

9th Edition

# Clinical Nursing Skills & Techniques

**PERRY • POTTER**  
**OSTENDORF**

ELSEVIER



EVOLVE STUDY RESOURCES  
FREE WITH TEXTBOOK PURCHASE  
[EVOLVE.ELSEVIER.COM](http://EVOLVE.ELSEVIER.COM)

9th Edition

# Clinical Nursing Skills & Techniques

**Anne Griffin Perry, RN, MSN, EdD, FAAN**

Professor Emerita  
School of Nursing  
Southern Illinois University—Edwardsville  
Edwardsville, Illinois

**Patricia A. Potter, RN, MSN, PhD, FAAN**

Director of Research  
Patient Care Services  
Barnes-Jewish Hospital  
St. Louis, Missouri

**Wendy R. Ostendorf, RN, MS, EdD, CNE**

Professor of Nursing  
Neumann University  
Aston, Pennsylvania

**SECTION EDITOR**

**Nancy Laplante, PhD, RN, AHN-BC**

Associate Professor of Nursing  
School of Nursing  
Widener University  
Chester, Pennsylvania

ELSEVIER

**ELSEVIER**

3251 Riverport Lane  
St. Louis, Missouri 63043

CLINICAL NURSING SKILLS & TECHNIQUES, NINTH EDITION

ISBN: 978-0-323-40069-5

Copyright © 2018 Elsevier Inc. All rights reserved.

Herdman, T.H. (Ed.). *Nursing Diagnoses: Definition and Classifications 2012-2014*. Copyright © 2012, 1994-2012 NANDA International. Used by arrangement with John Wiley & Sons Limited.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher. Details on how to seek permission, further information about the Publisher's permissions policies and our arrangements with organizations such as the Copyright Clearance Center and the Copyright Licensing Agency, can be found at our website: [www.elsevier.com/permissions](http://www.elsevier.com/permissions).

This book and the individual contributions contained in it are protected under copyright by the Publisher (other than as may be noted herein).

#### Notices

Knowledge and best practice in this field are constantly changing. As new research and experience broaden our understanding, changes in research methods, professional practices, or medical treatment may become necessary.

Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information, methods, compounds, or experiments described herein. In using such information or methods they should be mindful of their own safety and the safety of others, including parties for whom they have a professional responsibility.

With respect to any drug or pharmaceutical products identified, readers are advised to check the most current information provided (i) on procedures featured or (ii) by the manufacturer of each product to be administered, to verify the recommended dose or formula, the method and duration of administration, and contraindications. It is the responsibility of practitioners, relying on their own experience and knowledge of their patients, to make diagnoses, to determine dosages and the best treatment for each individual patient, and to take all appropriate safety precautions.

To the fullest extent of the law, neither the Publisher nor the authors, contributors, or editors, assume any liability for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions, or ideas contained in the material herein.

Previous editions copyrighted © 2014, 2010, 2006, 2004, 2002, 1998, 1994, 1990, 1986

**International Standard Book Number: 978-0-323-40069-5**

*Executive Content Strategist:* Tamara Myers  
*Content Development Manager:* Jean Sims Fornango/Lisa Newton  
*Content Development Specialist:* Melissa Rawe  
*Publishing Services Manager:* Jeff Patterson  
*Senior Project Manager:* Jodi M. Willard  
*Design Direction:* Brian Salisbury

Printed in the United States of America

Last digit is the print number: 9 8 7 6 5 4 3 2 1



Working together  
to grow libraries in  
developing countries

[www.elsevier.com](http://www.elsevier.com) • [www.bookaid.org](http://www.bookaid.org)

# Brief Contents

## UNIT 1

### Supporting the Patient Through the Health Care System

- 1 Using Evidence in Nursing Practice, 1
- 2 Admitting, Transfer, and Discharge, 12
- 3 Communication and Collaboration, 31
- 4 Documentation and Informatics, 51

## UNIT 2

### Vital Signs and Physical Assessment

- 5 Vital Signs, 66
- 6 Health Assessment, 105

## UNIT 3

### Special Procedures

- 7 Specimen Collection, 166
- 8 Diagnostic Procedures, 213

## UNIT 4

### Infection Control

- 9 Medical Asepsis, 241
- 10 Sterile Technique, 256

## UNIT 5

### Activity and Mobility

- 11 Safe Patient Handling, Transfer, and Positioning, 271
- 12 Exercise and Mobility, 292
- 13 Support Surfaces and Special Beds, 322

## UNIT 6

### Safety and Comfort

- 14 Patient Safety, 339
- 15 Disaster Preparedness, 367
- 16 Pain Management, 389
- 17 Palliative Care, 423

## UNIT 7

### Hygiene

- 18 Personal Hygiene and Bed Making, 441
- 19 Care of the Eye and Ear, 484

## UNIT 8

### Medications

- 20 Safe Medication Preparation, 501
- 21 Nonparenteral Medications, 521
- 22 Parenteral Medications, 575

## UNIT 9

### Oxygenation

- 23 Oxygen Therapy, 627
- 24 Performing Chest Physiotherapy, 660
- 25 Airway Management, 672
- 26 Cardiac Care, 706
- 27 Closed Chest Drainage Systems, 714
- 28 Emergency Measures for Life Support, 735

## UNIT 10

### Fluid Balance

- 29 Intravenous and Vascular Access Therapy, 751
- 30 Blood Transfusions, 800

## UNIT 11

### Nutrition

- 31 Oral Nutrition, 819
- 32 Enteral Nutrition, 839
- 33 Parenteral Nutrition, 861

## UNIT 12

### Elimination

- 34 Urinary Elimination, 873
- 35 Bowel Elimination and Gastric Intubation, 905
- 36 Ostomy Care, 931

## UNIT 13

### Care of the Surgical Patient

- 37 Preoperative and Postoperative Care, 945
- 38 Intraoperative Care, 978

## UNIT 14

### Dressings and Wound Care

- 39 Pressure Injury Prevention and Care, 990
- 40 Wound Care and Irrigation, 1012
- 41 Dressings, Bandages, and Binders, 1039
- 42 Therapeutic Use of Heat and Cold, 1067

## UNIT 15

### Home Care

- 43 Home Care Safety, 1085
- 44 Home Care Teaching, 1108

## APPENDIXES

- A NANDA Definitions from *Nursing Diagnoses: Definitions and Classification 2015-2017*, 10th Edition, 1147
- B Common Prefixes and Suffixes, 1153

*As always, this book is dedicated to my children. To be their mother brings more joy, honor, and sense of pride than I could have ever imagined. They and their loved ones are truly my shining stars.*

*As they grow, things change, and I now dedicate this book to:*

*My daughter, Rebecca Lacey Perry Bryan; her husband, Robert Donald Bryan;  
their three daughters, Cora Elizabeth Bryan, Amalie Mary Bryan, and Noelle Anne Bryan;  
and their son, Shepherd Charles Bryan;*

*And to my son, Mitch Perry-Cox; and his husband, Samuel Perry-Cox.*

**Anne Griffin Perry**

*I wish to dedicate this new edition of our textbook to the exceptional professional nurses at Barnes-Jewish Hospital. It has been my privilege to have worked with so many talented people. They continue to inspire me each day.*

**Patricia A. Potter**

*For Toba and Harris, who never saw this achievement but would be proud of its influence on today's and tomorrow's nurses. And, as always, for my always supportive and patient husband.*

**Wendy R. Ostendorf**

# About the Authors

## ANNE GRIFFIN PERRY, RN, MSN, EdD, FAAN



Dr. Anne G. Perry, Professor Emerita at Southern Illinois University—Edwardsville, is a Fellow in the American Academy of Nursing. She received her BSN from the University of Michigan, her MSN from Saint Louis University, and her EdD from Southern Illinois University—Edwardsville. Dr. Perry is a prolific and influential author and speaker. An author for more than 35 years, her work includes four major textbooks (*Essentials for Nursing Practice*, *Fundamentals of Nursing*, *Nursing Interventions & Clinical Skills*, and *Clinical Nursing Skills & Techniques*) and numerous journal articles, abstracts, and nursing research and education grants. She has

presented numerous papers at conferences across the United States and internationally. She was one of a few key consultants on *Mosby's Nursing Video Skills* and *Mosby's Nursing Skills Online*.

Dr. Perry is passionate about nursing education and has been involved in education since 1973, first as an instructor and then achieving the rank of Professor and assuming various leadership roles at Saint Louis University School of Nursing. She was a Professor and Associate Dean and Interim Dean at Southern Illinois University—Edwardsville. As a clinician and researcher, Dr. Perry's contributions to pulmonary nursing and nursing language development involve both research and policy making. She has investigated and published findings regarding topics that include weaning from mechanical ventilation, use of the therapeutic intervention scoring system, critical care, and validation of nursing diagnoses.

## PATRICIA A. POTTER, RN, MSN, PhD, FAAN



Dr. Patricia Potter received her BSN at the University of Washington in Seattle and her MSN and PhD at Saint Louis University in St. Louis, Missouri. A groundbreaking author for more than 30 years, her work includes four major textbooks (*Essentials for Nursing Practice*, *Fundamentals of Nursing*, *Nursing Interventions & Clinical Skills*, and *Clinical Nursing Skills & Techniques*) and publications in numerous professional journals. She has been an unceasing advocate

of evidence-based practice and quality improvement in her roles as administrator, educator and, more recently, director of research.

Dr. Potter has devoted a lifetime to nursing education, practice, and research. She spent a decade teaching at Barnes Hospital

School of Nursing and Saint Louis University. She entered into a variety of managerial and administrative roles, ultimately becoming the director of nursing practice at Barnes-Jewish Hospital. In that capacity she sharpened her interest in the development of nursing practice standards and the measurement of patient outcomes in defining nursing practice. Her most recent passion has been in the area of nursing research, specifically cancer family caregiving, the cancer patient symptom experience, fall prevention, and the effects of compassion fatigue on nurses. Recently Dr. Potter has worked with colleagues to develop an inpatient Innovation Unit, which is designed to incorporate current evidence into the selection and development of a unique work team and the creation of a care delivery model and innovative care practices. Dr. Potter is currently a director of research for patient care services at Barnes-Jewish Hospital.

## WENDY R. OSTENDORF, RN, MS, EdD, CNE



Dr. Wendy R. Ostendorf received her BSN from Villanova University, her MS from the University of Delaware, and her EdD from the University of Sarasota. She currently serves as a professor of nursing in the Division of Nursing and Health Sciences at Neumann University in Aston, Pennsylvania. She has contributed more than 30 chapters to multiple nursing textbooks and has served as author for two major textbooks: *Nursing Interventions & Clinical*

*Skills* and *Clinical Nursing Skills & Techniques*. She has presented more than 25 papers at conferences at the local, national, and international levels.

Professionally, Dr. Ostendorf has a diverse background in pediatric and adult critical care. She has taught at the undergraduate and graduate levels for 35 years. With decades of practice as a clinician, her educational experiences have influenced her teaching philosophy and perceptions of the nursing profession. Dr. Ostendorf's current interests include the history and image of nursing as it has been represented in film. Most recently she was a co-primary research investigator on this topic.

# Contributors

**Michelle Aebersold, PhD, RN, CHSE, FAAN**

Clinical Associate Professor  
Director, Simulation and Educational Innovations  
University of Michigan School of Nursing  
Ann Arbor, Michigan

**Marianne Banas, MSN, RN, CCTN, CWCN**

Staff Nurse  
University of Chicago Hospitals  
Chicago, Illinois

**Hope V. Bussenius, DNP, APRN, FNP-BC**

Assistant Professor  
Nell Hodgson Woodruff School of Nursing  
Emory University  
Atlanta, Georgia

**Janice C. Colwell, RN, MS, CWOCA, FAAN**

Advanced Practice Nurse, Ostomy and Wound Care  
Department of Surgery  
The University of Chicago Medicine  
Chicago, Illinois

**Jane Fellows, MSN, CWOCA**

Wound/Ostomy CNS  
Advanced Clinical Practice  
Duke University Health System  
Durham, North Carolina

**Susan Jane Fetzer, BA, BSN, MSN, MBA, PhD**

Professor  
Department of Nursing  
College of Health and Human Services  
University of New Hampshire  
Durham, New Hampshire

**Paula Gray, DNP, CRNP, NP-C**

Director, Family (Individual Across the Lifespan) CRNP Program  
Clinical Assistant Professor of Nursing  
Widener University School of Nursing  
Chester, Pennsylvania

**Stephanie Jeffers, PhD, RN**

Assistant Professor  
Widener University School of Nursing  
Chester, Pennsylvania

**Alaine Kamm, BSN, MSN**

Nurse Practitioner  
General Surgery  
The University of Chicago Medicine  
Chicago, Illinois

**Lori Klingman, MSN, RN**

Nurse Educator/Faculty Advisor  
Ohio Valley Hospital  
McKees Rocks, Pennsylvania

**Stephen D. Krau, PhD, CNE**

Associate Professor  
School of Nursing  
Vanderbilt University Medical Center  
Nashville, Tennessee

**Carol Ann Liebold, RN, BSN, CRNI**

President/Owner  
CarolAnn Liebold, Inc.  
Earlton, New York

**Nelda K. Martin, RN, ANP-BC, CCNS**

Adult Nurse Practitioner/Clinical Nurse Specialist  
Heart and Vascular Center  
Barnes-Jewish Hospital at Washington University Medical Center  
St. Louis, Missouri

**Kristen L. Mauk, PhD, DNP, RN, CRRN, GCNS-BC, GNP-BC, ACHPN, FAAN**

Professor of Nursing  
Director, RN-BSN and MSN programs  
Colorado Christian University;  
President, International Rehabilitation Consultants/Senior Care Central  
Ridgway, Colorado

**Angela McConachie, FNP, DNP**

Assistant Professor  
Faculty  
Goldfarb School of Nursing at Barnes-Jewish College  
St. Louis, Missouri

**Jennifer Painter, MSN, APRN, CNS, RN-BC, OCN, AOCNS**

Staff Education Specialist  
Nursing School/Faculty Affiliations Coordinator  
Student Nurse Extern Program Coordinator  
Nursing Development and Education  
Institute for Learning, Leadership, & Development (iLead)  
John H. Ammon Education Center  
Newark, Delaware

**Ann Petlin, RN, MSN, CCNS, CCRN-CSC, ACNS-BC, PCCN**

Clinical Nurse Specialist  
Cardiothoracic Surgery  
Barnes-Jewish Hospital  
St. Louis, Missouri

**Theresa Pietsch, PhD, RN, CRRN, CNE**

Associate Professor  
Neumann University  
Aston, Pennsylvania

**Diane Rudolphi, MS, RN**

Master Instructor  
University of Delaware School of Nursing  
Newark, Delaware

**Jacqueline Raybuck Saleeby, PhD, RN, BCCS**

Associate Professor  
Catherine McAuley School of Nursing  
Maryville University  
St. Louis, Missouri

**Felicia Schaps, MSN-Ed, BSN, RN, CRNI, OCN, CNSC, IgCN**

Director of Nursing Operations  
BioScrip, Inc.  
Washington, D.C.

**Amy Spencer, MSN, RN-BC**

Staff Development Specialist  
Christiana Care Health Systems  
Newark, Delaware

**C.J. Wright-Boon, RN, MSN**

Assistant Professor  
Saint Francis Medical Center College of Nursing  
Peoria, Illinois

**Rita Wunderlich, RN, PhD, CNE**

Associate Professor  
Catherine McAuley School of Nursing  
Maryville University  
St. Louis, Missouri

**CONTRIBUTORS TO PREVIOUS EDITIONS**

We would like to acknowledge the following people who contributed to previous editions of *Clinical Nursing Skills & Techniques*.

Jeannette Adams, PhD, MSN, APRN,  
CRNI

Della Aridge, RN, MSN

Elizabeth A. Ayello, PhD, MS, BSN, RN,  
CS, CWOCN

Sylvia K. Baird, BSN, MM

Nicole Bartow, RN, MSN

Margaret Benz, RN, MSN, CSANP

Barbara J. Berger, MSN, RN

Lyndal Guenther Brand, RN, BSN, MSN

Peggy Breckinridge, RN, BSN, MSN, FNP

Victoria M. Brown, RN, BSN, MSN, PhD

Gina Bufe, RN, BSN, MSN(R), PhD, CS

Gale Carli, MSN, MHed, BSN, RN

Ellen Carson, PhD

Maureen Carty, MSN, OCN

Aurelie Chinn, RN, MSN

Mary F. Clarke, MA, RN

Janice C. Colwell, RN, MS, CWOCN

Charlene Compher, PhD, RD, CNSC,  
LDN, FADA

Kelly Jo Cone, RN, BSN, MS, PhD, CNE

Dorothy McDonnell Cooke, RN, PhD

Eileen Costantinou, RN, BSN, MSN

Sheila A. Cunningham, RN, BSN, MSN

Pamela A. Cupec, RN, MS, ONC, CRRN,  
ACM

Ruth Curchoe, RN, MSN, CIC

Rick Daniels, RN, BSN, MSN, PhD

Mardell Davis, RN, MSN, CETN

Carolyn Ruppel d'Avis, RN, BSN, MSN

Patricia A. Dettenmeier, RN, BSN,  
MSN(R), CCRN

Wanda Cleveland Dubuisson, BSN, MN

Sharon J. Edwards, RN, MSN, PhD

Martha E. Elkin, RN, MSN

Deborah Oldenburg Erickson, RN, BSN,  
MSN

Debra Farrell, BSN, CNOR

Linda Fasciani, RN, BSN, MSN

Jane Fellows, RN, MSN, CWOCN

Susan Jane Fetzer, RN, BA, BSN, MSN,  
MBA, PhD

Cathy Flasar, MSN, APRN, BC, FNP

Marlene S. Foreman, BSN, MN, RNCS

Carol P. Fray, RN, MA

Leah W. Frederick, RN, MS, CIC

Kathleen Gerhart-Gibson, MSN, RN,  
CCRN

Paula Goldberg, RN, MS, MSN

Thelma Halberstadt, EdD, MS, BS, RN

Amy Hall, PhD, MS, BSN, RN

Roberta L. Harrison, PhD, RN, CRRN

Linda C. Haynes, PhD, RN

Diane Hildwein, RN, BC, MA

Maureen B. Huhmann, MS, RD

Nancy C. Jackson, RN, BSN, MSN,  
CCRN

Ruth L. Jilka, RD, CDE

Teresa M. Johnson, RN, MSN, CCRN

Judith Ann Kilpatrick, RN, DNSC

Carl Kirton, RN, BSN, MA, CCRN,  
ACRN, ANP

Lori Klingman, MSN, RN

Marilee Kuhrik, RN, MSN, PhD

Nancy S. Kuhrik, RN, MSN, PhD

Diane M. Kyle, RN, BSN, MS

Nancy Laplante, PhD, RN, AHN-BC

Louise K. Leitao, RN(c), BSN, MA

Gail B. Lewis, RN, MSN

Ruth Ludwick, PhD, MSN, BSN, RNC,  
CNS

Mary Kay Machecha, MSN(R), RN, CS,  
ANP, CDE

Jill Feldman Malen, RN, MS, NS, ANP

Mary K. Mantese, RN, MSN

Elizabeth Mantych, RN, MSN

Tina Marrelli, MSN, MA, RN

Nelda K. Martin, APRN, BC, CCNS,  
ANP

Kristin L. Mauk, PhD, DNP, RN, CRRN,  
GCNS-BC, GNP-BC, FAAN

Mary Mercer, RN, MSN

Rita Mertig, MS, BSN, RNC, CNS

Norma Metheny, PhD, MSN, BSN,  
FAAN

Mary Dee Miller, RN, BSN, MS, CIC

Sharon M.J. Muhs, MSN, RN

Kathleen Mulryan, RN, BSN, MSN

Lynne M. Murphy, RN, MSN

Elaine K. Neel, RN, BSN, MSN

Meghan G. Noble, PhD, RN

Marsha Evans Orr, RN, BS, MS, CS

Pamela L. Ostby, RN, MSN, OCN®

Dula F. Pacquiao, EdD, RN, CTN  
Jeanne Marie Papa, MBE, MSN, ACNP-  
BC, CCRN

Sharon Phelps, RN, BSN, MS

Catherine A. Robinson, BA, RN

Judith Roos, RN, MSN

Mary Jane Ruhland, MSN, RN, BC

Jan Rumfelt, RNC, MSN, EdD

Jacqueline Raybuck Saleeby, PhD, RN, CS

Linette M. Sarti, RN, BSN, CNOR

Phyllis Ann Schiavone, MSN, CRNP

Lois Schick, MN, MBA, CPAN, CAPA

Kelly M. Schwartz, RN, BSN

April Sieh, RN, BSN, MSN



Marlene Smith, RN, BSN, MEd  
Julie S. Snyder, MSN, RNC  
Laura Sofield, MSN, APRN, BC  
Sharon Souter, MSN, BSN  
Martha A. Spies, RN, MSN  
Paula Ann Stangeland, PhD, RN, CRRN  
Patricia A. Stockert, RN, BSN, MS, PhD  
E. Bradley Strecker, RN, PhD  
Virginia Strootman, RN MS CRNI  
Sandra Ann Szekely, RN, BSN  
Donna L. Thompson, MSN, CRNP,  
FNP-BC, CCCN

Lynn Tier, RN, MSN, LNC  
Nancy Tomaselli, RN, MSN, CS, CRNP,  
CWOCN, CLNC  
Riva Touger-Decker, PhD, RD, FADA  
Anne Falsone Vaughan, MSN, BSN,  
CCRN  
Cynthia Vishy, RN, BSN  
Pamela Becker Weilitz, MSN(R), RN, CS,  
ANP  
Joan Domigan Wentz, MSN, RN  
Laurel Wiersema, RN, MSN

Pamela E. Windle, MS, RN, NE-BC,  
CPAN, CAPA, FAAN  
Terry L. Wood, PhD, RN  
Patricia H. Worthington, MSN, RN,  
CNSC  
Rita Wunderlich, PhD(C), MSN(R),  
CCRN  
Rhonda Yancey, BSN, RN  
Valerie Yancey, PhD, RN, HNC, CHPN

# Reviewers

**Michelle Aebersold, PhD, RN, CHSE, FAAN**

Clinical Associate Professor  
Director, Simulation and Educational Innovations  
University of Michigan School of Nursing  
Ann Arbor, Michigan

**Margaret Barnes, DNP, MSN, RN**

Assistant Professor  
Indiana Wesleyan University  
Marion, Indiana

**Karen Benjamin, RN, MSN**

RN Educator  
University of Wyoming  
Laramie, Wyoming

**Nakia Best, MSN, RN**

PhD Student/Teaching Fellow  
University of North Carolina Chapel Hill School of Nursing  
Chapel Hill, North Carolina

**Anna M. Bruch, RN, MSN**

Nursing Professor  
Illinois Valley Community College  
Oglesby, Illinois

**Jennifer A. Brunworth, MSN, RN**

Coordinator, Nursing Learning Lab  
Clinical Assistant Professor of Nursing  
Maryville University  
St. Louis, Missouri

**Patricia C. Buchsel, RN, MSN, OCN, FAAN**

Clinical Instructor  
Seattle University of Nursing  
Seattle, Washington

**Kimberly Clevenger, EdD, MSN, RN, BC**

Associate Professor of Nursing  
Morehead State University  
Morehead, Kentucky

**Eileen Costantinou, MSN, RN, BC**

Practice Specialist/Senior Coordinator  
Barnes-Jewish Hospital  
St. Louis, Missouri

**Holly Diesel, BA, BSN, MSN, PhD**

Associate Professor  
Goldfarb School of Nursing at Barnes-Jewish College  
St. Louis, Missouri

**Julie Eddins, MSN, AG-ACNP-BC, CRNI**

Orthopedic Reconstruction Nurse Practitioner  
Barnes-Jewish Hospital  
St. Louis, Missouri

**Yvette Egan, RN, BSN, MS**

Clinical Assistant Professor  
University of Wisconsin Madison School of Nursing  
University of Wisconsin  
Madison, Wisconsin

**Amber Essman, DNP, MSN, FNP-BC, CNE**

Visiting Professor, RN to BSN Online Postlicensure Program  
Chamberlain College of Nursing  
Grove City, Ohio

**Margaret M. Gingrich, RN, MSN, CRNP**

Professor of Nursing  
Harrisburg Community College  
Harrisburg, Pennsylvania

**Karen F. Gonzol, BSN, MSN, RN**

Retired  
Eleanor Wade Custer School of Nursing  
Shenandoah University  
Winchester, Virginia

**Teresa J. Green, MSN, RN, FNP-BC**

Associate Professor of Nursing  
Morehead State University  
Morehead, Kentucky

**Jacqueline Guhde, MSN, RN, CNS**

Senior Instructor  
University of Akron  
Akron, Ohio

**Kandi Hudson, EdD, RN, CMSRN, CNE**

Associate Professor  
The Community College of Baltimore County—Essex Campus  
Baltimore, Maryland

**Vickey Keathley, BSN, MSN, RN**

ABSN Clinical Nurse Educator  
Duke School of Nursing  
Durham, North Carolina

**Christina D. Keller, RN, MSN, CHSE**

Instructor  
Radford University Clinical Simulation Center  
Radford University  
Radford, Virginia

**Lori L. Kelly, BSN, MSN, MBA**

Associate Professor of Nursing  
Aquinas College School of Nursing  
Nashville, Tennessee

**Patricia T. Ketchum, MSN**

Director of Nursing Laboratories and Lecturer in Nursing  
Oakland University School of Nursing  
Rochester, Michigan

**Vicky J. King, RN, MS, CNE**

Nursing Faculty  
Cochise College  
Sierra Vista, Arizona

**Jean LaFollette, RN, BSN, MSN**

Instructor, Family Health and Community Health Nursing  
Southern Illinois University—Edwardsville  
Edwardsville, Illinois

**Diana R. Mager, RN, BSN, MSN, DNP, Board Certified Home Health Nursing**

Assistant Professor  
Fairfield University School of Nursing  
Fairfield, Connecticut

**Sheila Matye, DNP, CNE**

Web Developer and Manager of Curriculum & Instruction  
Chamberlain College of Nursing  
Downers Grove, Illinois

**Janis Longfield McMillan, RN, MSN, CNE**

Assistant Clinical Professor  
Northern Arizona University  
Flagstaff, Arizona

**Sarah Newton, PhD, RN**

Director of Undergraduate Programs  
School of Nursing  
Oakland University  
Rochester, Michigan

**Rebecca Otten, EdD, MSN, BAHA, RN**

Associate Professors, Coordinator Pre-Licensure Programs  
California State University, Fullerton  
Fullerton, California

**Patricia Pence, BSN, MSN, PhD**

Nursing Professor  
Illinois Valley Community College  
Oglesby, Illinois

**Jill R. Reed, PhD, APRN-NP**

Assistant Professor  
UMNC College of Nursing—Kearney Division  
Kearney, Nebraska

**Diane Rudolphi, MS, RN**

Master Instructor  
University of Delaware School of Nursing  
Newark, Delaware

**Susan Scholtz, RN, PhD, School Nursing Certificate**

Associate Professor of Nursing  
Moravian College  
Bethlehem, Pennsylvania

**Benjamin A. Smallheer, PhD, RN, ACNP-BC, CCRN**

Assistant Professor of Nursing  
Vanderbilt University School of Nursing  
Nashville, Tennessee

**Lynette Tanaka, MSN, RN**

Assistant Teaching Professor  
College of Nursing  
University of Missouri—St. Louis  
St. Louis, Missouri

**Lynne L. Tier, MSN, RN**

Assistant Director of Simulation  
Adventist University of Health Sciences  
Orlando, Florida

**Heidi Tymkew, PT, DPT, MHS, CCS**

Clinical Specialist  
Barnes-Jewish Hospital, Department of Rehabilitation  
St. Louis, Missouri

**Susan A. Wheaton, RN, BSN, MSN**

Lecture/Learning Resource Director  
University of Maine  
Orono, Maine

**Paige D. Wimberley, PhD, APRN, CNS-BC, CNE**

Associate Professor of Nursing  
Arkansas State University  
Jonesboro, Arkansas

**Aimee Woda, PhD, RN, MSC**

Assistant Professor  
Marquette University  
Milwaukee, Wisconsin

**Lea Wood, DNP, MS(N), BSN-RN**

Director of Simulation/Assistant Teaching Professor  
University of Missouri  
Columbia, Missouri

**Jean Yockey, MSN, FNP, CNE**

Assistant Professor  
University of South Dakota  
Vermillion, South Dakota

**Melody Ziobro, RN, MS**

Assistant Professor of Nursing  
Morrisville State College  
Morrisville, New York

**CLINICAL REVIEWERS****Keith D. Lamb, RRT**

Specialist, Surgical Critical Care/Trauma  
Christiana Care Health Systems  
Newark, Delaware

**Manju Maliakal, MSN, CMSRN**

Administrative Supervisor  
Baylor Scott and White Health  
Carrollton, Texas

**Marion F. Winkler, PhD, RD, LDN, CNSC**

Surgical Nutrition Specialist and Associate Professor of Surgery  
Rhode Island Hospital, Department of Surgery  
Nutritional Support Service and Alpert Medical School of  
Brown University  
Providence, Rhode Island

# Preface to the Student

Numerous features are built into this text to help you identify key pieces of information and study more efficiently. Additional study tools and review questions may be found on the companion Evolve site: <http://evolve.elsevier.com/Perry/skills>

**Objectives** highlight the primary aims of chapter content.

**Evolve media** resources are available for every chapter.

## 22 | Parenteral Medications

### SKILLS AND PROCEDURES

Skill 22.1 **Preparing Injections: Ampules and Vials**, p. 580  
 Procedural Guideline 22.1 **Mixing Parenteral Medications in One Syringe**, p. 586  
 Skill 22.2 **Administering Intradermal Injections**, p. 589  
 Skill 22.3 **Administering Subcutaneous Injections**, p. 593  
 Skill 22.4 **Administering Intramuscular Injections**, p. 600  
 Skill 22.5 **Administering Medications by Intravenous Bolus**, p. 607  
 Skill 22.6 **Administering Intravenous Medications by Piggyback, Intermittent Infusion Sets, and Mini-Infusion Pumps**, p. 614  
 Skill 22.7 **Administering Continuous Subcutaneous Medications**, p. 620

### OBJECTIVES

Mastery of content in this chapter will enable the nurse to:

- Correctly prepare injectable medications from a vial and an ampule.
- Identify advantages, disadvantages, and risks of administering medications by each parenteral route.
- Evaluate the effectiveness and outcomes of administering medications by each parenteral route.
- Explain the importance of selecting the proper-size syringe and needle for an injection.
- Discuss factors to consider when selecting injection sites.
- Discuss ways to promote patient comfort while administering an injection.
- Correctly administer intradermal, subcutaneous, and intramuscular injections.
- Compare the risks of three different intravenous routes.
- Correctly administer an intravenous medication by intravenous piggyback, intermittent infusion, or bolus.
- Initiate, maintain, and discontinue a continuous subcutaneous infusion.

### MEDIA RESOURCES

- **Evolve** <http://evolve.elsevier.com/Perry/skills>
- Review Questions
- Video Clips
- Audio Glossary
- **NSO** Nursing Skills Online
- Clinical Debrief and Review Questions Answers

### STANDARDS OF CARE

- Centers for Medicare & Medicaid Services (CMS), 2015—Preparation and Administration of Drugs
- Infusion Nurses Society, 2016—Infusion Nursing Standards of Practice
- Institute for Safe Medication Practices (ISMP), 2011; 2012; 2015—Safe Medication Preparation
- The Joint Commission, 2016—Patient Identification

### PRINCIPLES FOR PRACTICE

- When managing a patient's medications, communicate clearly with the interprofessional team, assess and incorporate the patient's priorities of care and preferences, and use the best evidence when making decisions about patient care.
- Use technology (e.g., bar scanning, electronic medication administration record [MAR]) that is available in your agency when preparing and giving medications.

575

### SKILL 22.3 ADMINISTERING SUBCUTANEOUS INJECTIONS 599

STEP	RATIONALE
<p><b>Clinical Decision Point</b> Aspiration after injecting a subcutaneous medication is not necessary. Piercing a blood vessel in a subcutaneous injection is very rare. Aspiration after injecting heparin and insulin is not recommended (Lilley et al., 2012).</p> <p>17. Withdraw needle quickly while placing antiseptic swab or gauze gently over site.</p> <p>18. Apply gentle pressure to site. Do not massage site. (If heparin is given, hold alcohol swab or gauze to site for 30 to 60 seconds.)</p> <p>19. Help patient to comfortable position.</p> <p>20. Discard uncapped needle or needle enclosed in safety shield (see illustrations) and attached syringe into puncture- and leak-proof receptacle.</p>	<p>Supporting tissues around injection site minimizes discomfort during needle withdrawal. Dry gauze may minimize patient discomfort associated with alcohol on nonintact skin. Aids absorption. Massage can damage underlying tissue. Time interval prevents bleeding at site.</p> <p>Gives patient sense of well-being. Prevents injury to patients and health care personnel. Recapping needles increases risk for needlestick injury (OSHA, n.d.).</p>
<p><b>STEP 19</b> Needle with plastic guard to prevent needles. A, Position of guard before injection. B, After injection guard locks in place, covering needle.</p> <p>21. Remove gloves and perform hand hygiene.</p> <p>22. Stay with patient for several minutes and observe for any allergic reactions.</p>	<p>Reduces transmission of microorganisms. Dyspnea, wheezing, and circulatory collapse are signs of severe anaphylactic reaction.</p>

### EVALUATION

1. Return to room in 15 to 30 minutes and ask if patient feels any acute pain, burning, numbness, or tingling at injection site.	Continued discomfort may indicate injury to underlying bones or nerves.
2. Inspect site, noting bruising or induration. Provide warm compress to site.	Bruising or induration indicates complication associated with injection.
3. Observe patient's response to medication at times that correlate with onset, peak, and duration of medication. Review laboratory results as appropriate (e.g., blood glucose, partial thromboplastin).	Adverse effects of parenteral medications develop rapidly. Evaluate effect of medication on basis of onset, peak, and duration of action.
4. Use Teach-Back: "I want to be sure I explained to you the reason for this subcutaneous injection. Tell me why you are receiving this injection." Revise your instruction now or develop a plan for revised patient or family caregiver teaching if patient or family caregiver is not able to teach back correctly.	Determines patient's and family caregiver's level of understanding of instructional topic.

**Clinical Decision Points** highlight points to consider when performing skills to ensure effective outcomes and promote safety.

**Extensive illustrations** demonstrate step-by-step procedures for more thorough understanding.

**Quick Response** codes may be scanned to link to video clips directly from the text page.

SKILL 22.5 ADMINISTERING MEDICATIONS BY INTRAVENOUS BOLUS 613

STEP	RATIONALE
<p>4. Use <b>Teach-Back</b>: "I want to be sure I explained to you why you are receiving this IV bolus medication. Can you explain to me what the medication is for and when to call the nurse?" Revise your instruction now or develop a plan for revised patient or family caregiver teaching if patient or family caregiver is not able to teach back correctly.</p>	<p>Determines patient's and family caregiver's level of understanding of instructional topic.</p>
<p><b>Unexpected Outcomes</b></p> <ol style="list-style-type: none"> <li>1. Patient develops adverse reaction to medication.</li> <li>2. IV medication is incompatible with IV fluids (e.g., IV fluid becomes cloudy in tubing) (see agency policy).</li> <li>3. IV site shows symptoms of infiltration or phlebitis (see Chapter 29).</li> </ol>	<p><b>Related Interventions</b></p> <ul style="list-style-type: none"> <li>• Stop delivering medication immediately and follow agency policy or guidelines for appropriate response to allergic reaction (e.g., administration of antihistamines such as diphenhydramine or epinephrine) and reporting of adverse drug reactions.</li> <li>• Notify patient's health care provider of adverse effects immediately.</li> <li>• Add allergy information to patient's record.</li> <li>• Stop IV fluids and clamp IV line.</li> <li>• Flush IV line with 10 mL of 0.9% sodium chloride or sterile water.</li> <li>• Give IV bolus over appropriate amount of time.</li> <li>• Flush with another 10 mL of 0.9% sodium chloride or sterile water at same rate as medication was administered.</li> <li>• Restart IV fluids with new tubing at prescribed rate.</li> <li>• If unable to stop IV infusion, start new IV site (see Chapter 29) and administer medication using IV push (IV lock) method.</li> <li>• Stop IV infusion immediately or discontinue access device and restart at another site.</li> <li>• Determine how much damage IV medication can produce in subcutaneous tissue.</li> <li>• Provide IV extravasation care (e.g., injecting phenylephrine around IV infiltration site) as indicated by agency policy, use a medication reference, and consult pharmacist to determine appropriate follow-up care.</li> </ul>

**Unexpected Outcomes/Related Interventions** help you anticipate problems and respond appropriately.

**Recording and Reporting** guidelines for each skill detail what to document and report.

**Special Considerations** indicate special teaching considerations, as well as procedure modifications needed for pediatric, gerontological, and home care populations.

**Recording and Reporting**

- Immediately record medication administration, including drug, dose, route, time instilled, and date and time administered on MAR in nurses' notes in electronic health record (EHR) or chart. Include initials or signature.
- Record patient teaching, validation of understanding, and patient's response to medication in nurses' notes in EHR or chart.
- Report any adverse reactions to patient's health care provider. Patient's response sometimes indicates need for additional medical therapy.
- Record patient's medication response in nurses' notes in EHR or chart.

**Special Considerations Teaching**

- Teach patient and/or family caregiver that effects of IV push medications occur rapidly. Explain reasons for giving medication slowly and teach signs of adverse effects.

**Pediatric**

- The therapeutic dosage of IV push medications for infants and children is often small and difficult to prepare accurately, even with a tuberculin syringe. You need to infuse these medications slowly and in small volumes because of the risk for fluid volume

overload (Hockenberry and Wilson, 2015). To maintain pediatric patient safety, carefully follow agency policies when administering medications via IV.

**Gerontological**

- The renal and metabolic systems change because of the aging process. To avoid adverse effects and drug interactions, use IV push medications if they are appropriate.

**Home Care**

- IV push medications are frequently used in the home. Nurses, pharmacists, and health care providers who are involved in managing IV medications need to understand their various access devices, and how to flush their access devices safely and store their medications safely and properly, and they should know when to call for help.

SKILL 22.3 ADMINISTERING SUBCUTANEOUS INJECTIONS 593

**Recording and Reporting**

- Record drug, dose, route, site, time, and date on MAR in nurses' notes in electronic health record (EHR) or chart immediately after administration, not before. Correctly sign MAR according to agency policy.
- Record area of ID injection and appearance of skin in nurses' notes in EHR or chart.
- Report any undesirable effects from medication to patient's health care provider and document adverse effects according to agency policy.
- Record patient teaching, validation of understanding, and patient's response to medication in nurses' notes in EHR or chart.

**Special Considerations Teaching**

- Instruct patient not to squeeze medication out of injection site.
- Teach patient that negative skin tests may not rule out allergies, especially when low concentrations of medication are used.

- Patient should wear medical identification band listing all allergies.
- Caution patient not to wash off pencil markings around injection site.
- Explain to patient how to observe for skin reactions.

**Pediatric**

- Children who are exposed to people with confirmed or suspected infectious tuberculosis should be tested for it immediately following exposure (Hockenberry and Wilson, 2015).
- Children with ongoing exposure to high-risk individuals (e.g., HIV-infected, homeless, incarcerated) should be tested for tuberculosis every 2 to 3 years (Hockenberry and Wilson, 2015).

**Gerontological**

- The skin of the older adult is less elastic and must be held taut to ensure that ID injection is administered correctly.

SKILL 22.3 Administering Subcutaneous Injections

Video Nursing Skills Online Injections Module / Lesson 3

Subcutaneous injections involve depositing medication into the loose connective tissue underlying the dermis. Because subcutaneous tissue does not contain any major blood vessels as muscles, medications are absorbed more slowly than with intramuscular (IM) injections. Physical exercise or application of hot or cold compresses influences the rate of drug absorption by altering local blood flow to tissues. Any condition that impairs blood flow is a contraindication for subcutaneous injections.

Subcutaneous tissue is sensitive to irritating solutions and large volumes of medications. Thus you only administer small volumes (0.5 to 1.5 mL) of water-soluble medications subcutaneously to adults. In children, you give smaller volumes up to 0.5 mL (Hockenberry and Wilson, 2015). Examples of subcutaneous medications include epinephrine, insulin, allergy medications, opioids, and heparin. Because subcutaneous tissue contains pain receptors, the patient often experiences some discomfort.

The best subcutaneous injection sites include the outer aspect of the upper arms, the abdomen from below the costal margins to the iliac crests, and the anterior aspects of the thighs (Fig. 22.12). These areas are easily accessible and are large enough to allow rotating multiple injections within each anatomical location.

Choose an injection site that is free of skin lesions, bony prominences, and large underlying muscles or nerves. Site rotation prevents the formation of lipohypertrophy or lipodystrophy in the skin. The patient's body weight and adipose tissue indicate the depth of the subcutaneous layer. Therefore choose the needle length and angle of insertion on the basis of a patient's weight and an estimation of amount of subcutaneous tissue (Oxton-Tack, 2014a). Nurses use a 25-gauge, 16-mm (5/8-inch) needle inserted at a 45-degree angle or a 12-mm (1/2-inch) needle inserted at a 90-degree angle to administer subcutaneous medications to a normal-size patient. Some children require only a 12-mm (1/2-inch) needle. If the patient is obese, pinch the tissue and use a needle to insert through fatty tissue at the base of the pinch. Patients who do not have sufficient tissue for subcutaneous injection in the upper abdomen is usually the best site in this situation. A subcutaneous medication reaches the

subcutaneous tissue, follow this rule: If you can grasp 5 cm (2 inches) of tissue, insert the needle at a 90-degree angle; if you can grasp only 2.5 cm (1 inch) of tissue, insert the needle at a 45-degree angle.

Research on insulin administration shows that insulin needles that are 8 mm (5/8 inch) or longer often enter the muscles of men and people with a body mass index (BMI) of 25 or less. Shorter or 4- to 5-mm (1/2-inch) needles were associated with less pain, adequate control of blood sugars, and minimal leakage of medication (Diggle, 2014; Hirsch et al., 2012). Thus, when administering insulin, needles of 5/8 inch (4 to 5 mm) administered at a 90-degree angle should be used to reduce pain and achieve adequate control of blood sugars with minimal adverse effects for people of all BMIs, including children (AADE, 2013).

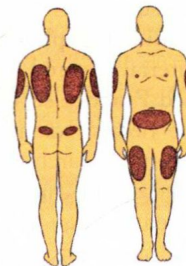


FIG 22.12 Common sites for subcutaneous injections.

NSO icon links to online course lessons.

**KEEP THIS CARD.**  
ACCESS CODE INSIDE

**Clinical Skills Neonatal Collection**

ELSEVIER

THIS PACKAGE CANNOT BE RETURNED FOR REFUND OR CREDIT IF OPENED.

**Clinical Skills: Essentials Collection** contains 144 entirely new, high-definition video skills.

# Preface to the Instructor

The evolution of technology and knowledge influences the way we teach clinical skills to nursing students and improves the quality of care possible for every patient. However, the foundation for success in performing nursing skills remains a competent, well-informed nurse who thinks critically, asks the right questions at the right time, and makes timely decisions. That outcome is the driving factor behind this new edition.

In this ninth edition of *Clinical Nursing Skills & Techniques*, we have created a very different format for our textbook. Each chapter opens by introducing students to key concepts: Standards of Practice, Principles for Practice, Evidence-Based Practice, Patient-Centered Care, and Safety Guidelines. These have been streamlined into a quick, easy-to-read bulleted format. Our new approach emphasizes yet simplifies these important concepts.

In addition, these concepts align with the *Quality and Safety Education for Nurses* (QSEN) initiative. Chapter 1, Using Evidence in Nursing Practice, prepares students to understand and use the evidence-based practice information included in every chapter.

All topics and skills, including sample documentation, have been updated to the most recent standards in nursing practice.

Your students will find that this edition of *Clinical Nursing Skills & Techniques* provides a comprehensive resource that will serve them well through their nursing education and right into their clinical practice careers.

## CLASSIC FEATURES

- **Over 200 basic, intermediate, and advanced nursing skills and procedures** are covered.
- **Five-step nursing process format** provides a consistent presentation that helps students apply the process while learning each skill.
- **Skills and Procedures list and Objectives** open each chapter.
- **Over 1200 full-color photos and drawings** help students master the material covered.
- **Evidence-Based Practice** sections in each chapter present students with the newest scientific evidence for the procedures presented. Recent research findings are discussed, and their implications for patient care are explored.
- **Patient-Centered Care** sections prepare students to recognize the importance of having patients partner in performing skills in a compassionate and coordinated way based on respect for a patient's cultural preferences, values, and needs (QSEN core competency).
- **Safety Guidelines** sections cover global recommendations on the safe execution of the particular skill set covered in each chapter (QSEN core competency).
- **NSO icon** links text content with the new edition of *Nursing Skills Online*, which has been simultaneously revised with the textbook to provide completely coordinated information.
- **Rationales** are given for steps within skills so students learn the *why* as well as the *how* of each skill. Rationales include citations from the current literature.

- **Delegation and Collaboration** sections define communication within the patient care team and the nurse's responsibility when delegating to assistive personnel.
- **Clinical Decision Points** alert students to key steps that affect patient outcomes and help them modify care as needed to meet individual patient needs.
- **Evaluation** sections highlight steps students must take to evaluate the outcomes of the skills performed.
- **Teach-Back** is included in each evaluation section, where we demonstrate to students how to phrase a Teach-Back question appropriately.
- **Recording and Reporting** sections follow the evaluation discussion and alert students to what information should be documented in each situation.
- **Unexpected Outcomes and Related Interventions** sections inform students to be alert for potential problems and help them determine appropriate nursing interventions.
- **Special Considerations** sections include additional considerations when performing the skill for specific populations of patients or in specific settings and may include:
  - **Teaching Considerations**
  - **Pediatric Considerations**
  - **Gerontological Considerations**
  - **Home Care Considerations**
- **Quick Response codes** (scan with smartphone or tablet with camera to view video clips) on the text pages link video clips to the appropriate skill or procedure, allowing students to view the video immediately after reading the implementation section of the skill.
- **Glossary** (on Evolve) defines all key terms.
- **Additional review questions** (on Evolve) include a brand new set of unique questions for every chapter.
- **TEACH for RN instructor manual** helps you capitalize on the new clinical material in the text, skills video series, and online course. Additional case studies and discussion questions unique to the TEACH manual expand the in-class material available to you.
- As with the eighth edition, an **Image Collection** is available with *Clinical Nursing Skills & Techniques*.

## NEW TO THIS EDITION:

- **Standards of Care** sections summarize the most recent evidence-based standards and/or the professional clinical standards recommended for the skills within each chapter.
- **Principles for Practice** sections highlight the key nursing principles that apply to all skills within a chapter.
- **Expanded and improved end-of-chapter exercises** include a Clinical Debrief case study, examples of SBAR communication, and review questions.

# Contents

## UNIT 1

### Supporting the Patient Through the Health Care System

- 1 **Using Evidence in Nursing Practice, 1**  
*Patricia A. Potter, RN, MSN, PhD, FAAN*  
Purpose, 1  
Standards of Care, 1  
Principles for Practice, 1  
Sustaining Evidence-Based Practice Changes, 10
- 2 **Admitting, Transfer, and Discharge, 12**  
*Michelle Aebbersold, PhD, RN, CHSE, FAAN*  
Skill 2.1 Admitting Patients, 13  
Skill 2.2 Transferring Patients, 20  
Skill 2.3 Discharging Patients, 24
- 3 **Communication and Collaboration, 31**  
*Jacqueline Raybuck Saleeby, PhD, RN, BCCS*  
Skill 3.1 Establishing the Nurse-Patient Relationship, 33  
Skill 3.2 Communicating With Patients Who Have Difficulty Coping, 39  
Skill 3.3 Communicating With a Cognitively Impaired Patient, 44  
Skill 3.4 Communicating With Colleagues, 47
- 4 **Documentation and Informatics, 51**  
*Theresa Pietsch, PhD, RN, CRRN, CNE*  
Procedural Guideline 4.1 Giving a Hand-Off Report, 58  
Procedural Guideline 4.2 Documenting Nurses' Progress Notes, 61  
Procedural Guideline 4.3 Adverse Event Reporting, 62  
Procedural Guideline 4.4 Guidelines for Meaningful Use of an Electronic Health Record (EHR), 63

## UNIT 2

### Vital Signs and Physical Assessment

- 5 **Vital Signs, 66**  
*Susan Jane Fetzer, BA, BSN, MSN, MBA, PhD*  
Skill 5.1 Measuring Body Temperature, 68  
Skill 5.2 Assessing Radial Pulse, 78  
Skill 5.3 Assessing Apical Pulse, 82  
Skill 5.4 Assessing Respirations, 87  
Skill 5.5 Assessing Arterial Blood Pressure, 91  
Procedural Guideline 5.1 Noninvasive Electronic Blood Pressure Measurement, 100  
Procedural Guideline 5.2 Measuring Oxygen Saturation (Pulse Oximetry), 102
- 6 **Health Assessment, 105**  
*Paula Gray, DNP, CRNP, NP-C*  
Skill 6.1 General Survey, 112  
Skill 6.2 Head and Neck Assessment, 120  
Skill 6.3 Thorax and Lung Assessment, 125  
Skill 6.4 Cardiovascular Assessment, 132  
Skill 6.5 Abdominal Assessment, 143  
Skill 6.6 Genitalia and Rectum Assessment, 149

- Skill 6.7 Musculoskeletal and Neurological Assessment, 154  
Procedural Guideline 6.1 Monitoring Intake and Output, 162

## UNIT 3

### Special Procedures

- 7 **Specimen Collection, 166**  
*Rita Wunderlich, RN, PhD, CNE*  
Skill 7.1 Urine Specimen Collection: Midstream (Clean-Voided) Urine; Sterile Urinary Catheter, 167  
Procedural Guideline 7.1 Collecting a Timed Urine Specimen, 173  
Procedural Guideline 7.2 Urine Screening for Glucose, Ketones, Protein, Blood, and pH, 174  
Skill 7.2 Measuring Occult Blood in Stool, 175  
Skill 7.3 Measuring Occult Blood in Gastric Secretions (Gastroccult), 178  
Skill 7.4 Collecting Nose and Throat Specimens for Culture, 180  
Skill 7.5 Obtaining Vaginal or Urethral Discharge Specimens, 183  
Procedural Guideline 7.3 Collecting a Sputum Specimen by Expectoration, 186  
Skill 7.6 Collecting a Sputum Specimen by Suction, 187  
Skill 7.7 Obtaining Wound Drainage Specimens, 190  
Skill 7.8 Collecting Blood Specimens and Culture by Venipuncture (Syringe and Vacutainer Method), 193  
Skill 7.9 Blood Glucose Monitoring, 202  
Skill 7.10 Obtaining an Arterial Specimen for Blood Gas Measurement, 206
- 8 **Diagnostic Procedures, 213**  
*Nancy Laplante, PhD, RN, AHN-BC, and Stephen D. Krau, PhD, CNE*  
Skill 8.1 Intravenous Moderate Sedation, 215  
Skill 8.2 Contrast Media Studies: Arteriogram (Angiogram), Cardiac Catheterization, and Intravenous Pyelogram, 219  
Skill 8.3 Assisting With Aspirations: Bone Marrow Aspiration/Biopsy, Lumbar Puncture, Paracentesis, and Thoracentesis, 225  
Skill 8.4 Care of a Patient Undergoing Bronchoscopy, 232  
Skill 8.5 Care of a Patient Undergoing Endoscopy, 236

## UNIT 4

### Infection Control

- 9 **Medical Asepsis, 241**  
*Angela McConachie, FNP, DNP*  
Skill 9.1 Hand Hygiene, 243  
Skill 9.2 Caring for Patients Under Isolation Precautions, 247  
Procedural Guideline 9.1 Caring for Patients With Multidrug-Resistant Organisms (MDROs) and *Clostridium difficile*, 254
- 10 **Sterile Technique, 256**  
*Angela McConachie, FNP, DNP*  
Skill 10.1 Applying and Removing Cap, Mask, and Protective Eyewear, 257  
Skill 10.2 Preparing a Sterile Field, 261  
Skill 10.3 Sterile Gloving, 266

**UNIT 5****Activity and Mobility**

- 11 **Safe Patient Handling, Transfer, and Positioning, 271**  
*Rita Wunderlich, RN, PhD, CNE*  
Skill 11.1 Using Safe and Effective Transfer Techniques, 272  
Procedural Guideline 11.1 Wheelchair Transfer Techniques, 282  
Skill 11.2 Moving and Positioning Patients in Bed, 283
- 12 **Exercise and Mobility, 292**  
*Patricia A. Potter, RN, MSN, PhD, FAAN*  
Skill 12.1 Promoting Early Activity and Exercise, 294  
Procedural Guideline 12.1 Performing Range-of-Motion Exercises, 298  
Procedural Guideline 12.2 Monitoring a Patient on a Continuous Passive Motion Machine, 304  
Procedural Guideline 12.3 Applying Graduated Compression (Elastic) Stockings and Sequential Compression Device, 305  
Procedural Guideline 12.4 Assisting With Ambulation (Without Assist Devices), 308  
Skill 12.2 Assisting With Use of Canes, Walkers, and Crutches, 311
- 13 **Support Surfaces and Special Beds, 322**  
*Kristen L. Mauk, PhD, DNP, RN, CRRN, GCNS-BC, GNP-BC, ACHPN, FAAN*  
Procedural Guideline 13.1 Selection of a Pressure-Redistribution Support Surface, 325  
Skill 13.1 Placing a Patient on a Support Surface, 327  
Skill 13.2 Placing a Patient on Special Bed, 332

**UNIT 6****Safety and Comfort**

- 14 **Patient Safety, 339**  
*Patricia A. Potter, RN, MSN, PhD, FAAN*  
Skill 14.1 Fall Prevention in Health Care Agencies, 341  
Skill 14.2 Designing a Restraint-Free Environment, 348  
Skill 14.3 Applying Physical Restraints, 352  
Procedural Guideline 14.1 Fire, Electrical, and Chemical Safety, 358  
Skill 14.4 Seizure Precautions, 361
- 15 **Disaster Preparedness, 367**  
*Nancy Laplante, PhD, RN, AHN-BC*  
Skill 15.1 Care of a Patient After Biological Exposure, 373  
Skill 15.2 Care of a Patient After Chemical Exposure, 379  
Skill 15.3 Care of a Patient After Radiation Exposure, 384
- 16 **Pain Management, 389**  
*Patricia A. Potter, RN, MSN, PhD, FAAN*  
Skill 16.1 Pain Assessment and Basic Comfort Measures, 392  
Skill 16.2 Patient-Controlled Analgesia, 398  
Skill 16.3 Epidural Analgesia, 403  
Skill 16.4 Local Anesthetic Infusion Pump for Analgesia, 409  
Skill 16.5 Nonpharmacological Pain Management, 412
- 17 **Palliative Care, 423**  
*Stephanie Jeffers, PhD, RN*  
Skill 17.1 Supporting Patients and Families in Grief, 425  
Skill 17.2 Symptom Management at the End of Life, 428  
Skill 17.3 Care of a Body After Death, 434

**UNIT 7****Hygiene**

- 18 **Personal Hygiene and Bed Making, 441**  
*Jennifer Painter, MSN, APRN, CNS, RN-BC, OCN, AOCNS*  
Skill 18.1 Complete or Partial Bed Bath, 445  
Procedural Guideline 18.1 Perineal Care, 454  
Procedural Guideline 18.2 Use of Disposable Bed Bath, Tub, or Shower, 456  
Skill 18.2 Oral Hygiene, 457  
Procedural Guideline 18.3 Care of Dentures, 463  
Skill 18.3 Performing Mouth Care for an Unconscious or Debilitated Patient, 464  
Procedural Guideline 18.4 Hair Care—Combing and Shaving, 467  
Procedural Guideline 18.5 Hair Care—Shampooing, 470  
Skill 18.4 Performing Nail and Foot Care, 471  
Procedural Guideline 18.6 Making an Occupied Bed, 477  
Procedural Guideline 18.7 Making an Unoccupied Bed, 481
- 19 **Care of the Eye and Ear, 484**  
*Anne Griffin Perry, RN, MSN, EdD, FAAN*  
Procedural Guideline 19.1 Eye Care for Comatose Patients, 485  
Procedural Guideline 19.2 Taking Care of Contact Lenses, 486  
Skill 19.1 Eye Irrigation, 489  
Skill 19.2 Ear Irrigation, 492  
Skill 19.3 Care of Hearing Aids, 495

**UNIT 8****Medications**

- 20 **Safe Medication Preparation, 501**  
*Wendy R. Ostendorf, RN, MS, EdD, CNE*  
Purpose, 501  
Standards of Care, 501  
Principles for Practice, 502  
    Pharmacological Concepts, 502  
    Types of Medication Action, 502  
    Routes of Administration, 505  
    Medication Distribution, 506  
    Systems of Medication Measurement, 508  
Patient-Centered Care, 509  
    Safe Medication Administration, 509  
    Medication Preparation, 514  
Evidence-Based Practice, 516  
Nursing Process, 516  
Reporting Medication Errors, 518  
Patient and Family Teaching, 518
- 21 **Nonparenteral Medications, 521**  
*Anne Griffin Perry, RN, MSN, EdD, FAAN*  
Skill 21.1 Administering Oral Medications, 523  
Skill 21.2 Administering Medications Through a Feeding Tube, 530  
Skill 21.3 Applying Topical Medications to the Skin, 536  
Skill 21.4 Administering Ophthalmic Medications, 541  
Skill 21.5 Administering Ear Medications, 547  
Skill 21.6 Administering Nasal Instillations, 550  
Skill 21.7 Using Metered-Dose Inhalers (MDIs), 554  
Procedural Guideline 21.1 Using Dry Powder–Inhaled (DPI) Medications, 560  
Skill 21.8 Using Small-Volume Nebulizers, 561  
Skill 21.9 Administering Vaginal Instillations, 565  
Skill 21.10 Administering Rectal Suppositories, 569



- 22 Parenteral Medications, 575**  
*Wendy R. Ostendorf, RN, MS, EdD, CNE*  
 Skill 22.1 Preparing Injections: Ampules and Vials, 580  
 Procedural Guideline 22.1 Mixing Parenteral Medications in One Syringe, 586  
 Skill 22.2 Administering Intradermal Injections, 589  
 Skill 22.3 Administering Subcutaneous Injections, 593  
 Skill 22.4 Administering Intramuscular Injections, 600  
 Skill 22.5 Administering Medications by Intravenous Bolus, 607  
 Skill 22.6 Administering Intravenous Medications by Piggyback, Intermittent Infusion Sets, and Mini-Infusion Pumps, 614  
 Skill 22.7 Administering Continuous Subcutaneous Medications, 620

## UNIT 9

### Oxygenation

- 23 Oxygen Therapy, 627**  
*C.J. Wright-Boon, RN, MSN*  
 Skill 23.1 Applying an Oxygen-Delivery Device, 629  
 Skill 23.2 Administering Oxygen Therapy to a Patient With an Artificial Airway, 636  
 Skill 23.3 Using Incentive Spirometry, 639  
 Skill 23.4 Care of a Patient Receiving Noninvasive Positive-Pressure Ventilation, 642  
 Procedural Guideline 23.1 Use of a Peak Flowmeter, 647  
 Skill 23.5 Care of a Patient on a Mechanical Ventilator, 649
- 24 Performing Chest Physiotherapy, 660**  
*Anne Griffin Perry, RN, MSN, EdD, FAAN*  
 Skill 24.1 Performing Postural Drainage, 662  
 Procedural Guideline 24.1 Using an Acapella Device, 668  
 Procedural Guideline 24.2 Performing Percussion and Vibration, 669
- 25 Airway Management, 672**  
*C.J. Wright-Boon, RN, MSN*  
 Skill 25.1 Performing Oropharyngeal Suctioning, 674  
 Skill 25.2 Airway Suctioning, 677  
 Procedural Guideline 25.1 Closed (In-Line) Suction, 687  
 Skill 25.3 Performing Endotracheal Tube Care, 689  
 Skill 25.4 Performing Tracheostomy Care, 696
- 26 Cardiac Care, 706**  
*Nelda K. Martin, RN, ANP-BC, CCNS*  
 Skill 26.1 Obtaining a 12-Lead Electrocardiogram, 707  
 Skill 26.2 Applying a Cardiac Monitor, 710
- 27 Closed Chest Drainage Systems, 714**  
*Ann Petlin, RN, MSN, CCNS, CCRN-CSC, ACNS-BC, PCCN*  
 Skill 27.1 Managing Closed Chest Drainage Systems, 718  
 Skill 27.2 Assisting With Removal of Chest Tubes, 728  
 Skill 27.3 Autotransfusion of Chest Tube Drainage, 731
- 28 Emergency Measures for Life Support, 735**  
*Nelda K. Martin, RN, ANP-BC, CCNS*  
 Skill 28.1 Inserting an Oropharyngeal Airway, 736  
 Skill 28.2 Using an Automated External Defibrillator, 739  
 Skill 28.3 Code Management, 742

## UNIT 10

### Fluid Balance

- 29 Intravenous and Vascular Access Therapy, 751**  
*Carol Ann Liebold, RN, BSN, CRNI*  
 Skill 29.1 Insertion of a Short-Peripheral Intravenous Device, 754  
 Skill 29.2 Regulating Intravenous Flow Rates, 768  
 Skill 29.3 Changing Intravenous Solutions, 774  
 Skill 29.4 Changing Infusion Tubing, 777  
 Skill 29.5 Changing a Short-Peripheral Intravenous Dressing, 781  
 Procedural Guideline 29.1 Discontinuing a Short-Peripheral Intravenous Device, 784  
 Skill 29.6 Managing Central Vascular Access Devices, 785
- 30 Blood Transfusions, 800**  
*Carol Ann Liebold, RN, BSN, CRNI*  
 Skill 30.1 Initiating Blood Therapy, 805  
 Skill 30.2 Monitoring for Adverse Transfusion Reactions, 814

## UNIT 11

### Nutrition

- 31 Oral Nutrition, 819**  
*Hope V. Bussenius, DNP, APRN, FNP-BC*  
 Skill 31.1 Performing a Nutritional Screening and Physical Examination, 821  
 Skill 31.2 Assisting an Adult Patient With Oral Nutrition, 826  
 Skill 31.3 Aspiration Precautions, 832
- 32 Enteral Nutrition, 839**  
*Amy Spencer, MSN, RN-BC*  
 Skill 32.1 Inserting and Removing a Small-Bore Nasogastric or Nasoenteric Feeding Tube, 840  
 Skill 32.2 Verifying Feeding Tube Placement, 847  
 Skill 32.3 Irrigating a Feeding Tube, 850  
 Skill 32.4 Administering Enteral Nutrition: Nasoenteric, Gastrostomy, or Jejunostomy Tube, 852  
 Procedural Guideline 32.1 Care of a Gastrostomy or Jejunostomy Tube, 858
- 33 Parenteral Nutrition, 861**  
*Felicia Schaps, MSN-Ed, BSN, RN, CRNI, OCN, CNSC, IgCN*  
 Skill 33.1 Administering Central Parenteral Nutrition, 864  
 Skill 33.2 Administering Peripheral Parenteral Nutrition With Lipid (Fat) Emulsion, 869

## UNIT 12

### Elimination

- 34 Urinary Elimination, 873**  
*Wendy R. Ostendorf, RN, MS, EdD, CNE*  
 Procedural Guideline 34.1 Assisting With Use of a Urinal, 875  
 Skill 34.1 Insertion of a Straight or an Indwelling Urinary Catheter, 876  
 Skill 34.2 Care and Removal of an Indwelling Catheter, 887  
 Procedural Guideline 34.2 Bladder Scan and Catheterization to Determine Residual Urine, 892  
 Skill 34.3 Performing Closed Urinary Catheter Irrigation, 893  
 Skill 34.4 Applying a Condom-Type External Catheter, 897  
 Skill 34.5 Suprapubic Catheter Care, 900