) for Applying Concepts from NANDA-I, NIC, and NOC.

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Chapter opening pedagogical features help organize learning.

- **Learning Objectives** give an overview of each chapter and identify learning goals to help focus reading and studying.

- A **Glossary** provides a list of key terms and definitions at the beginning of each chapter, providing a review of vocabulary words before reading the material and a useful reference and study tool.



Chapter

# 29

## Management of Patients With Complications From Heart Disease

**Learning Objectives**

*On completion of this chapter, the learner will be able to:*

- 1 Describe the management of patients with heart failure.
- 2 Use the nursing process as a framework for care of patients with heart failure.
- 3 Develop an education plan for patients with heart failure.
- 4 Describe the medical and nursing management of patients with pulmonary edema.
- 5 Describe the medical and nursing management of patients with thromboembolism, pericardial effusion, and cardiac arrest.

**Glossary**

<p><b>acute decompensated heart failure:</b> acute exacerbation of heart failure, with signs and symptoms of severe respiratory distress and poor systemic perfusion</p> <p><b>anuria:</b> urine output of less than 50 mL/24 h</p> <p><b>ascites:</b> an accumulation of serous fluid in the peritoneal cavity</p> <p><b>cardiac resynchronization therapy (CRT):</b> a treatment for heart failure in which a device paces both ventricles to synchronize contractions</p> <p><b>congestive heart failure (CHF):</b> a fluid overload condition (congestion) associated with heart failure</p> <p><b>diastolic heart failure:</b> the inability of the heart to pump sufficiently because of an alteration in the ability of the heart to fill; term used to describe a type of heart failure</p> <p><b>ejection fraction (EF):</b> percentage of blood volume in the ventricles at the end of diastole that is ejected during systole; a measurement of contractility</p> <p><b>heart failure (HF):</b> a clinical syndrome resulting from structural or functional cardiac disorders that impair the ability of a ventricle to fill or eject blood</p> <p><b>left-sided heart failure (left ventricular failure):</b> inability of the left ventricle to fill or eject sufficient blood into the systemic circulation</p>	<p><b>oliguria:</b> diminished urine output; less than 0.5 mL/kg/hr</p> <p><b>orthopnea:</b> shortness of breath when laying flat</p> <p><b>paroxysmal nocturnal dyspnea (PND):</b> shortness of breath that occurs suddenly during sleep</p> <p><b>pericardiocentesis:</b> procedure that involves aspiration of fluid from the pericardial sac</p> <p><b>pericardiotomy:</b> surgically created opening of the pericardium</p> <p><b>pulmonary edema:</b> abnormal accumulation of fluid in the interstitial spaces and alveoli of the lungs</p> <p><b>pulseless electrical activity (PEA):</b> condition in which electrical activity is present on an electrocardiogram, but there is not an adequate pulse or blood pressure</p> <p><b>pulsus paradoxus:</b> systolic blood pressure that is more than 10 mm Hg lower during inhalation than during exhalation; difference is normally less than 10 mm Hg</p> <p><b>right-sided heart failure (right ventricular failure):</b> inability of the right ventricle to fill or eject sufficient blood into the pulmonary circulation</p> <p><b>systolic heart failure:</b> inability of the heart to pump sufficiently because of an alteration in the ability of the heart to contract; term used to describe a type of heart failure</p>
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### Features to Develop the Nurse as Practitioner

One of the central roles of the nurse is to provide holistic care to patients and their families, both independently and through collaboration with other health care professionals. Special features throughout chapters are designed to assist readers with clinical practice.

- **Nursing Process sections** are organized according to the nursing process framework—the basis for all nursing practice—and help clarify the nurse's responsibilities in caring for patients with selected disorders.

**NURSING PROCESS**

The Patient With Heart Failure



Despite advances in treatment of HF, morbidity and mortality remain high. Nurses have a major impact on outcomes for patients with HF, especially in the areas of patient education and monitoring.

**Assessment**

Nursing assessment for the patient with HF focuses on observing for effectiveness of therapy and for the patient's ability to understand and implement self-management strategies. Signs and symptoms of increasing HF are analyzed and reported to the patient's provider so that therapy can be adjusted. The nurse also explores the patient's emotional response to the diagnosis of HF, because it is a chronic and often progressive condition that is commonly associated with depression and other psychosocial issues (Pressler, Subramanian, Perkins, et al., 2011; Sherwood, Blumenthal, Hinderliter, et al., 2011).

- **Plans of Nursing Care**, provided for selected disorders, illustrate how the nursing process is applied to meet the patient's health care and nursing needs.

Chart  
27-11

### PLAN OF NURSING CARE

#### Care of the Patient With an Uncomplicated Myocardial Infarction

**NURSING DIAGNOSIS:** Ineffective cardiac tissue perfusion related to reduced coronary blood flow  
**GOAL:** Relief of chest pain/discomfort

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none"> <li>1. Initially assess, document, and report to the physician the following:                             <ol style="list-style-type: none"> <li>a. The patient's description of chest discomfort, including location, intensity, radiation, duration, and factors that affect it; other symptoms such as nausea, diaphoresis, or complaints of unusual fatigue</li> <li>b. The effect of coronary ischemia on perfusion to the heart (e.g., change in blood pressure, heart rhythm), to the brain (e.g., changes in level of consciousness), to the kidneys (e.g., decrease in urine output), and to the skin (e.g., color, temperature)</li> </ol> </li> <li>2. Obtain a 12-lead ECG recording during symptomatic events, as prescribed, to assess for ongoing ischemia.</li> <li>3. Administer oxygen as prescribed.</li> <li>4. Administer medication therapy as prescribed, and evaluate the patient's response continuously.</li> <li>5. Ensure physical rest: head of bed elevated to promote comfort; diet as tolerated; the use of bedside commode; the use of stool softener to prevent straining at stool. Provide a restful environment, and allay fears and anxiety by being calm and supportive. Individualize visitation, based on patient response.</li> </ol>	<ol style="list-style-type: none"> <li>1. These data assist in determining the cause and effect of the chest discomfort and provide a baseline with which post-therapy symptoms can be compared.                             <ol style="list-style-type: none"> <li>a. There are many conditions associated with chest discomfort. There are characteristic clinical findings of ischemic pain and symptoms.</li> <li>b. Myocardial infarction (MI) decreases myocardial contractility and ventricular compliance and may produce dysrhythmias. Cardiac output is reduced, resulting in reduced blood pressure and decreased organ perfusion.</li> </ol> </li> <li>2. An ECG during symptoms may be useful in the diagnosis of ongoing ischemia.</li> <li>3. Oxygen therapy increases the oxygen supply to the myocardium.</li> <li>4. Medication therapy (nitroglycerin, morphine, beta-blocker, aspirin) is the first line of defense in preserving myocardial tissue.</li> <li>5. Physical rest reduces myocardial oxygen consumption. Fear and anxiety precipitate the stress response; this results in increased levels of endogenous catecholamines, which increase myocardial oxygen consumption.</li> </ol>	<ul style="list-style-type: none"> <li>• Reports beginning relief of chest discomfort and symptoms</li> <li>• Appears comfortable and is free of pain and other signs or symptoms</li> <li>• Respiratory rate, cardiac rate, and blood pressure return to prediscomfort level</li> <li>• Skin warm and dry</li> <li>• Adequate cardiac output as evidenced by:                             <ul style="list-style-type: none"> <li>• Stable/improving electrocardiogram (ECG)</li> <li>• Heart rate and rhythm</li> <li>• Blood pressure</li> <li>• Mentation</li> <li>• Urine output</li> <li>• Serum blood urea nitrogen (BUN) and creatinine</li> <li>• Skin color and temperature</li> </ul> </li> <li>• No adverse effects from medications</li> </ul>

- **Assessment charts** focus on data that should be collected as part of the assessment step of the nursing process.
- **Risk Factors charts** outline factors that can impair health.

Chart  
29-1

### ASSESSMENT

#### Heart Failure

Be alert for the following signs and symptoms:

**Congestion**

- Dyspnea
- Orthopnea
- Paroxysmal nocturnal dyspnea
- Cough (recumbent or exertional)
- Pulmonary crackles that do not clear with cough
- Weight gain (rapid)
- Dependent edema
- Abdominal bloating or discomfort
- Ascites
- Jugular venous distention
- Sleep disturbance (anxiety or air hunger)
- Fatigue

Chart  
27-1

### RISK FACTORS

#### Coronary Artery Disease

A nonmodifiable risk factor is a circumstance over which a person has no control. A modifiable risk factor is one over which a person may exercise control, such as by changing a lifestyle or personal habit or by using medication. A risk factor may operate independently or in tandem with other risk factors. The more risk factors a person has, the greater the likelihood of coronary artery disease (CAD). Those at risk are advised to seek regular medical examinations and to engage in heart-healthy behavior (a deliberate effort to reduce the number and extent of risks).

**Nonmodifiable Risk Factors**

Family history of CAD (first-degree relative with cardiovascular disease at 55 years of age or younger for men and at 65 years of age or younger for women)  
 Increasing age (more than 45 years for men; more than 55 years for women)

- **Guidelines charts** review key nursing interventions and rationales for specific patient care situations.

Chart 20-11
GUIDELINES

Assisting the Patient Undergoing Thoracentesis

**Equipment**

- Thoracentesis tray (should include standard supplies needed to perform procedure)
- Sterile gloves
- Antiseptic solution
- Local anesthetic
- Sterile collection bottles, laboratory requisition forms, and labels

**Implementation**

**Action**

1. Ascertain in advance that a chest x-ray or ultrasound has been ordered and completed and the consent form has been signed.
2. Verify patient's identity using at least two identifiers, not including the patient's room number. Verify purpose of procedure and procedure site; assess patient for allergies to latex, antiseptic, or local anesthetic; and review coagulation status (prothrombin time/INR [international normalized ratio] and platelet count).
3. Inform the patient about the nature of the procedure as well as:
  - a. The importance of remaining immobile
  - b. Pressure sensations to be experienced
  - c. That minimal discomfort is anticipated after the procedure
4. Obtain baseline vital signs, oxygen saturation, pain level, and respiratory status. Administer sedation if prescribed.
5. Position the patient comfortably with adequate supports. If possible, place the patient upright or in one of the following positions:
  - a. Sitting on the edge of the bed with the feet supported and arms on a padded over-the-bed table
  - b. Straddling a chair with arms and head resting on the back of the chair
  - c. Lying on the unaffected side with the head of the bed elevated 30 to 45 degrees if unable to assume a sitting position

**Rationale**

1. Chest x-ray films are used to localize fluid and air in the pleural cavity and to aid in determining the puncture site. When fluid is loculated (isolated in a pocket of pleural fluid), ultrasound scans are performed to help select the best site for needle aspiration.
2. Verification maintains patient safety and prevents potential complications such as allergic reactions and bleeding.
3. An explanation helps to orient the patient to the procedure, assists the patient to mobilize resources, and provides an opportunity to ask questions and verbalize anxiety.
4. Provides preprocedure assessment data to guide sedation administration and postprocedure assessment. Sedation enables the patient to cooperate with the procedure and promotes relaxation.
5. The upright position facilitates the removal of fluid that usually localizes at the base of the thorax. It expands the ribs and widens the intercostal space to aid needle insertion. A position of comfort helps the patient to relax and prevents patient movement that could contribute to potential complications.

- **Pharmacology charts and tables** display important considerations related to administering medications and monitoring drug therapy.

Medication	Therapeutic Effects	Key Nursing Considerations
<b>TABLE 29-3 Common Medications Used to Treat Heart Failure</b>		
<b>Angiotensin-Converting Enzyme Inhibitors</b>		
Lisinopril (Prinivil) Enalapril (Vasotec)	↓ BP and ↓ afterload Relieves signs and symptoms of HF Prevents progression of HF	Observe for symptoms of volume depletion and worsening renal function
<b>Angiotensin Receptor Blockers</b>		
Valsartan (Diovan) Losartan (Cozaar)	↓ BP and ↓ afterload Relieves signs and symptoms of HF Prevents progression of HF	Observe for symptoms of volume depletion and worsening renal function
<b>Hydralazine and Isosorbide Dinitrate (Dilatrate)</b>		
Dilates blood vessels	↓ BP and ↓ afterload	Observe for symptoms of volume depletion
<b>Beta-Adrenergic Blocking Agents (Beta-Blockers)</b>		
Metoprolol (Lopressor) Carvedilol (Coreg)	Dilates blood vessels and ↓ afterload ↓ Signs and symptoms of HF Improves exercise capacity	Observe for decreased heart rate, dizziness, and fatigue

Chart 29-2
PHARMACOLOGY

Administering and Monitoring Diuretic Therapy

When nursing care involves diuretic therapy for conditions such as heart failure, the nurse needs to administer the medication and monitor the patient's response carefully, as follows:

- Prior to administration of the diuretic, check laboratory results for electrolyte depletion, especially potassium, sodium, and magnesium.
- Prior to administration of the diuretic, check for signs and symptoms of volume depletion, such as postural hypotension, lightheadedness, and dizziness.
- Administer the diuretic at a time conducive to the patient's lifestyle—for example, early in the day to avoid nocturia.
- Monitor urine output during the hours after administration, and analyze intake, output, and daily weights to assess response.
- Continue to monitor serum electrolytes for depletion. Replace potassium with increased oral intake of food rich in potassium or potassium supplements. Replace magnesium as needed.
- Monitor for hyperkalemia in patients receiving potassium-sparing diuretics.
- Continue to assess for signs of volume depletion.
- Monitor creatinine for increased levels indicative of renal dysfunction.
- Monitor for elevated uric acid level and signs and symptoms of gout.
- Assess lungs sounds and edema to evaluate response to therapy.
- Monitor for adverse reactions such as gastrointestinal distress and dysrhythmias.
- Encourage supine position after dose is given to facilitate effects of the diuretic.
- Assist patients to manage urinary frequency and urgency associated with diuretic therapy.

- **Updated! Quality and Safety Nursing Alerts** offer tips for best clinical practice and red-flag safety warnings to help avoid common mistakes.

**Quality and Safety Nursing Alert**

Patients placed on continuous ECG monitoring must be informed of its purpose and cautioned that it does not detect shortness of breath, chest pain, or other ACS symptoms. Thus, patients are instructed to report new or worsening symptoms immediately.

- **Critical Care icons** identify nursing considerations for the critically ill patient.

**Surgical Procedures: Coronary Artery Revascularization**

Advances in diagnostics, medical management, and surgical and anesthesia techniques, as well as the care provided in critical care and surgical units, home care, and rehabilitation programs, have continued to make surgery an effective treatment option for patients with CAD. CAD has been treated by myocardial revascularization since the 1960s, and the most common CABG techniques have been performed for more than 40 years. **Coronary artery bypass graft (CABG)** is a surgical procedure in which a blood vessel is grafted to an

- **Genetics in Nursing Practice charts** summarize and highlight nursing assessments and management issues related to the role of genetics in selected disorders.

**Chart 25-1 GENETICS IN NURSING PRACTICE Cardiovascular Disorders**

Several cardiovascular disorders are associated with genetic abnormalities. Some examples are:

- Familial hypercholesterolemia
- Hypertrophic cardiomyopathy
- Long QT syndrome
- Hereditary hemochromatosis
- Elevated homocysteine levels

**Nursing Assessments**

**Family History Assessment**

- Assess all patients with cardiovascular symptoms for coronary artery disease (CAD), regardless of age (early-onset CAD occurs).
- Assess family history of sudden death in people who may or may not have been diagnosed with CAD (especially of early onset).
- Ask about sudden death in a previously asymptomatic child, adolescent, or adult.
- Ask about other family members with biochemical or neuromuscular conditions (e.g., hemochromatosis or muscular dystrophy).

- Assess whether DNA mutation or other genetic testing has been performed on an affected family member.

**Patient Assessment**

- Assess for signs and symptoms of hyperlipidemias (xanthomas, corneal arcus, abdominal pain of unexplained origin).
- Assess for muscular weakness.

**Management Issues Specific to Genetic Disorders**

- If indicated, refer for further genetic testing so that the family can discuss options, and availability of based interventions.
- Offer appropriate genetic information through the Genetic Alliance Web site, at [www.geneticalliance.org](http://www.geneticalliance.org).
- Provide support to families in understanding the implications of related cardiovascular disease.

**Genetics Resources**

See Chapter 8, Chart 8-6 for genetic resources.

- **New! Obesity Considerations icons** identify content related to obesity or to the nursing care of patients who are obese.

**Bariatric Patients**

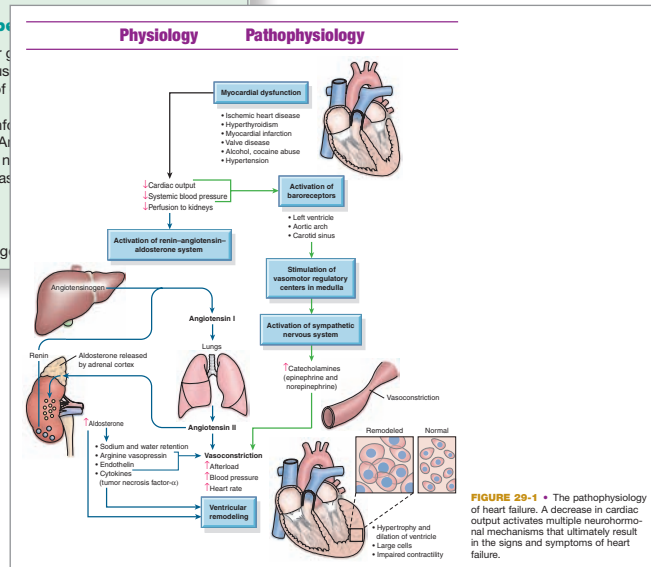
Bariatrics has to do with patients who are obese. Like age, obesity increases the risk and severity of complications associated with surgery. During surgery, fatty tissues are especially susceptible to infection. Wound infections are more common in the obese patient (Haupt & Reed, 2010). Obesity also increases technical and mechanical problems related to surgery, such as dehiscence (wound separation). It may be more challenging to provide care for the patient who is obese owing

- **Gerontologic Considerations**, identified with an icon applied to headings, charts, and tables, highlight information that pertains specifically to the care of the older adult patient. In the United States, older adults comprise the fastest-growing segment of the population.

**Chart 14-1 Recognizing Shock in Older Patients**

The physiologic changes associated with aging, coupled with pathologic and chronic disease states, place older people at increased risk for developing a state of shock and possibly multiple organ dysfunction syndrome. Older adults can recover from shock if it is detected and treated early with aggressive and supportive therapies. Nurses play an essential role in assessing and interpreting subtle changes in older patients' responses to illness.

- Medications such as beta-blocking agents (metoprolol [Lopressor]) used to treat hypertension may mask tachycardia, a primary compensatory mechanism to increase cardiac output, during hypovolemic states.
- The aging immune system may not mount a truly febrile response (temperature greater than 38°C [100.4°F]); however, a lack of a febrile response (temperature less than 37°C [98.6°F]) or an increasing trend in body temperature should be addressed. The patient may also report increased fatigue and malaise in the absence of a febrile response.
- The heart does not function well in hypoxic states, and the aging heart may respond to decreased myocardial oxygenation with dysrhythmias that may be misinterpreted as a normal part of the aging process.
- There is a progressive decline in respiratory muscle strength, maximal ventilation, and response to hypoxia. Older patients have a decreased respiratory reserve and decompensate more quickly.
- Changes in mentation may be inappropriately misinterpreted as dementia. Older people with a sudden change in mentation should be aggressively assessed for acute delirium and treated for the presence of infection and organ hypoperfusion.



- **Physiology/Pathophysiology figures** include illustrations and algorithms describing normal physiologic and pathophysiologic processes.

## Features to Develop the Nurse as Educator

Health education is a primary responsibility of the nursing profession. Nursing care is directed toward promoting, maintaining, and restoring health; preventing illness; and helping patients and families adapt to the residual effects of illness. Patient education and health promotion are central to all of these nursing activities.

• **Patient Education charts**

help the nurse prepare the patient and family for procedures, assist them in understanding the patient's condition, and explain to them how to provide self-care.

**Chart 25-6 PATIENT EDUCATION**  
**Self-Management After Cardiac Catheterization**

After discharge from the hospital for cardiac catheterization, patients should follow these guidelines for self-care:

- *If the artery in your arm or wrist artery was used:* For the next 48 hours, avoid lifting anything heavier than 5 pounds and avoid repetitive movement of your affected hand and wrist.
- *If the artery in your groin was used:* For the next 24 hours, do not bend at the waist, strain, or lift heavy objects.
- Do not submerge the puncture site in water. Avoid tub baths, but shower as desired.
- Talk with your primary provider about when you may return to work, drive, or resume strenuous activities.
- If bleeding occurs, sit (arm or wrist approach) or lie down (groin approach) and apply firm pressure to the puncture site for 10 minutes. Notify your primary provider as soon as possible and follow instructions. If there is a large amount of bleeding, call 911. Do not drive to the hospital.

- Call your primary provider if any of the following occur: swelling, new bruising or pain from your procedure puncture site, temperature of 101°F or more.
- If test results show that you have coronary artery disease, talk with your primary provider about options for treatment, including cardiac rehabilitation programs in your community.
- Talk with your primary provider about lifestyle changes to reduce your risk for further or future heart problems, such as quitting smoking, lowering your cholesterol level, initiating dietary changes, beginning an exercise program, or losing weight.
- Your primary provider may prescribe one or more new medications depending on your risk factors (medications to lower your blood pressure or cholesterol; aspirin or clopidogrel to prevent blood clots). Take all of your medications as instructed. If you feel that any of them are causing side effects, call your primary provider immediately. Do not stop taking any medications before talking to your primary provider.

Adapted from Durham, K. A. (2012). Cardiac catheterization through the radial artery. *American Journal of Nursing*, 112(1), 49-56; and Woods, S. L., Froelicher, E. S., Motzer, S. A., et al. (2009). *Cardiac nursing* (6th ed.). Philadelphia: Lippincott Williams & Wilkins.

**Chart 29-6 HOME CARE CHECKLIST**  
**The Patient With Heart Failure**

At the completion of home care education, the patient or caregiver will be able to:	PATIENT	CAREGIVER
• Identify heart failure as a chronic disease that can be managed with medications and specific self-management behaviors.	✓	✓
• Take or administer medications daily, exactly as prescribed.	✓	✓
• Monitor effects of medication such as changes in breathing and edema.	✓	✓
• Know signs and symptoms of orthostatic hypotension and how to prevent it.	✓	✓
• Weigh self daily at the same time with same clothes.	✓	✓
• Restrict sodium intake to no more than 2 g/day: Adapt diet by examining nutrition labels to check sodium content per serving, avoiding canned or processed foods, eating fresh or frozen foods, consulting the written diet plan and the list of permitted and restricted foods, avoiding salt use, and avoiding excesses in eating and drinking.	✓	✓
• Participate in prescribed activity program. <ul style="list-style-type: none"> <li>• Participate in a daily exercise program.</li> <li>• Increase walking and other activities gradually, provided they do not cause unusual fatigue or dyspnea.</li> <li>• Conserve energy by balancing activity with rest periods.</li> <li>• Avoid activity in extremes of heat and cold, which increase the work of the heart.</li> <li>• Recognize that air-conditioning may be essential in a hot, humid environment.</li> </ul>	✓	
• Develop methods to manage and prevent stress. <ul style="list-style-type: none"> <li>• Avoid tobacco.</li> <li>• Avoid alcohol.</li> <li>• Engage in social and diversional activities.</li> </ul>		
• Keep regular appointments with physician or clinic.		
• Be alert for symptoms that may indicate recurring heart failure. <ul style="list-style-type: none"> <li>• Know how to contact primary provider.</li> </ul>		
• Report immediately to the primary provider or clinic any of the following: <ul style="list-style-type: none"> <li>• Gain in weight of 2-3 lb (0.9-1.4 kg) in 1 day, or 5 lb (2.3 kg) in 1 week</li> <li>• Unusual shortness of breath with activity or at rest</li> <li>• Increased swelling of ankles, feet, or abdomen</li> <li>• Persistent cough</li> <li>• Loss of appetite</li> <li>• Development of restless sleep; increase in number of pillows needed to sleep</li> <li>• Profound fatigue</li> </ul>		

• **Home Care Checklists** review points that should be covered as part of home care education prior to discharge from the health care facility.

• **Health Promotion charts** review important points that the nurse should discuss with the patient to prevent common health problems from developing.

**Chart 29-4 HEALTH PROMOTION**  
**An Exercise Program for Patients With Heart Failure**

Before undertaking physical activity, the patient should be given the following guidelines:

- Talk with your primary provider for specific exercise program recommendations.
- Begin with low-impact activities such as walking, cycling, or water exercises.
- Start with warm-up activity followed by sessions that gradually build up to about 30 minutes.
- Follow your exercise period with cool-down activities.
- Avoid performing physical activities outside in extreme hot, cold, or humid weather.
- Wait 2 hours after eating a meal before performing the physical activity.
- Ensure that you are able to talk during the physical activity; if you cannot do so, decrease the intensity of activity.
- Stop the activity if severe shortness of breath, pain, or dizziness develops.

Adapted from Andreuzzi, R. (2010). Does aerobic exercise have a role in the treatment plan of a patient with heart failure. *Internet Journal of American Physician Assistants*, 7(2), 1-29; and Flynn, K. E., Piña, I. L., Whellan, D. J., et al. (2009). Effects of exercise training on health status in patients with chronic heart failure: HF-ACTION randomized controlled trial. *Journal of the American Medical Association*, 301(14), 1451-1459.

## Features to Develop the Nurse as Patient Advocate

Nurses advocate for patients by protecting their rights (including the right to health care) and assisting patients and their families in making informed decisions about health care.

- **Updated! Ethical Dilemma charts** provide a clinical scenario, discussion points, and questions to help analyze fundamental ethical principles related to the dilemma.

Chart 27-9	<b>ETHICAL DILEMMA</b>
<b>Should Invasive Therapy Be Recommended for Older Adults With Acute Coronary Syndrome?</b>	
<p><b>Case Scenario</b></p> <p>An 80-year-old woman is hospitalized with acute coronary syndrome (ACS). When discussing the situation with her two adult sons, the cardiologist recommends emergent cardiac catheterization with a possible percutaneous coronary intervention (PCI). The patient has full capacity to make her own decisions but wishes to defer decision making to her sons regarding treatment decisions. One son worries that she will be subjected to an invasive procedure that is potentially high risk, painful, expensive, and possibly futile. The second son feels that if there is hope of success, then she should have the procedure.</p>	<p><b>Analysis</b></p> <ul style="list-style-type: none"> <li>• Describe the ethical principles that are in conflict in this case (see Chart 3-3). Which principle should have preeminence in recommending the best treatment plan for the patient?</li> <li>• One son apparently wishes that the patient not be subjected to a procedure that may be futile and painful (wishes to ensure nonmaleficence), whereas the other hopes that the patient has the opportunity for a positive outcome (wishes to assure beneficence). Are these two ethical principles necessarily in conflict with each other in this case? How would you approach the patient and her sons to ensure that they receive the information needed to help them reach consensus regarding the decision that is most consistent in preserving the patient's autonomy?</li> <li>• What resources are available to help you facilitate this discussion with the patient and her sons?</li> </ul>
<p><b>Discussion</b></p> <p>Many patients who present with ACS are older adults. They often have chronic conditions such as diabetes or arthritis. Older patients have traditionally been managed conservatively with medications. Currently, however, invasive interventions such as cardiac catheterization and PCI may be recommended. Indeed, studies suggest that older patients may benefit as much, if not more, than younger patients from coronary reperfusion procedures in terms of reduction of death or myocardial infarction (Ionescu, Amuchastegui, Ionescu, et al., 2010).</p>	<p><b>Reference</b></p> <p>Ionescu, C. N., Amuchastegui, M., Ionescu, S., et al. (2010). Treatment and outcomes of nonagenarians with ST-elevation. <i>Journal of Invasive Cardiology</i>, 22(10), 479–480.</p> <p><b>Resources</b></p> <p>See Chapter 3, Chart 3-6 for ethics resources.</p>

## Features to Develop the Nurse as Researcher

Nurses identify potential research problems and questions to increase nursing knowledge and improve patient care. The use and evaluation of research findings in nursing practice are essential to further the science of nursing.

- **Nursing Research Profiles** identify the implications and applications of nursing research findings for evidence-based nursing practice.





Chart 27-14	<b>NURSING RESEARCH PROFILE</b>
<b>Aspiration Prevention Protocol: Decreasing Postoperative Pneumonia in Heart Surgery Patients</b>	
<p>Starks, B., &amp; Harbert, C. (2011). Aspiration prevention protocol: Decreasing postoperative pneumonia in heart surgery patients. <i>Critical Care Nurse</i>, 31(5), 38–45.</p>	<p>adult patients who had cardiothoracic surgery from April 2008 through October 2008 were enrolled in the study. Historical controls were used to compare rates of pneumonia.</p>
<p><b>Purpose</b></p> <p>Postoperative pulmonary dysfunction (including atelectasis and pneumonia) is a frequent cause of morbidity and mortality in patients who have open heart surgery. The purpose of this study was to determine if implementation of an aspiration prevention protocol in patients after cardiac surgery would decrease the incidence of postoperative pneumonia.</p>	<p><b>Findings</b></p> <p>The interdisciplinary team of nurses, physicians, administrators, and speech therapists who developed and implemented this protocol set a goal that no patients who participated in this protocol would develop postoperative pneumonia. This goal was met; no study participants (<math>n = 79</math>) developed pneumonia. However, 11% of historical controls (<math>n = 65</math>) developed postoperative pneumonia.</p>
<p><b>Design</b></p> <p>An aspiration prevention protocol was developed and implemented in a 24-bed intensive care unit using the Plan-Do-Study-Act Model for quality improvement advocated by the Institute for Healthcare Improvement (IHI). The protocol incorporated extending the time that patients received nothing by mouth from 2 hours to at least 6 hours preoperatively and incorporating a postoperative bedside swallowing evaluation by a speech therapist. After the swallow evaluation was completed, nurses implemented a progressive oral intake protocol. A convenience sample of 79</p>	<p><b>Nursing Implications</b></p> <p>The Plan-Do-Study-Act Model encourages team collaboration between nurses and their interdisciplinary colleagues and results in rapid cycle improvement. These rapid cycle improvements enhance quality patient outcomes and ensure patient safety. The development and implementation of this aspiration prevention protocol expeditiously met an ambitious aim to reduce the rate of postoperative pneumonia in patients who had cardiothoracic surgery to nil.</p>

**2 ebp** You are caring for an 88-year-old man who is hospitalized with a diagnosis of syncope. After ambulating in the hall, he tells you that he is having some chest pain and mild shortness of breath. Based on your knowledge of evidence-based guidelines, identify the initial interventions and diagnostic testing that are indicated for patients with these symptoms. Describe how the diagnosis of acute

- **Evidence-Based Practice questions**, included in the Critical Thinking Exercises sections, encourage you to think about the evidence base for specific nursing interventions.

## Features to Facilitate Learning

In addition to practice-oriented features, special features have been developed to help readers learn key information.

- **New! Concept Mastery Alerts** highlight and clarify fundamental nursing concepts to improve understanding of difficult topics, as identified by Misconception Alerts in Lippincott's Adaptive Learning Powered by PrepU, an adaptive quizzing platform. Data from hundreds of actual students using this program in medical-surgical courses across the United States identified common misconceptions for the authors to clarify in this new feature.
- Interactive learning tools available online enrich learning and are identified with icons in the text:
  -  **Concepts in Action Animations** bring physiologic and pathophysiologic concepts to life.
  -  **Interactive Tutorials** review key information for common or complex medical-surgical conditions. Tutorials include graphics and animations and provide interactive review exercises as well as case-based questions.
  -  **Practice & Learn Case Studies** present case scenarios and offer interactive exercises and questions to help students apply what they have learned.
  -  **Watch & Learn Video Clips** reinforce skills from the textbook and appeal to visual and auditory learners. With the 13th edition, all content from Lippincott's Video Series for Brunner & Suddarth's Textbook of Medical-Surgical Nursing is included!



### Concept Mastery Alert

Left-sided HF refers to failure of the left ventricle; it results in pulmonary congestion. Right-sided HF, failure of the right ventricle, results in congestion in the peripheral tissues and the viscera.


### Cardiac Cycle




The cardiac cycle refers to the events that occur in the heart from the beginning of one heartbeat to the next. The

- **Critical Thinking Exercises** foster critical thinking and challenge you to apply textbook knowledge to clinical scenarios. In addition to the Evidence-Based Practice questions mentioned earlier, Prioritization (PQ) questions ask you to consider the priorities for nursing care for specific patients and conditions.

### Critical Thinking Exercises

**1**  A 67-year-old patient has just been diagnosed with metabolic syndrome with hypertension, obesity, dyslipidemia, and insulin resistance. She is asking for more information about this syndrome and what she can do about it. How will you define metabolic syndrome for this patient? What does this diagnosis mean for her future health and health care needs? Knowing that multiple lifestyle changes are recommended, what is your first priority for patient education?

**2**  You are caring for an 88-year-old man who is hospitalized with a diagnosis of syncope. After ambulating in the hall, he tells you that he is having some chest pain and mild shortness of breath. Based on your knowledge of evidence-based guidelines, identify the initial interventions and diagnostic testing that are indicated for patients with these symptoms. Describe how the diagnosis of acute

MI is made. If a diagnosis of STEMI is made, which treatment options may be considered?

**3** A 60-year-old woman has just returned to your unit following a heart catheterization and PCI. She appears restless and uncomfortable. What should be included in your initial assessment? What type of monitoring is indicated? Identify serious complications that you should watch for in patients following PCI.

**4** You are caring for a 72-year-old man who was recently admitted to the ICU following CABG. His current vital signs are as follows: heart rate, 114 bpm; blood pressure, 88/60 mmHg; CVP, 2 mm Hg. Which other assessment parameters will you evaluate? What type of postoperative interventions do you expect?



- **References** cited are listed at the end of each chapter and include updated, current sources.
- **Resources** lists at the end of each chapter include sources of additional information, Web sites, agencies, and patient education materials.

## References

\*Asterisk indicates nursing research.

### Books

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## Resources

American Heart Association, [www.americanheart.org](http://www.americanheart.org)  
Heart Failure Society of America (HFSA), [www.hfsa.org](http://www.hfsa.org)  
National Heart, Lung, and Blood Institute, [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

- **Brunner Suite Resources** highlighted at the end of each chapter identify additional resources available for further review, application, and clinical reference.



### Brunner Suite Resources

Explore these additional resources to enhance learning for this chapter:

- NCLEX-Style Questions and Other Resources on **thePoint**, <http://thePoint.lww.com/Brunner13e>
- Study Guide
- PrepU
- Clinical Handbook
- Handbook of Laboratory and Diagnostic Tests



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