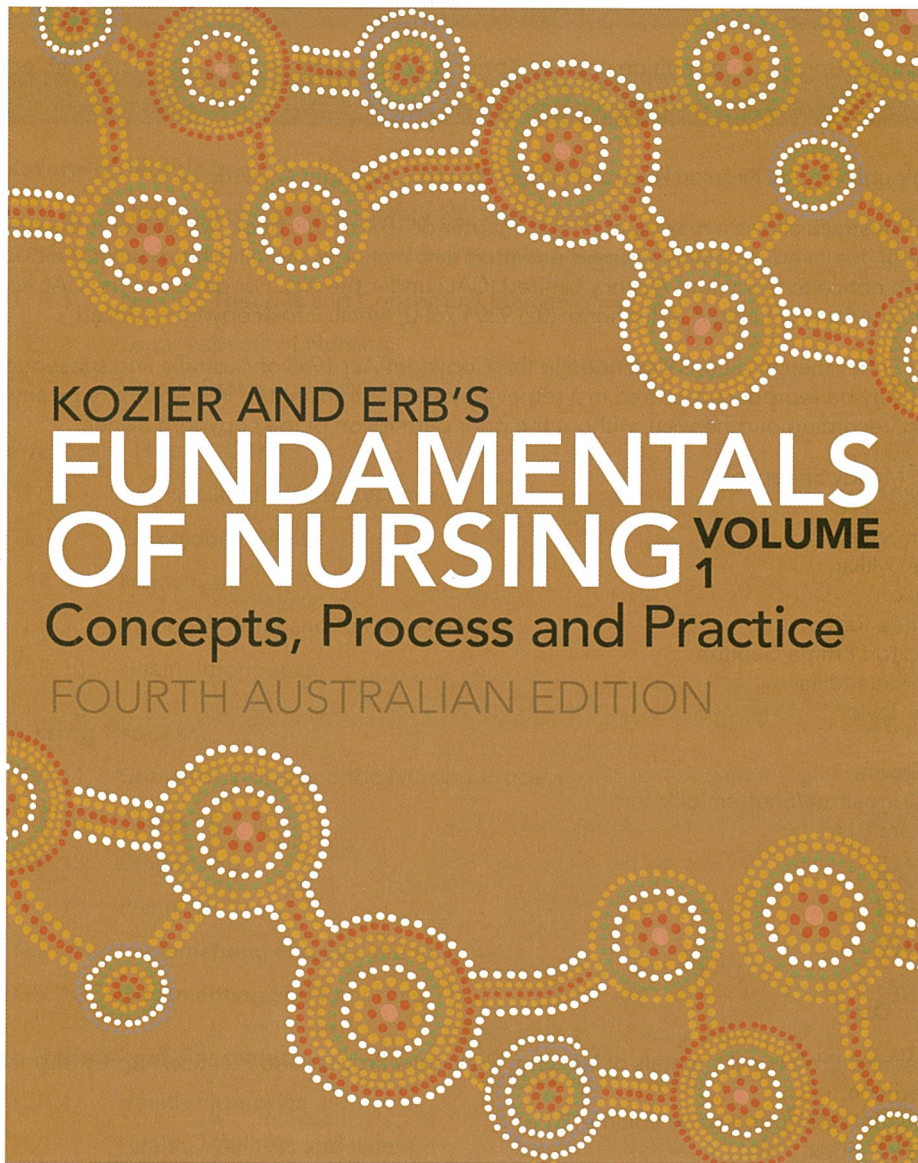


KOZIER AND ERB'S
FUNDAMENTALS
OF NURSING VOLUME
1
Concepts, Process and Practice
FOURTH AUSTRALIAN EDITION



KOZIER AND ERB'S
**FUNDAMENTALS
OF NURSING** **VOLUME**
1
Concepts, Process and Practice
FOURTH AUSTRALIAN EDITION

BERMAN SNYDER LEVETT-JONES DWYER HALES HARVEY
LANGTREE MOXHAM PARKER REID-SEARL STANLEY

Copyright © Pearson Australia (a division of Pearson Australia Group Pty Ltd) 2018

Pearson Australia
707 Collins Street
Melbourne VIC 3008

www.pearson.com.au

Authorised adaptation from the United States edition entitled *Kozier & Erb's Fundamentals of Nursing*, 10th edition, ISBN: 9780133974362 by Berman, Audrey T.; Snyder, Shirlee; Frandsen, Geryl, published by Pearson Education, Inc. Copyright © 2016 All rights reserved.

Fourth adaptation edition published by Pearson Australia Group Pty Ltd, Copyright © 2018.

The *Copyright Act 1968* of Australia allows a maximum of one chapter or 10% of this book, whichever is the greater, to be copied by any educational institution for its educational purposes provided that that educational institution (or the body that administers it) has given a remuneration notice to Copyright Agency Limited (CAL) under the Act. For details of the CAL licence for educational institutions contact: Copyright Agency Limited, telephone: (02) 9394 7600, email: info@copyright.com.au

All rights reserved. Except under the conditions described in the *Copyright Act 1968* of Australia and subsequent amendments, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owner.

Senior Portfolio Manager: Mandy Sheppard
Development Editor: Anna Carter
Project Manager: Bronwyn Smith
Production Manager: Katie Millar
Product Manager: Erin Nixon
Content Developer: Stephen Razos
Rights and Permissions Editor: Emma Gaulton
Lead Editor/Copy Editor: Katie Millar
Proofreader: Marie-Louise Taylor
Indexer: Mary Coe
Cover design by Natalie Bowra
Cover photograph from © irmairma/Shutterstock.com
Typeset by iEnergizer Aptara®, Ltd.

Printed in Malaysia (CTP-VVP)

1 2 3 4 5 22 21 20 19 18

National Library of Australia
Cataloguing-in-Publication Data

Title: Kozier and Erb's Fundamentals of Nursing: Concepts, Process and Practice/Audrey Berman [and ten others].
Edition: 4th edition.
ISBN: 9781488617409 (paperback: volume 1)
Notes: Includes index.
Subjects: Nursing—Australia—Textbooks.
Other Creators/
Contributors: Berman, Audrey, author.
Kozier, Barbara, author.
Erb, Glenora Lea, author.
Also Titled: Fundamentals of nursing.

Every effort has been made to trace and acknowledge copyright. However, should any infringement have occurred, the publishers tender their apologies and invite copyright owners to contact them.

Pearson Australia Group Pty Ltd ABN 40 004 245 943



BRIEF TABLE OF CONTENTS



VOLUME ONE

| | | |
|---------------|--|------------|
| UNIT 1 | The Nature of Nursing | 1 |
| | CHAPTER 1 Historical and Contemporary Nursing Practice | 2 |
| | CHAPTER 2 Nurse Education, Research and Evidence-based Practice | 23 |
| | CHAPTER 3 Nursing Theories and Conceptual Frameworks | 38 |
| | CHAPTER 4 Legal Aspects of Nursing | 55 |
| | CHAPTER 5 Values, Ethics and Advocacy | 88 |
| UNIT 2 | Contemporary Health Care | 107 |
| | CHAPTER 6 Health Care Delivery Systems | 108 |
| | CHAPTER 7 Community Health | 127 |
| | CHAPTER 8 Home Care | 141 |
| | CHAPTER 9 Regional, Rural and Remote Nursing | 157 |
| | CHAPTER 10 Health Informatics | 173 |
| UNIT 3 | The Nursing Process | 191 |
| | CHAPTER 11 Critical Thinking and the Nursing Process | 192 |
| | CHAPTER 12 Assessing | 204 |
| | CHAPTER 13 Diagnosing | 221 |
| | CHAPTER 14 Planning | 230 |
| | CHAPTER 15 Implementing and Evaluating | 244 |
| | CHAPTER 16 Documenting and Reporting | 258 |
| UNIT 4 | Health Beliefs and Practices | 279 |
| | CHAPTER 17 Health Promotion | 280 |
| | CHAPTER 18 Health, Wellness and Illness | 306 |
| | CHAPTER 19 Culture, Nursing and Indigenous Health | 323 |
| | CHAPTER 20 Complementary and Alternative Therapies | 348 |
| UNIT 5 | Lifespan Development | 365 |
| | CHAPTER 21 Concepts of Growth and Development | 366 |
| | CHAPTER 22 Promoting Health from Conception through to Adolescence | 385 |
| | CHAPTER 23 Promoting Health in Young and Middle-aged Adults | 413 |
| | CHAPTER 24 Promoting Health in Older Adults | 430 |
| | CHAPTER 25 Promoting Family Health | 455 |

VOLUME TWO

| | | |
|---------------|---|------------|
| UNIT 6 | Integral Aspects of Nursing | 469 |
| | CHAPTER 26 Caring | 470 |
| | CHAPTER 27 Communicating | 484 |
| | CHAPTER 28 Teaching and Learning | 516 |
| | CHAPTER 29 Leading and Managing | 541 |
| UNIT 7 | Assessing Health | 555 |
| | CHAPTER 30 Vital Signs | 556 |
| | CHAPTER 31 Health Assessment | 586 |
| UNIT 8 | Integral Components of Individualised Care | 669 |
| | CHAPTER 32 Infection Prevention and Control | 670 |
| | CHAPTER 33 Safety | 721 |
| | CHAPTER 34 Hygiene | 763 |
| | CHAPTER 35 Diagnostic Testing | 815 |
| | CHAPTER 36 Medications | 849 |
| | CHAPTER 37 Skin Integrity and Wound Care | 926 |
| | CHAPTER 38 Perioperative Nursing | 963 |

VOLUME THREE

| | | |
|----------------|---|-------------|
| UNIT 9 | Promoting Psychosocial Health | 1005 |
| | CHAPTER 39 Sensory Perception | 1006 |
| | CHAPTER 40 Self-concept | 1028 |
| | CHAPTER 41 Sexuality | 1044 |
| | CHAPTER 42 Spirituality | 1069 |
| | CHAPTER 43 Stress and Coping | 1089 |
| | CHAPTER 44 Loss, Grieving and Death | 1111 |
| | CHAPTER 45 Mental Health Nursing | 1135 |
| UNIT 10 | Promoting Physiological Health | 1161 |
| | CHAPTER 46 Activity and Exercise | 1162 |
| | CHAPTER 47 Sleep | 1219 |
| | CHAPTER 48 Pain Management | 1243 |
| | CHAPTER 49 Nutrition | 1286 |
| | CHAPTER 50 Urinary Elimination | 1339 |
| | CHAPTER 51 Faecal Elimination | 1384 |
| | CHAPTER 52 Oxygenation | 1421 |
| | CHAPTER 53 Circulation | 1467 |
| | CHAPTER 54 Fluid, Electrolyte and Acid–Base Balance | 1491 |

TABLE OF CONTENTS

| | | | |
|--|-------|---|-----------|
| About the Authors | xiii | Reporting Crimes, Torts and Unsafe Practices | 83 |
| About the Australian Authors | xv | Legal Responsibilities of Students | 83 |
| Preface | xviii | 5 Values, Ethics and Advocacy | 88 |
| Our Core Philosophies | xx | Attitudes | 89 |
| Features | xxii | Beliefs | 89 |
| Educator Resources | xxv | Values | 89 |
| Contributors | xxvii | Morals | 93 |
| References | xxxi | Ethics | 94 |
| Mapping to the NMBA <i>Registered Nurse Standards for Practice</i> | xxxii | Nursing Ethics | 95 |
| | | Specific Ethical Issues | 99 |
| | | Advocacy | 102 |
| VOLUME ONE | | UNIT 2 Contemporary Health Care 107 | |
| UNIT 1 The Nature of Nursing 1 | | 6 Health Care Delivery Systems 108 | |
| 1 Historical and Contemporary Nursing Practice | 2 | Types of Health Care Services | 109 |
| Historical Perspectives | 3 | Types of Health Care Agencies and Services | 110 |
| Contemporary Nursing Practice | 9 | Providers of Health Care | 115 |
| Roles and Functions of the Nurse | 13 | Factors Affecting Health Care Delivery | 117 |
| Criteria of a Profession | 14 | The Australian Health System | 118 |
| Socialisation to Nursing | 16 | Frameworks for Care | 120 |
| Factors Influencing Contemporary Nursing Practice | 17 | Financing Health Care | 122 |
| Nursing Organisations | 19 | 7 Community Health 127 | |
| 2 Nurse Education, Research and Evidence-based Practice | 23 | Health Care Reform | 128 |
| Nurse Education | 25 | Community-based Health Care | 132 |
| Types of Education Programs | 26 | Community Health | 132 |
| Nursing Research and Evidence-based Practice | 29 | Community Health and Primary Health Care | 134 |
| Critiquing Research | 35 | Community-based Nursing | 138 |
| 3 Nursing Theories and Conceptual Frameworks | 38 | 8 Home Care 141 | |
| Introduction to Theories | 39 | Home Health Nursing | 143 |
| The Metaparadigm for Nursing | 40 | The Home Health Care System in Australia | 144 |
| Purposes of Nursing Theory | 41 | Roles of the Home Health Nurse | 148 |
| Overview of Selected Nursing Theories | 42 | Perspectives of Home Care | 148 |
| Nursing Theorists in Australia | 51 | Selected Dimensions of Home Health Nursing | 149 |
| Critique of Nursing Theory | 51 | Nurse Safety | 150 |
| 4 Legal Aspects of Nursing | 55 | The Practice of Nursing in the Home | 152 |
| Legal Aspects of Nursing | 56 | The Future of Home Health Care | 153 |
| General Legal Concepts | 56 | 9 Regional, Rural and Remote Nursing 157 | |
| Regulation of Nursing Practice | 64 | Overview | 158 |
| Contractual Arrangements in Nursing | 67 | What is Regional, Rural and Remote Nursing? | 160 |
| Selected Legal Aspects of Nursing Practice | 71 | The Regional, Rural and Remote Nursing Workforce | 160 |
| Areas of Potential Liability in Nursing | 77 | Primary Health Care | 162 |
| Legal Protections in Nursing Practice | 81 | The Health of Regional, Rural and Remote Australia | 163 |
| | | Access to Health Services in Regional, Rural and Remote Areas | 164 |

| | | | |
|---|------------|---|------------|
| Indigenous Health and Indigenous Communities in Regional, Rural and Remote Australia | 165 | Health Promotion Model | 287 |
| Challenges of Distance in Health | 166 | Stages of Health Behaviour Change | 289 |
| 10 Health Informatics | 173 | The Nurse's Role in Health Promotion | 291 |
| Health Informatics | 174 | NURSING MANAGEMENT | 294 |
| Health Information | 179 | 18 Health, Wellness and Illness | 306 |
| Technology in Nursing and Midwifery Practice | 180 | Concepts of Health, Wellness and Wellbeing | 307 |
| Computers in Nursing and Midwifery | 183 | Models of Health and Wellness | 309 |
| Education | 183 | Variables Influencing Health Status, Beliefs and Practices | 312 |
| Computers in Administration | 185 | Health Belief Models | 315 |
| Computers in Nursing and Midwifery Research | 186 | Health Care Concordance | 316 |
| The Future: Technology and Health Care | 186 | Illness and Disease | 317 |
| UNIT 3 The Nursing Process | 191 | 19 Culture, Nursing and Indigenous Health | 323 |
| 11 Critical Thinking and the Nursing Process | 192 | National Organisations and Trends | 324 |
| Critical Thinking Uses | 193 | Cultural Nursing Care | 326 |
| Skills in Critical Thinking | 194 | Concepts Related to Cultural Nursing Care | 327 |
| Attitudes for Critical Thinking | 195 | Heritage Consistency | 328 |
| Applying Critical Thinking to Nursing Practice | 196 | Selected Parameters for Cultural Nursing Care | 330 |
| Developing Critical-thinking Skills | 200 | Indigenous Australian Health Issues | 335 |
| 12 Assessing | 204 | Providing Cultural Nursing Care | 340 |
| Overview of the Nursing Process | 205 | NURSING MANAGEMENT | 340 |
| Assessing | 209 | 20 Complementary and Alternative Therapies | 348 |
| 13 Diagnosing | 221 | Basic Concepts | 349 |
| Nursing Diagnoses | 222 | Ethnocentrism | 350 |
| The Diagnostic Process | 224 | UNIT 5 Lifespan Development | 365 |
| 14 Planning | 230 | 21 Concepts of Growth and Development | 366 |
| Introduction to Care Planning | 231 | Factors Influencing Growth and Development | 367 |
| Types of Care Planning | 231 | Stages of Growth and Development | 369 |
| Developing Nursing Care Plans | 232 | Growth and Development Theories | 370 |
| The Planning Process | 235 | Applying Growth and Development Concepts to Nursing Practice | 382 |
| Concept Map: Amanda Szirom | 240 | 22 Promoting Health from Conception through to Adolescence | 385 |
| 15 Implementing and Evaluating | 244 | Conception and Prenatal Development | 386 |
| Implementing | 245 | Neonates and Infants (Birth to 1 Year) | 387 |
| Evaluating | 248 | Toddlers (1 to 3 Years) | 393 |
| 16 Documenting and Reporting | 258 | Preschoolers (4 and 5 Years) | 398 |
| Ethical and Legal Considerations | 259 | School-age Children (6 to 12 Years) | 401 |
| Purposes of Patient Records | 259 | Adolescents (12 to 18 Years) | 404 |
| Documentation Systems | 260 | 23 Promoting Health in Young and Middle-aged Adults | 413 |
| Documenting Nursing Activities | 268 | Young Adults (20 to 40 Years) | 414 |
| Documentation in Residential Aged Care Facilities | 270 | Middle-aged Adults (40 to 65 Years) | 421 |
| Home Care Documentation | 270 | 24 Promoting Health in Older Adults | 430 |
| General Guidelines for Recording | 271 | Characteristics of Older Adults in Australia | 431 |
| Reporting | 274 | Attitudes Towards Ageing | 432 |
| UNIT 4 Health Beliefs and Practices | 279 | Gerontological Nursing | 433 |
| 17 Health Promotion | 280 | Care Settings for Older People | 435 |
| Individual Health | 281 | Physiological Ageing | 437 |
| Applying Theoretical Frameworks | 282 | Psychosocial Ageing | 443 |
| Defining Health Promotion | 285 | Cognitive Abilities and Ageing | 445 |
| Sites for Health Promotion Activities | 286 | | |

| | | | |
|---|-----|---|-----|
| Moral Reasoning | 445 | The Integumentary System | 599 |
| Spirituality and Ageing | 446 | SKILL 31.2 ASSESSING THE SKIN | 602 |
| Health Problems | 446 | SKILL 31.3 ASSESSING THE HAIR | 604 |
| Health Assessment and Promotion | 449 | SKILL 31.4 ASSESSING THE NAILS | 606 |
| 25 Promoting Family Health | 455 | The Head | 607 |
| Family Health | 456 | SKILL 31.5 ASSESSING THE SKULL AND FACE | 608 |
| Applying Theoretical Frameworks to Families | 459 | SKILL 31.6 ASSESSING THE EYE STRUCTURES AND VISUAL ACUITY | 610 |
| NURSING MANAGEMENT | 460 | SKILL 31.7 ASSESSING THE EARS AND HEARING | 615 |
| VOLUME TWO | | Upper Airways | 617 |
| UNIT 6 Integral Aspects of Nursing | | SKILL 31.8 ASSESSING THE NOSE AND SINUSES | 618 |
| 26 Caring | 470 | SKILL 31.9 ASSESSING THE MOUTH AND OROPHARYNX | 620 |
| Professionalisation of Caring | 471 | The Neck | 622 |
| Nursing Theories on Caring | 471 | SKILL 31.10 ASSESSING THE NECK | 624 |
| Types of Knowledge in Nursing | 474 | Lower Airways | 625 |
| Caring Encounters | 475 | SKILL 31.11 ASSESSING THE THORAX AND LUNGS | 629 |
| Maintaining Caring Practice | 477 | The Cardiovascular and Peripheral Vascular Systems | 631 |
| 27 Communicating | 484 | SKILL 31.12 ASSESSING THE HEART AND CENTRAL VESSELS | 634 |
| Communicating | 485 | SKILL 31.13 ASSESSING THE PERIPHERAL VASCULAR SYSTEM | 636 |
| Therapeutic Relationships | 499 | The Breasts and Axillae | 638 |
| Communication and the Nursing Process | 503 | SKILL 31.14 ASSESSING THE BREASTS AND AXILLAE | 639 |
| NURSING MANAGEMENT | 503 | The Abdomen | 642 |
| Group and Team Communication | 507 | SKILL 31.15 ASSESSING THE ABDOMEN | 643 |
| Communication with Colleagues | 508 | The Musculoskeletal System | 647 |
| 28 Teaching and Learning | 516 | SKILL 31.16 ASSESSING THE MUSCULOSKELETAL SYSTEM | 647 |
| Teaching | 517 | The Neurological System | 651 |
| Learning | 520 | SKILL 31.17 ASSESSING THE NEUROLOGICAL SYSTEM | 654 |
| The Internet and Health Information | 525 | The Female Genitals and Inguinal Area | 659 |
| Nurse as Educator | 525 | SKILL 31.18 ASSESSING THE FEMALE GENITALS AND INGUINAL AREA | 659 |
| NURSING MANAGEMENT | 525 | The Male Genitals and Inguinal Area | 662 |
| 29 Leading and Managing | 541 | SKILL 31.19 ASSESSING THE MALE GENITALS AND INGUINAL AREA | 662 |
| The Nurse as Leader and Manager | 542 | The Rectum and Anus | 665 |
| Global Leadership and Policy | 542 | SKILL 31.20 ASSESSING THE RECTUM AND ANUS | 665 |
| Leadership | 543 | UNIT 8 Integral Components of Individualised Care | |
| Management | 546 | 32 Infection Prevention and Control | 670 |
| Cultural Diversity | 549 | Micro-organisms | 671 |
| Clinical Governance | 549 | Pathogens: Colonisation and Infection | 671 |
| Change and the Nurse Manager | 549 | Types of Infection | 673 |
| UNIT 7 Assessing Health | | Chain of Infection | 673 |
| 30 Vital Signs | 556 | Body Defences Against Infection | 676 |
| Respiration | 559 | Types of Specific Immunity | 678 |
| Oxygen Saturation | 562 | Factors Increasing Susceptibility to Infection | 678 |
| Blood Pressure | 563 | Infection Control and Health Care | 684 |
| Pulse or Heart Rate | 568 | Standard Precautions | 685 |
| Body Temperature | 572 | SKILL 32.1 HAND WASHING TECHNIQUE | 687 |
| 31 Health Assessment | 586 | SKILL 32.2 DONNING AND REMOVING PERSONAL PROTECTIVE EQUIPMENT (GLOVES, GOWN, MASK, EYEWEAR) | 690 |
| Physical Health Assessment | 587 | Asepsis and Aseptic Technique | 693 |
| General Assessment | 594 | Transmission-based Precautions | 697 |
| SKILL 31.1 ASSESSING APPEARANCE AND MENTAL STATUS | 595 | Health-care-associated Infections | 697 |
| | | NURSING MANAGEMENT | 704 |
| | | SKILL 32.3 ESTABLISHING AND MAINTAINING A CRITICAL ASEPTIC FIELD | 706 |





| | | | |
|---|------------|--|------------|
| SKILL 32.4 DONNING AND REMOVING STERILE GLOVES (OPEN METHOD) | 711 | 36 Medications | 849 |
| SKILL 32.5 DONNING A STERILE GOWN AND GLOVES (CLOSED METHOD) | 712 | Drug Standards | 850 |
| Infection Control for Health Care Workers | 715 | Legal Aspects of Drug Administration | 850 |
| Role of the Infection-control Nurse | 715 | Effects of Drugs | 852 |
| 33 Safety | 721 | Drug Misuse | 854 |
| National Safety and Quality Health Service | 722 | Actions of Drugs on the Body | 854 |
| Factors Affecting Safety | 723 | Factors Affecting Medication Action | 856 |
| Aboriginal and Torres Strait Islander Health | 729 | Routes of Administration | 858 |
| NURSING MANAGEMENT | 730 | Medication Orders | 860 |
| SKILL 33.1 USING A BED OR CHAIR EXIT SAFETY MONITORING DEVICE | 741 | Systems of Measurement | 865 |
| SKILL 33.2 IMPLEMENTING SEIZURE PRECAUTIONS | 743 | Administering Medications Safely | 869 |
| SKILL 33.3 APPLYING RESTRAINTS | 756 | Oral Medications | 875 |
| 34 Hygiene | 763 | SKILL 36.1 ADMINISTERING ORAL MEDICATIONS | 875 |
| Hygiene Care | 764 | Nasogastric and Gastrostomy Medications | 879 |
| Skin | 764 | Parenteral Medications | 880 |
| NURSING MANAGEMENT | 765 | SKILL 36.2 PREPARING MEDICATIONS FROM AMPOULES | 886 |
| SKILL 34.1 BATHING AN ADULT, CHILD OR YOUNG PERSON | 769 | SKILL 36.3 PREPARING MEDICATIONS FROM VIALS | 887 |
| SKILL 34.2 PROVIDING PERINEAL-GENITAL CARE | 776 | SKILL 36.4 MIXING MEDICATIONS USING ONE SYRINGE | 888 |
| Feet | 778 | SKILL 36.5 ADMINISTERING AN INTRADERMAL INJECTION FOR SKIN TESTS | 890 |
| NURSING MANAGEMENT | 779 | SKILL 36.6 ADMINISTERING A SUBCUTANEOUS INJECTION | 893 |
| SKILL 34.3 PROVIDING FOOT CARE | 782 | SKILL 36.7 ADMINISTERING AN INTRAMUSCULAR INJECTION | 899 |
| Nails | 783 | SKILL 36.8 ADDING MEDICATIONS TO INTRAVENOUS FLUID CONTAINERS | 902 |
| NURSING MANAGEMENT | 783 | SKILL 36.9 ADMINISTERING INTRAVENOUS MEDICATIONS USING IV PUSH | 906 |
| Mouth | 784 | Topical Medications | 910 |
| NURSING MANAGEMENT | 785 | Ophthalmic Medications | 911 |
| SKILL 34.4 BRUSHING AND FLOSSING THE TEETH | 788 | SKILL 36.10 ADMINISTERING OPHTHALMIC INSTILLATIONS | 911 |
| SKILL 34.5 PROVIDING SPECIAL ORAL CARE FOR THE UNCONSCIOUS PERSON | 792 | Otic Medications | 914 |
| Hair | 794 | SKILL 36.11 ADMINISTERING OTIC INSTILLATIONS | 914 |
| NURSING MANAGEMENT | 794 | Nasal Medications | 916 |
| SKILL 34.6 PROVIDING HAIR CARE | 796 | Vaginal Medications | 917 |
| SKILL 34.7 SHAMPOOING THE HAIR OF A PERSON CONFINED TO BED | 798 | SKILL 36.12 ADMINISTERING VAGINAL INSTILLATIONS | 917 |
| Eyes | 800 | Rectal Medications | 919 |
| NURSING MANAGEMENT | 800 | Respiratory Inhalation | 920 |
| Ears | 802 | Irrigations | 922 |
| SKILL 34.8 REMOVING, CLEANING AND INSERTING A HEARING AID | 803 | 37 Skin Integrity and Wound Care | 926 |
| Nose | 804 | Skin Integrity | 927 |
| Supporting a Hygienic Environment | 804 | Types of Wounds | 927 |
| Making Beds | 806 | Pressure Ulcers | 928 |
| SKILL 34.9 CHANGING AN UNOCCUPIED BED | 807 | Wound Healing | 932 |
| SKILL 34.10 CHANGING AN OCCUPIED BED | 810 | NURSING MANAGEMENT | 935 |
| 35 Diagnostic Testing | 815 | SKILL 37.1 OBTAINING A WOUND DRAINAGE SPECIMEN FOR CULTURE | 938 |
| Diagnostic Testing Phases | 816 | SKILL 37.2 IRRIGATING A WOUND | 949 |
| Blood Tests | 816 | 38 Perioperative Nursing | 963 |
| SKILL 35.1 OBTAINING A CAPILLARY BLOOD SPECIMEN TO MEASURE BLOOD GLUCOSE | 825 | The Perioperative Workforce | 964 |
| Specimen Collection | 828 | Standards and Guidelines | 964 |
| SKILL 35.2 COLLECTING A URINE SAMPLE FOR CULTURE AND SENSITIVITY BY MIDSTREAM SPECIMEN OF URINE (MSU) | 831 | Types of Surgery | 965 |
| Visualisation Procedures | 836 | The Surgical Pathway | 967 |
| Aspiration/Biopsy | 839 | Preoperative Phase | 967 |
| | | NURSING MANAGEMENT | 968 |
| | | SKILL 38.1 TEACHING MOVING, LEG EXERCISES, DEEP BREATHING AND COUGHING | 970 |
| | | SKILL 38.2 APPLYING ANTI-EMBOLIC STOCKINGS | 977 |



| | |
|--|-----|
| Intraoperative Phase | 978 |
| NURSING MANAGEMENT | 980 |
| Postoperative Phase | 980 |
| NURSING MANAGEMENT | 982 |
| SKILL 38.3 MANAGING GASTROINTESTINAL SUCTION | 989 |
| SKILL 38.4 CLEANING A SUTURED WOUND AND APPLYING A STERILE DRESSING | 994 |

VOLUME THREE

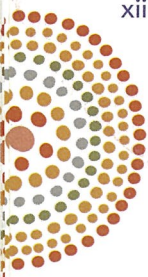
UNIT 9 Promoting Psychosocial Health 1005

| | |
|--|------|
| 39 Sensory Perception | 1006 |
| Components of the Sensory Experience | 1007 |
| Factors Affecting Sensory Function | 1008 |
| Sensory Alterations | 1009 |
| NURSING MANAGEMENT | 1010 |
| 40 Self-concept | 1028 |
| Self-concept | 1029 |
| Formation of Self-concept | 1030 |
| Components of Self-concept | 1031 |
| Factors that Affect Self-concept | 1033 |
| NURSING MANAGEMENT | 1034 |
| 41 Sexuality | 1044 |
| Development of Sexuality | 1045 |
| Sexual Health | 1049 |
| Varieties of Sexuality | 1050 |
| Factors Influencing Sexuality | 1052 |
| Sexual Response Cycle | 1053 |
| Altered Sexual Function | 1054 |
| NURSING MANAGEMENT | 1058 |
| 42 Spirituality | 1069 |
| Spirituality and Religion Contrasted | 1070 |
| Spiritual Needs | 1071 |
| Spiritual Wellbeing | 1072 |
| Spiritual Distress | 1072 |
| Related Concepts | 1073 |
| Spiritual Development | 1073 |
| Spiritual Self-awareness for the Nurse | 1073 |
| Spiritual Practices Affecting Nursing Care | 1073 |
| Spiritual Health and the Nursing Process | 1077 |
| NURSING MANAGEMENT | 1078 |
| 43 Stress and Coping | 1089 |
| Concept of Stress | 1090 |
| Sources of Stress | 1090 |
| Effects of Stress | 1090 |
| Models of Stress | 1091 |
| Indicators of Stress | 1093 |
| Coping | 1097 |
| NURSING MANAGEMENT | 1099 |
| 44 Loss, Grieving and Death | 1111 |
| Loss and Grief | 1112 |
| NURSING MANAGEMENT | 1118 |

| | |
|-------------------------------------|------|
| Dying and Death | 1121 |
| NURSING MANAGEMENT | 1125 |
| 45 Mental Health Nursing | 1135 |
| Holistic Mental Health Care | 1136 |
| Mental Health and Mental Illness | 1136 |
| The Role of the Mental Health Nurse | 1142 |
| Mental Health Nursing in Practice | 1142 |
| Mental Health Legislation | 1143 |
| Mental State Assessment (MSA) | 1145 |
| Types of Mental Illness | 1147 |
| Suicide | 1151 |
| Treatments in Mental Health | 1153 |
| Mental Health Care Models | 1155 |
| Mental Health Care Policy | 1157 |
| Recovery vs Rehabilitation | 1158 |

UNIT 10 Promoting Physiological Health 1161

| | |
|---|------|
| 46 Activity and Exercise | 1162 |
| Normal Movement | 1165 |
| Exercise | 1171 |
| Factors Affecting Body Alignment and Activity | 1175 |
| Effects of Immobility | 1178 |
| NURSING MANAGEMENT | 1182 |
| SKILL 46.1 PERSON-ASSISTED BED SLIDE: ONE NURSE | 1197 |
| SKILL 46.2 PERSON-ASSISTED BED SLIDE: TWO NURSES | 1198 |
| SKILL 46.3 PERSON-ASSISTED LATERAL SHIFT AND ROLL: TWO NURSES | 1198 |
| SKILL 46.4 LOGROLLING: TWO TO FOUR NURSES | 1199 |
| SKILL 46.5 PERSON-ASSISTED BED TO CHAIR SLIDE: ONE OR TWO NURSES | 1199 |
| SKILL 46.6 BED TO CHAIR (4-POINT FRAME): TWO NURSES | 1200 |
| SKILL 46.7 ASSISTING THE PERSON TO SIT ON THE SIDE OF THE BED | 1200 |
| SKILL 46.8 ASSISTING THE PERSON TO AMBULATE | 1205 |
| 47 Sleep | 1219 |
| Physiology of Sleep | 1220 |
| Functions of Sleep | 1222 |
| Normal Sleep Patterns and Requirements | 1222 |
| Factors Affecting Sleep | 1226 |
| Common Sleep Disorders | 1228 |
| NURSING MANAGEMENT | 1230 |
| 48 Pain Management | 1243 |
| The Nature of Pain | 1244 |
| Physiology of Pain | 1247 |
| NURSING MANAGEMENT | 1253 |
| SKILL 48.1 PROVIDING A BACK MASSAGE | 1276 |
| 49 Nutrition | 1286 |
| Essential Nutrients | 1287 |
| Energy Balance | 1290 |
| Body Weight and Body Mass Standards | 1292 |
| Factors Affecting Nutrition | 1293 |
| Nutritional Variations Throughout the Life Cycle | 1299 |
| Standards for a Healthy Diet | 1303 |



| | | | |
|---|-------------|---|-------------|
| Altered Nutrition | 1309 | SKILL 52.1 ADMINISTERING OXYGEN BY CANNULA, FACE MASK, NON-REBREATHER MASK OR FACE TENT | 1442 |
| NURSING MANAGEMENT | 1310 | SKILL 52.2 PROVIDING TRACHEOSTOMY CARE | 1448 |
| SKILL 49.1 INSERTING A NASOGASTRIC TUBE | 1322 | SKILL 52.3 OROPHARYNGEAL AND NASOPHARYNGEAL SUCTIONING | 1452 |
| SKILL 49.2 REMOVING A NASOGASTRIC TUBE | 1325 | SKILL 52.4 SUCTIONING A TRACHEOSTOMY OR ENDOTRACHEAL TUBE | 1455 |
| SKILL 49.3 ADMINISTERING A TUBE FEEDING | 1328 | | |
| SKILL 49.4 ADMINISTERING A GASTROSTOMY OR JEJUNOSTOMY FEEDING | 1330 | | |
| 50 Urinary Elimination | 1339 | 53 Circulation | 1467 |
| Physiology of Urinary Elimination | 1340 | Physiology of the Cardiovascular System | 1468 |
| Factors Affecting Voiding | 1343 | Lifespan Considerations | 1473 |
| Altered Urine Production | 1346 | Factors Affecting Cardiovascular Function | 1474 |
| Altered Urinary Elimination | 1347 | Alterations in Cardiovascular Function | 1477 |
| NURSING MANAGEMENT | 1349 | NURSING MANAGEMENT | 1480 |
| SKILL 50.1 DIPSTICK URINALYSIS | 1352 | SKILL 53.1 SEQUENTIAL COMPRESSION DEVICES | 1484 |
| SKILL 50.2 APPLYING AN EXTERNAL URINARY SHEATH | 1361 | 54 Fluid, Electrolyte and Acid–Base Balance | 1491 |
| SKILL 50.3 PERFORMING URINARY CATHETERISATION | 1366 | Body Fluids and Electrolytes | 1492 |
| SKILL 50.4 PERFORMING BLADDER IRRIGATION | 1374 | Acid–Base Balance | 1500 |
| | | Factors Affecting Body Fluid, Electrolytes and Acid–Base Balance | 1501 |
| 51 Faecal Elimination | 1384 | Disturbances in Fluid Volume, Electrolyte and Acid–Base Balances | 1503 |
| The Digestive System | 1385 | NURSING MANAGEMENT | 1513 |
| Physiology of Defecation | 1386 | SKILL 54.1 STARTING AN INTRAVENOUS INFUSION | 1530 |
| Factors that Affect Defecation | 1389 | SKILL 54.2 MONITORING AN INTRAVENOUS INFUSION | 1536 |
| Faecal Elimination Problems | 1391 | SKILL 54.3 CHANGING AN INTRAVENOUS CONTAINER, TUBING AND DRESSING | 1538 |
| NURSING MANAGEMENT | 1396 | SKILL 54.4 DISCONTINUING AN INTRAVENOUS INFUSION | 1540 |
| SKILL 51.1 ADMINISTERING AN ENEMA | 1405 | SKILL 54.5 CHANGING AN INTRAVENOUS CANNULA TO AN INTERMITTENT INFUSION LOCK | 1541 |
| Bowel Diversion Ostomies | 1408 | SKILL 54.6 INITIATING, MAINTAINING AND TERMINATING A BLOOD TRANSFUSION | 1545 |
| SKILL 51.2 CHANGING A BOWEL DIVERSION STOMA APPLIANCE | 1413 | | |
| | | | |
| 52 Oxygenation | 1421 | Glossary | G-1 |
| Structure and Function of the Respiratory System | 1422 | Index | I-1 |
| Respiratory Regulation | 1426 | | |
| Factors Affecting Respiratory Function | 1426 | | |
| Alteratons in Respiratory Function | 1428 | | |
| NURSING MANAGEMENT | 1429 | | |

ABOUT THE AUTHORS

● AUDREY BERMAN PHD, RN

A San Francisco Bay Area native, Audrey Berman received her BSN from the University of California–San Francisco, and later returned to that campus to obtain her MS in physiological nursing and her PhD in nursing. Her dissertation was entitled *Sailing a Course Through Chemotherapy: The Experience of Women with Breast Cancer*. She worked in oncology at Samuel Merritt Hospital prior to beginning her teaching career in the diploma program at Samuel Merritt Hospital School of Nursing in 1976. As a faculty member, she participated in the transition of that program into a baccalaureate degree and in the development of the Master of Science and Doctor of Nursing Practice programs. Over the years, she has taught a variety of medical–surgical nursing courses in the pre-licensure programs. She currently serves as the Dean of Nursing at Samuel Merritt University. She was the 2014–16 president of the California Association of Colleges of Nursing.



Dr Berman has travelled extensively, visiting nursing and health care institutions in Australia, Botswana, Brazil, Germany, Israel, Japan, Korea, the Philippines, the former Soviet Union and Spain. She serves on the board of directors for the Bay Area Tumor Institute and the East Bay American Heart Association. She is a member of the American Nurses Association and Sigma Theta Tau, and is a site visitor for the Commission on Collegiate Nursing Education. She has twice participated as an NCLEX-RN item writer for the National Council of State Boards of Nursing. She has presented locally, nationally and internationally on topics related to nursing education, breast cancer and technology in health care.

Dr Berman authored the scripts for more than 35 nursing skills videotapes in the 1990s. She was a co-author of the sixth, seventh, eighth, ninth and tenth editions of *Fundamentals of Nursing* and the fifth, sixth, seventh and eighth editions of *Skills in Clinical Nursing*.

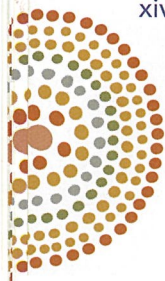
● SHIRLEE J. SNYDER EDD, RN

Shirlee J. Snyder graduated from Columbia Hospital School of Nursing in Milwaukee, Wisconsin, and subsequently received a Bachelor of Science in nursing from the University of Wisconsin–Milwaukee. Because of an interest in cardiac nursing and teaching, she earned a Master of Science in nursing with a minor in cardiovascular clinical specialist and teaching from the University of Alabama in Birmingham. A move to California resulted in her becoming a faculty member at Samuel Merritt Hospital School of Nursing in Oakland, California. Shirlee was fortunate to be involved in the phasing out of the diploma and ADN programs and development of a baccalaureate intercollegiate nursing program. She held numerous positions during her 15-year tenure at Samuel Merritt College, including curriculum coordinator, assistant director–instruction, Dean of Instruction and Associate Dean of the Intercollegiate Nursing Program. She is an associate professor alumnus at Samuel Merritt College. Her interest and experiences in nursing education resulted in Shirlee obtaining a doctorate of education focused on curriculum and instruction from the University of San Francisco.



Dr Snyder moved to Portland, Oregon, in 1990 and taught in the ADN program at Portland Community College for 8 years. During this teaching experience, she presented locally and nationally on topics related to using multimedia in the classroom and promoting ethnic and minority student success.

Another career opportunity in 1998 led her to the Community College of Southern Nevada in Las Vegas, Nevada, where Dr Snyder was the nursing program director with responsibilities for the associate degree and practical nursing programs for 5 years. During this time she co-authored the fifth edition of *Kozier & Erb's Techniques in Clinical Nursing* with Audrey Berman.



In 2003, Dr Snyder returned to baccalaureate nursing education. She embraced the opportunity to be one of the nursing faculty, teaching the first nursing class in the baccalaureate nursing program at the first state college in Nevada, which opened in 2002. From 2008 to 2012, she was Dean of the School of Nursing at Nevada State College in Henderson, Nevada. She is currently retired.

Dr Snyder enjoyed travelling to the Philippines (Manila and Cebu) in 2009 to present all-day seminars to approximately 5000 nursing students and 200 nursing faculty. She is a member of the American Nurses Association and Sigma Theta Tau. She has been a site visitor for the National League for Nursing Accrediting Commission and the Northwest Association of Schools and Colleges.

● **GERALYN FRANSDEN, EDD, RN**



Geralyn Frandsen graduated in the last class from DePaul Hospital School of Nursing in St Louis, Missouri. She earned a Bachelor of Science in nursing from Maryville College. She attended Southern Illinois University at Edwardsville, earning a Master of Science in nursing with specialisations in community health and nursing education. Upon completion, she accepted a faculty position at her alma mater, Maryville College, which has since been renamed Maryville University. In 2003 she completed her doctorate in higher education and leadership at Saint Louis University. Her dissertation was *Mentoring Nursing Faculty in Higher Education*. Her review of literature was incorporated in the *Maryville University Guide to Promotion and Tenure*.

In service to the university, she has been a member and chair of the promotion and tenure committee for the past 10 years. She is a tenured full professor and currently serves as Assistant Director of the Catherine McCauley School of Nursing at Maryville. When educating undergraduate and graduate students, she utilises a variety of teaching strategies to engage her students. When teaching undergraduate pharmacology, she utilises a team teaching approach, placing students in groups to review content. Each student is also required to bring a completed ticket to class covering the content to be taught. The practice of bringing a ticket to class was introduced to her by Dr Em Bevis, who is famous for *Toward a Caring Curriculum*.

Dr Frandsen has authored textbooks in pharmacology and nursing fundamentals. In the ninth edition of *Kozier & Erb's Fundamentals of Nursing*, she contributed the chapters on *Safety, Diagnostic, Testing, Medications Perioperative Nursing* and *Faecal Elimination*. In 2013, she was the fundamentals contributor for *Ready Point* and *My Nursing Lab*. This is an online resource to assist students in reviewing content in their nursing fundamentals course. She has authored both *Nursing Fundamentals: Pearson Reviews and Rationales* and, in 2007, *Pharmacology Reviews and Rationales*.

Dr Frandsen has completed the End-of-Life Nursing Education Consortium train-the-trainer courses for advanced practice nurses and the Doctorate of Nursing Practice. She is passionate about end-of-life care and teaches a course to her undergraduate students. She also teaches undergraduate pharmacology and advanced pharmacotherapeutics. Her advanced pharmacotherapeutics class is taught at the university and online. Dr Frandsen is a member of Sigma Theta Tau International and the American Nurses Association, and serves as a site visitor for the Commission on Collegiate Nursing Education.

ABOUT THE AUSTRALIAN AUTHORS

The authors listed below are the Unit coordinators for the fourth Australian edition of *Kozier and Erb's Fundamentals of Nursing*. For a complete list of contributors, see pages xxvii–xxx.

● **TRACY LEVETT-JONES, RN, PHD, MED & WORK, BN, DIPAPPSC (NURSING)**

Professor Tracy Levett-Jones is the Professor of Nursing Education in the Faculty of Health at the University of Technology Sydney. Her research interests include the phenomenon of 'belongingness', interprofessional education, empathy, clinical reasoning, simulation, cultural competence and patient safety. Tracy's doctoral research explored the clinical learning experiences of students in Australia and the UK. She has a broad clinical background and, prior to her academic career, worked as a women's health nurse, nurse educator and nurse manager. Tracy has authored over 150 books and peer-reviewed journal publications, and she has been awarded 10 national teaching and learning awards.



● **TRUDY DWYER, RN, ICUNSGCERT, BHLTHSCN (NSG), GRAD CERT FLEXLEARN, MCLINEDU, PHD**

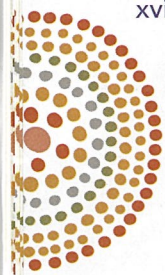
Associate Professor Trudy Dwyer has a PhD and is a nursing research academic at CQUniversity Australia. She has extensive experience in teaching and learning with both undergraduate and postgraduate research higher-degree students. Research interests include recognition and responding to the deteriorating patient, patient safety and quality, nurse-led models of care, simulation and knowledge translation. She has authored numerous books, book chapters and peer-reviewed journal articles, and is a principal author of five books in the Student Survival Guide series published by Pearson Australia; one has sold over 72 000 copies.



● **MAJELLA HALES, RN, BN, GRAD CERT HE, MAPP SCI**

Majella Hales has taught in the tertiary education sector for many years. She is currently a casual lecturer and facilitator at Australian Catholic University in Brisbane, teaching bioscience to undergraduate health science students. She is a co-founder of Sciencopia, a company that produces novel and unique educational resources for students of health science. After completing her hospital training, she undertook a post-registration Bachelor of Nursing, Masters of Applied Science (Research), and a Graduate Certificate in Higher Education. Majella is passionate about developing print and digital, and 3D printed resources to assist teaching and learning, especially in relation to complex content. She has extensive experience in emergency and intensive care and is still clinically active, undertaking regular agency critical care shifts and clinical facilitation of undergraduate nurses. Majella's international experience includes presentations in Japan, Brazil and the US. She has also been a member of teams providing critical care and education assistance to the Solomon Islands, Fiji and Brazil. Majella has co-authored and contributed to numerous print and digital resources, including fundamentals and medical–surgical nursing textbooks, digital case study resources, skills videos and the *Essential Aussie Drugs* pocket book.





● **NICHOLE HARVEY, RN, RM, CRITCARECERT, BN(POST REG), MNST, GRAD CERT ED (TERTIARY TEACHING), PHD**



Nichole Harvey undertook her nursing training at the Townsville General Hospital between 1985 and 1988. Nichole has extensive clinical experience, having worked in large-city and rural and remote locations, as well as overseas. After working in a number of locations around Australia and overseas, she embarked on midwifery studies, becoming an endorsed midwife in 1995. Her main area of clinical expertise is emergency and trauma nursing, with a special interest in midwifery.

In 2000, Nichole commenced an academic role with James Cook University, School of Nursing, Midwifery and Nutrition; she then moved to the School of Medicine and Dentistry in 2011.

During this time, Nichole has been involved in the development and teaching of nursing, midwifery and medical curricula. Her current role involves teaching clinical skills to Years 1–3 medical students in simulated environments. Nichole completed her PhD in 2012, which investigated the triage and management of pregnant women in emergency departments. Nichole is a group member recipient of two James Cook University Citations for Outstanding Contributions to Student Learning and a group member recipient of an Australian Award for University Teaching, Office for Learning and Teaching. Nichole sits on a number of national, state and local professional clinical reference groups and also is one of the authors of the first edition of the Australian *Skills in Clinical Nursing* textbook.

● **LORNA MOXHAM, RN, MHN, PHD, BHSC (UWS), DAS(NSG) (MIHE), MED (UNSW), CERT OH&S (CQU), CERT QUAL MGMT (CQU), CERT IV (TRAINING & ASSESSMENT) (CQIT), FACMHN, FCON**



Dr Lorna Moxham is a 3-year specialist hospital-trained psychiatric nurse and holds the position of Professor of Mental Health Nursing in the Faculty of Science, Medicine and Health at the University of Wollongong (UOW). Lorna actively contributes to the nursing profession at state, national and international levels as well as to the broader community in numerous ways. Lorna has served on numerous ministerial committees as member and/or chair and has held several leadership and governance roles, both within the tertiary education sector and in industry. Currently, Lorna is the Academic Lead for Living Well, Longer, a research stream within the UOW Global Challenges program which brings researchers from a variety of

disciplines together across Australia and internationally to create larger-scale collaborative teams to solve real-world problems. Lorna's involvement in nurse regulation enables her to actively contribute to ongoing professional integrity and development. Passionate about nursing, its past, present and future, Lorna has an extensive publication record and has both led and been a team member in many research projects. She is the principal supervisor for many postgraduate students, a journal editor and reviewer, and is passionate about mental health nursing in which she leads Recovery Camp, an Australian initiative offering innovative clinical placements (www.recoverycamp.com.au). As a fellow of the Australian College of Mental Health Nurses and also a Fellow of the Australian College of Nursing, Lorna believes this Australian text will contribute in a positive way to the future of nursing—a profession she has dedicated her life to.

● **TANYA LANGTREE, RN, BNSC, PGDIPACN(NEUROSC), PGCERTNSC(INTCARE), MNST, JP(QUAL.)**



Tanya Langtree has been a Registered Nurse since 2000. Tanya has worked in both public and private sectors, with her main areas of clinical expertise being neurosciences and critical care nursing. She has a keen interest in psychomotor skill development and clinical simulation, and has been teaching undergraduate nursing students in the simulated environment since 2005. In 2010, Tanya joined the discipline of Nursing, Midwifery and Nutrition at James Cook University (JCU). Since then, she has held a variety of roles including subject coordinator, year level coordinator and Director of Clinical Simulation. In 2016, Tanya relocated from the Townsville campus of JCU to the Mt Isa Centre for Rural and Remote Health as the Site

Coordinator for the BNSc program. Tanya is currently completing her PhD investigating the influence of a seventeenth-century Spanish nursing text on nursing knowledge, education and identity.

● **BARBARA PARKER, RN, BSC(HONS), GRAD CERT ED (HIGHER ED), PHD**

Following a 10-year appointment as Program Director for the Bachelor of Nursing in the School of Nursing and Midwifery, Dr Barbara Parker is currently Associate Dean: Online Education in the Division of Health Sciences at the University of South Australia. Barbara has worked extensively in the clinical environment, specifically in the areas of anaesthetics and recovery, and orthopaedic and urology surgical nursing. She completed a PhD on the impact of gastrointestinal alterations in appetite regulation of older adults, and has published in gastrointestinal and nutritional physiology and diabetes. Barbara has expertise in coordinating research programs in obesity, impaired glucose tolerance and diabetes with both pharmacological and lifestyle interventions.

Her current research interests include the use of simulation in nursing and health education, and online education.



● **KERRY REID-SEARL, RN, RM BHSC (NSG), MCLINEDU, PHD, MRCNA, FCN**

Kerry Reid-Searl is a Professor at CQUniversity. She first completed her nursing qualifications in Tasmania. Since then, she has gained experience in Queensland as a remote area nurse, a generalist nurse and a midwife and, in more recent years, she has worked in the clinical area of paediatrics. Kerry has over 22 years' experience in undergraduate nursing education. She holds a Bachelor of Health Science, a Master's in Clinical Education and a PhD. Kerry has a strong interest in clinical education and simulation, wound care and medication safety. She is also the pioneer in an innovative simulation technique termed MASK ED (KRS Simulation), which involves the educator teaching using realistic and wearable silicone props.

Kerry has co-authored multiple textbooks and many peer-reviewed journal publications. She has been the recipient of numerous teaching and learning awards, including the 2007 CQU Vice-Chancellor's Award for Teacher of the Year, the Pearson Australia and ANTS Nursing Educator of the Year in 2009, a Vice-Chancellor's Award for Excellence in Learning and Teaching in 2010, a Faculty Teaching Excellence Award in 2007 and 2010, an Australian Teaching and Learning Council Citation for Outstanding Contributions to Student Learning in 2008 and 2012, an Australian Award for University Teaching in 2012, and in 2013 was awarded the Simulation Australia Achievement Award.



● **DAVID STANLEY, NURSD, MSC HS, BA NG, DIP HE (NURSING), RN, RM, TF, GERONTIC CERT, GRAD CERT HPE**

David Stanley began his nursing career in the days when nurses wore huge belt buckles and funny hats. He 'trained' as a Registered Nurse and midwife in South Australia and worked through his formative career in a number of hospitals and clinical environments in Australia. In 1993, he completed a Bachelor of Nursing at Flinders University, Adelaide (for which he was awarded the University Medal). After a number of years of volunteer work in Africa, he moved to the UK and worked as the Coordinator of Children's Services and as a Nurse Practitioner. He completed a Master's of Health Science at Birmingham University.

For a short time, David worked in Central Australia for Remote Health Services, before returning to the UK to complete his nursing doctorate, researching in the area of clinical leadership. He retains a research interest in clinical leadership, men in nursing and the role of the media in nursing. He is currently employed at The University of New England in New South Wales as Professor in Nursing, Discipline Lead for Nursing and BN and MNP Course Coordinator. David is also an avid poet and writer of children's books.



PREFACE

Contemporary nursing in Australia and internationally is challenging, complex, dynamic and very rewarding. Many of the people we care for, both in the community and in hospitals, are older and sicker than they were a decade ago, often with complex health and psychosocial needs. This means that nurses today must be clinically competent, empathic, flexible and knowledgeable. They need a broad and deep understanding of physiology, pathophysiology, pharmacology, epidemiology, therapeutics, culture, ethics and law, as well as a commitment to evidence-based practice.

Today's nurses have many roles and functions—clinician, educator, leader, researcher, to name just a few. They require highly developed skills in problem solving, critical thinking and clinical reasoning. Today's nurses must be lifelong learners who are confident in the use of information and communication technology, and able to communicate effectively with their patients and with all members of the health care team. Above all, they must care for people in ways that signify respect, acceptance, empathy, connectedness, cultural sensitivity and genuine concern.

This fourth Australian edition of *Kozier and Erb's Fundamentals of Nursing* has once again undergone a rigorous review and writing process. Contemporary changes in the regulation of nursing are reflected in the chapters, and this edition continues to focus on the three core philosophies:

1. person-centred care
2. critical thinking and clinical reasoning
3. cultural safety.

These three philosophical foundations are interwoven in a meaningful way through each chapter. In the pages that follow, the definitions of these three philosophies, as they apply to this edition of *Kozier and Erb's Fundamentals of Nursing*, are outlined.

NEW TO THIS EDITION

- All references to NANDA have been removed and nursing diagnoses more clearly explained. A new feature, Links to the National Safety and Quality Health Service Standards, is displayed in each unit, along with practical examples on how the standard is applied.
- The Research Notes and Real World features are updated to reflect contemporary Australian and New Zealand research and clinician stories.
- Reference to the concept of disability has been integrated where applicable to the content and context.
- Considerable new and more contemporary references have been added to support the latest information.
- Unit 2 has been updated to ensure the statistics, health policy legislation and funding arrangements reflect current practices. In addition, Chapters 6 and 7 have been modified to accommodate the new structure of the federal government's Primary Health Networks and National Disability Insurance Scheme (NDIS). Chapter 8 examines health care reform over a decade and Chapter 10 explores the evolution of e-health reform in Australia.
- In Unit 4, Chapter 19 has been significantly modified to encompass an Australian Indigenous focus, recognising Indigenous Australian culture and the historical

background, legislation, policies and practices that have impacted on and shaped the interrelationship between Indigenous Australians and other cultural groups, and the health, culture and wellbeing of Indigenous Australians.

- Unit 9 has further incorporated person-centred care by implementing an inclusivity philosophy. This was achieved by including further discussion regarding the health concerns of diverse population groups including the LGBTI community and those living with a disability and/or mental illness.

ACKNOWLEDGMENTS

We extend a sincere thank you to the talented team involved in the fourth Australian edition of this book: the contributors who provided content and very helpful feedback; the nursing students, for their questioning minds and motivation; and the nursing academics, who provided many valuable suggestions for this edition.

We also thank:

Trish Burton from Victoria University for mapping each of the learning outcomes and examples in the text to the relevant Nursing and Midwifery Board of Australia *Registered Nurse Standards for Practice*, thereby linking the core concepts to contemporary Australian nursing practice.

Dr Cheryl Ross, Senior Lecturer (Nursing), School of Nursing and Midwifery, University of Southern Queensland for the development of the PowerPoints and Test Bank for each chapter and the mapping of learning outcomes to the NMBA Standards for Professional Practice within the digital learning platform, MyLab Nursing.

Our grateful thanks for this valuable contribution to these student and instructor resources.

The following people are to be acknowledged for carefully reviewing the chapters and providing a thoughtful and constructive critique.

Proposal reviewers

Mr James Bonnamy, Monash University
Sinead Barry, La Trobe University
Ms Penny Harrison, University of Sunshine Coast
Mrs Janice Layh, University of Sunshine Coast
Julie Dally, University of Notre Dame

Manuscript reviewers

Dr Georgia Clarkson, Australian Catholic University
Mrs Maryanne Podham, Charles Sturt University
Dr Doseena Fergie, Australian Catholic University
Mrs Danielle Noble, University of Newcastle
Ms Elspeth Hillman, James Cook University

Finally, we thank the editorial and production team at Pearson, including Mandy Sheppard, Senior Portfolio Manager; Anna Carter, Development Editor; Katie Millar, Lead Editor; and Emma Gaulton, Copyright and Pictures Editor.

Tracy Levett-Jones, Trudy Dwyer, Majella Hales,
Nichole Harvey, Lorna Moxham,
Tanya Langtree, Barbara Parker, Kerry Reid-Searl and
David Stanley



CONTRIBUTORS

Chapter 1 Historical and Contemporary Nursing Practice

4th edition: Christopher Patterson, RN, M Nurs (Mental Health) (UOW), BN (Hon) (UOW), MACMHN, MACN University of Wollongong

3rd edition: Christopher Patterson, RN, M Nurs (Mental Health) (UOW), BN (Hon) (UOW), MACMHN, MACN University of Wollongong

Kylie Smith, BA (Hons), PhD (UOW), University of Wollongong

Chapter 2 Nurse Education, Research and Evidence-based Practice

3rd and 4th editions: Lorna Moxham, RN, MHN, PhD, BHSc (UWS); DAS (Nsg) (MIHE), Med (UNSW), Cert OH&S (CQU), Cert Qual Mgmt (CQU), Cert IV (Training & Assessment) (CQIT), FACMHN, FACN, Professor of Mental Health Nursing, University of Wollongong

Chapter 3 Nursing Theories and Conceptual Frameworks

3rd and 4th editions: Marc Broadbent, RN, Cert Crit Care (Alfred), Grad Cert Adult Ed & Training (UNE), Grad Dip Adult Ed & Training (UNE), M Ed (UNE), PhD candidate, MACMHN, FACN, University of the Sunshine Coast

Chapter 4 Legal Aspects of Nursing

3rd and 4th editions: Leeanne Heaton, RN RM BN, BClinPrac (Paramedic), MSc (Midwifery)

Chapter 5 Values, Ethics and Advocacy

3rd and 4th editions: Dr Moira Stephens, RN, PhD, MSc, BN (Hons), Grad Cert Ed, Grad Cert Onc., Grad Cert HIV & AIDS, MRCNA, MCNSA, University of Wollongong

Ms Renee Brighton, RN, MNurs (Mental Health), BN, Cert IV Training & Assessment, MACMHN, University of Wollongong

Chapter 6 Health Care Delivery Systems

4th edition: Majella Hales, RN, BN, Grad Cert HE, MAppSci, Australian Catholic University, McAuley Campus; Sciencopia

3rd edition: Judy Gonda, RN, RM, B App Sci Adv Nsg (Education), MN, PhD, Australian Catholic University, McAuley Campus

Chapter 7 Community Health

3rd and 4th editions: Majella Hales, RN, BN, Grad Cert HE, MAppSci, Australian Catholic University, McAuley Campus; Sciencopia

Chapter 8 Home Care

3rd and 4th editions: Majella Hales, RN, BN, Grad Cert HE, MAppSci, Australian Catholic University, McAuley Campus; Sciencopia

Chapter 9 Regional, Rural and Remote Nursing

3rd and 4th editions: Leeanne Heaton, RN RM BN, BClinPrac (Paramedic), MSc (Midwifery)

Chapter 10 Health Informatics

3rd and 4th editions: Majella Hales, RN, BN, Grad Cert HE, MAppSci, Australian Catholic University, McAuley Campus; Sciencopia

Chapter 11 Critical Thinking and the Nursing Process

4th edition: Becky Ingham-Broomfield, RN, Cert Ed, DipN (Lon), BSc, MSc, University of New England

3rd edition: Natasha Scully, RN, BA, BN, Grad Dip NursSc (Critical Care), MPH (candidate), University of New England

Chapter 12 Assessing

3rd and 4th editions: Yoni Luxford, PhD, RN, RM, BSW, Grad Dip PHC, Grad Cert Tertiary Ed, University of New England

Chapter 13 Diagnosing

4th edition: Tracy Levett-Jones, RN, PhD, MEd & Work, BN, Dip AppSc (Nursing), University of Technology Sydney

3rd edition: Tracy Levett-Jones, RN, PhD, MEd & Work, BN, Dip AppSc (Nursing), University of Technology Sydney

Anthea Fagan, RN, BN, Grad Dip Neuroscience Nursing, MN, University of New England

Chapter 14 Planning

3rd and 4th editions: Becky Ingham-Broomfield, RN, Cert Ed, DipN (Lon), BSc, MSc, University of New England

Chapter 15 Implementing and Evaluating

3rd and 4th editions: Penny Paliadelis, PhD, RN, BN, MN (Hons), Federation University

Chapter 16 Documenting and Reporting

3rd and 4th editions: Helen Courtney-Pratt, PhD, BN (Hons), RN, University of Newcastle

Chapter 17 Health Promotion

3rd and 4th editions: David Stanley, NursD, MSc, BA Ng, Dip HE (Nursing), RN, RM, TF, Gerontic Cert, Grad Cert HPE, The University of New England

Chapter 18 Health, Wellness and Illness

3rd and 4th editions: David Stanley, NursD, MSc, BA Ng, Dip HE (Nursing), RN, RM, TF, Gerontic Cert, Grad Cert HPE, The University of New England

Chapter 19 Culture, Nursing and Indigenous Health

4th edition: David Stanley, NursD, MSc, BA Ng, Dip HE (Nursing), RN, RM, TF, Gerontic Cert, Grad Cert HPE, The University of New England

Faye McMillan, Doctor of Health Science (CSU), Master of Indigenous Health (UoW), B. Pharm (CSU), Grad Cert Wiradjuri Language, Culture and Heritage (CSU) and Grad Cert Indigenous Governance (Uni of Arizona)

Jessica Biles, RN, BN, MHSc (Ed), PhD, Charles Sturt University

3rd edition: Nichole Harvey, RN, RM, CritCareCert, BN (Post Reg), MNSt, Grad Cert Ed (Tertiary Teaching), PhD, James Cook University

Tanya Park, RN, RM BNSc, Grad Dip MHN, MMid, Grad Cert Ed (TT), PhD, University of Alberta

Chapter 20 Complementary and Alternative Therapies

3rd and 4th editions: David Stanley, NursD, MSc, BA Ng, Dip HE (Nursing), RN, RM, TF, Gerontic Cert, Grad Cert HPE, The University of New England

Chapter 21 Concepts of Growth and Development

4th edition: Nichole Harvey, RN, RM, CritCareCert, BN (Post Reg), MNSt, Grad Cert Ed (Tertiary Teaching), PhD, James Cook University

3rd edition: Nichole Harvey, RN, RM, CritCareCert, BN (Post Reg), MNSt, Grad Cert Ed (Tertiary Teaching), PhD, James Cook University

Tanya Park, RN, RM BNSc, Grad Dip MHN, MMid, Grad Cert Ed (TT), PhD, University of Alberta

Chapter 22 Promoting Health from Conception through to Adolescence

3rd and 4th editions: Nichole Harvey, RN, RM, CritCareCert, BN (Post Reg), MNSt, Grad Cert Ed (Tertiary Teaching), PhD, James Cook University

Chapter 23 Promoting Health in Young and Middle-aged Adults

3rd and 4th editions: Nichole Harvey, RN, RM, CritCareCert, BN (Post Reg), MNSt, Grad Cert Ed (Tertiary Teaching), PhD, James Cook University

Chapter 24 Promoting Health in Older Adults

4th edition: Nichole Harvey, RN, RM, CritCareCert, BN (Post Reg), MNSt, Grad Cert Ed (Tertiary Teaching), PhD, James Cook University

3rd edition: Kristin Wicking, RN, BSN, MSN, PhD, James Cook University

Chapter 25 Promoting Family Health

3rd and 4th editions: Tanya Langtree, RN, BNSc, PGDipACN(NeuroSc), PGCertNSc(IntCare), MNSt, JP(Qual.), James Cook University

Chapter 26 Caring

4th edition: Pamela Van der Riet, RN, PhD, Med, BA (Soc Science), Dip Ed (Nursing), ICU/CCU Cert, Dip Remedial Massage, University of Newcastle

3rd edition: Sharon Bourgeois, RN, PhD, MA, Med, BA, FRCNA, FCN, University of Wollongong

Pamela Van der Riet, RN, PhD, Med, BA (Soc Science), Dip Ed (Nursing), ICU/CCU Cert, Dip Remedial Massage, University of Newcastle

Chapter 27 Communicating

4th edition: Tracy Levett-Jones, RN, PhD, MEd & Work, BN, Dip AppSc (Nursing), University of Technology Sydney

3rd edition: Jenny Day, RN, ADCHN, BHSc (Nursing) Med (Adult Ed), University of Newcastle

Tracy Levett-Jones, RN, PhD, MEd & Work, BN, Dip AppSc (Nursing), University of Technology Sydney

Raelene Kenny, RN, MN, Grad Dip Nursing (Critical Care), Grad Cert Ed (Adult & Org Learning), Grad Cert TerTeach

Chapter 28 Teaching and Learning

3rd and 4th editions: Tracy Levett-Jones, RN, PhD, MEd & Work, BN, Dip AppSc (Nursing) University of Technology Sydney

Pamela Van der Riet, RN, PhD, Med, BA (Soc Science), Dip Ed (Nursing), ICU/CCU Cert, Dip Remedial Massage, University of Newcastle

Chapter 29 Leading and Managing

3rd and 4th editions: Teresa Elizabeth Stone, RN, Reg Psychiatric Nurse, BA, MA Health Management, Yamaguchi University

Sue Turale, EdD, MNSt, RN, RPN, FRCNA, FACMHN

Chapter 30 Vital Signs

4th edition: Natalie Govind, RN, BN (Hons), PhD Candidate, University of Technology Sydney

Jacqui Pich, RN, BN (Hons), PhD, University of Technology Sydney

3rd edition: Helen Bellchambers, RN, Grad Cert (Geront), RM, BN, MNurs, PhD, University of Newcastle

Chapter 31 Health Assessment

4th edition: Natalie Govind, RN, BN (Hons), PhD Candidate, University of Technology Sydney

Jacqui Pich, RN, BN (Hons), PhD, University of Technology Sydney

3rd edition: Lynne Slater, RN, RM, Grad Dip HSc (Primary Health Care), MMid, MN, MRCNA, University of Newcastle

Chapter 32 Infection Prevention and Control

4th edition: Majella Hales, RN, BN, Grad Cert HE, MAppSci, Australian Catholic University, McAuley Campus; Sciencopia

3rd edition: Tom Laws, RN, RM, Ophthalmic Nursing Dip, BEc, Grad Dip Ed, Grad Dip Public Health, PhD, University of South Australia

Elsbeth Hillman, RN, BN Master of Nursing, Grad Cert Tertiary Teaching, James Cook University

Chapter 33 Safety

3rd and 4th editions: Maria Fedoruk, Grad Cert Ed (Higher Ed), PhD, Grad Dip Mgt, MHA, BAppSc (Nsg Admin), CCRN, RN, University of South Australia

Chapter 34 Hygiene

3rd and 4th editions: Barbara Parker, RN, BSc (Hons), Grad Cert Ed (Higher Ed), PhD, University of South Australia

Chapter 35 Diagnostic Testing

3rd and 4th editions: Angela Kucia, Coronary Care Cert, Prof Cert Pharmacology for Nurses, BN, MA (Sc and Tech Studies), Grad Cert Ed (Higher Ed), PhD, University of South Australia

Chapter 36 Medications

4th edition: Maria Chilvers, BSc (Nursing), PG Cert (Critical Care), PG Cert Nursing (Research Methodologies), Grad Dip Nursing (Renal), MN, University of South Australia

3rd edition: Barbara Parker, RN, BSc (Hons), Grad Cert Ed (Higher Ed), PhD, University of South Australia

Angela Kucia, Coronary Care Cert, Prof Cert Pharmacology for Nurses, BN, MA (Sc and Tech Studies), Grad Cert Ed (Higher Ed), PhD, University of South Australia

Maria Fedoruk, Grad Cert Ed (Higher Ed), PhD, Grad Dip Mgt, MHA, BAppSc (Nsg Admin), CCRN, RN, University of South Australia

Tom Laws, RN, RM, Ophthalmic Nursing Dip, BEc, Grad Dip Ed, Grad Dip Public Health, PhD, University of South Australia

Craig Phillips, Dip AppSc (Nursing), BN, MN (Advanced Practice), Grad Cert HE, PhD



Chapter 37 Skin Integrity and Wound Care

4th edition: Carley Jans, RN, BN (UWS), Diploma in Paramedical Science (ASNSW), M Teach (Prim) (CSU), University of Wollongong

3rd edition: Craig Phillips, Dip AppSc (Nursing), BN, MN (Advanced Practice), Grad Cert HE, PhD candidate, University of South Australia

Chapter 38 Perioperative Nursing

4th edition: Flora Corfee, RN, MHSc (Clin Ed) Grad Dip Crit Care, Grad Cert Clin Ed, PhD Candidate, MRCNA, Australian Catholic University

Adam Burston, RN, BN, GCert(Nur), MHlthServMgmt, MACN, Lecturer Australian Catholic University, PhD candidate The University of Queensland

3rd edition: Tom Laws, RN, RM, Ophthalmic Nursing Dip, BEc, Grad Dip Ed, Grad Dip Public Health, PhD, University of South Australia

Chapter 39 Sensory Perception

3rd and 4th editions: Nichole Harvey, RN, RM, CritCareCert, BN (Post Reg), MNSt, Grad Cert Ed (Tertiary Teaching), PhD, James Cook University

Chapter 40 Self-concept

4th edition: Tanya Langtree, RN, BNSc, PGDipACN(NeuroSc), PGCertNsc(IntCare), MNSt, JP(Qual.), James Cook University

3rd edition: Tanya Park, RN, RM, BNSc, Grad Dip MHN, MMid, Grad Cert Ed (TT), PhD, University of Alberta

Chapter 41 Sexuality

4th edition: Tanya Langtree, RN, BNSc, PGDipACN(NeuroSc), PGCertNsc(IntCare), MNSt, JP(Qual.), James Cook University

3rd edition: Tanya Park, RN, RM, BNSc, Grad Dip MHN, MMid, Grad Cert Ed (TT), PhD, University of Alberta

Chapter 42 Spirituality

3rd and 4th editions: Kristin Wicking, RN, BSN, MSN, PhD, James Cook University

Chapter 43 Stress and Coping

4th edition: Nichole Harvey, RN, RM, CritCareCert, BN (Post Reg), MNSt, Grad Cert Ed (Tertiary Teaching), PhD, James Cook University

3rd edition: Nichole Harvey, RN, RM, CritCareCert, BN (Post Reg), MNSt, Grad Cert Ed (Tertiary Teaching), PhD, James Cook University

Tanya Park, RN, RM, BNSc, Grad Dip MHN, MMid, Grad Cert Ed (TT), PhD, James Cook University

Chapter 44 Loss, Grieving and Death

4th edition: Tanya Langtree, RN, BNSc, PGDipACN(NeuroSc), PGCertNsc(IntCare), MNSt, JP(Qual.), James Cook University

3rd edition: Tanya Park, RN, RM, BNSc, Grad Dip MHN, MMid, Grad Cert Ed (TT), PhD, Alberta University

Chapter 45 Mental Health Nursing

3rd and 4th editions: Lorna Moxham, RN, MHN, PhD, BHSc (UWS); DAS (Nsg) (MIHE), Med (UNSW), Cert OH&S (CQU), Cert Qual Mgmt (CQU), Cert IV (Training & Assessment) (CQIT), FACMHN; FCN, Professor of Mental Health Nursing, University of Wollongong

Paul Robson, RN, PRM, CQ Mental Health Service

Chapter 46 Activity and Exercise

3rd and 4th editions: Lorna Moxham, RN, MHN, PhD, BHSc (UWS); DAS (Nsg) (MIHE), MEd(UNSW), Cert OH&S (CQU), Cert Qual Mgmt (CQU), Cert IV (Training & Assessment) (CQIT), FACMHN; FCN, Professor of Mental Health Nursing, University of Wollongong

Peter Reaburn, BHMS (Ed) Hons, PhD, Grad Cert Flex Learn, Bond University

Chapter 47 Sleep

4th edition: Judith Applegarth, RN, EM, BHSc (Nsg), Grad Cert Child & Family Health, Grad Dip Health Admin & Info Systems, MCLin Practice (Nsg), CQUniversity Australia

Tracy Flenady, RN, B Nursing (Distinction), CQUniversity Australia

3rd edition: Judith Applegarth, RN, EM, BHSc (Nsg), Grad Cert Child & Family Health, Grad Dip Health Admin & Info Systems, MCLin Practice (Nsg), CQUniversity Australia

Chapter 48 Pain Management

4th edition: Judith Applegarth, RN, EM, BHSc (Nsg), Grad Cert Child & Family Health, Grad Dip Health Admin & Info Systems, MCLin Practice (Nsg), CQUniversity Australia

Tracy Flenady, RN, B Nursing (Distinction), CQUniversity Australia

3rd edition: Judith Applegarth, RN, EM, BHSc (Nsg), Grad Cert Child & Family Health, Grad Dip Health Admin & Info Systems, MCLin Practice (Nsg), CQUniversity Australia

Chapter 49 Nutrition

4th edition: Susan Lee Williams, RN, BHSc(Nsg), Grad Cert SpNut, Grad Dip HumNut, PhD, CQUniversity Australia

Loretto Quinney, RN, ICUNsgCert, MidwifeNsgCert, BAppScn (Nsg), Grad Cert Bus Mgt, PhD, CQUniversity Australia

3rd edition: Susan Lee Williams, RN, BHSc(Nsg), Grad Cert SpNut, Grad Dip HumNut, PhD, CQUniversity Australia

Chapter 50 Urinary Elimination

4th edition: Kerry Reid-Searl, RN, RM, BHSc (Nsg), MCLinEdu, PhD, MRCNA, FCN, CQUniversity Australia

Keryln Carville, RN, STN (Cred), PhD, Professor Primary Health Care and Community Nursing, Silver Chain Group and Curtin University

Barbara J. O'Neill, RN, BA, BSN, GCertNEd, CQUniversity Australia

Lydia Mainey, RN, BH (Nsg), GDip Trop Nurs, MPH (Health Promotion)

Kate Crowley, RN, BN, MNurs Adv Prac Specialising in Child & Family Health, CQUniversity Australia

3rd edition: Kerry Reid-Searl, RN, RM, BHSc (Nsg), MCLinEdu, PhD, MRCNA, FCN, CQUniversity Australia

Julie Kahl, RN, B Nursing, Grad Diploma Paediatric, Child and Youth Health Nursing

Chapter 51 Faecal Elimination

4th edition: Kerry Reid-Searl, RN, RM, BHSc (Nsg), MCLinEdu, PhD, MRCNA, FCN, CQUniversity Australia

Keryln Carville, RN, STN (Cred), PhD, Professor Primary Health Care and Community Nursing, Silver Chain Group and Curtin University

Barbara J. O'Neill, RN, BA, BSN, GCertNEd, CQUniversity Australia



Lydia Mainey, RN, BH (Nsg), GDip Trop Nurs, MPH (Health Promotion)

Kate Crowley, RN, BN, MNurs Adv Prac Specialising in Child & Family Health, CQUniversity Australia

3rd edition: Keryln Carville, RN, STN (Cred), PhD, Professor Primary Health Care and Community Nursing, Silver Chain Group and Curtin University

Julie Kahl, RN, B Nursing, Grad Diploma Paediatric, Child and Youth Health Nursing

Chapter 52 Oxygenation

3rd and 4th editions: Trudy Dwyer, RN, ICUNsgCert, BHlthScn (Nsg), Grad Cert FlexLearn, MClinedu, PhD, CQUniversity Australia

Loretto Quinney, RN, ICUNsgCert, MidwifeNsgCert, BAppScn (Nsg), Grad Cert Bus Mgt, PhD, CQUniversity Australia

Chapter 53 Circulation

3rd and 4th editions: Trudy Dwyer, RN, ICUNsgCert, BHlthScn (Nsg), Grad Cert FlexLearn, MClinedu, PhD, CQUniversity Australia

Deborah Friel, RN, BHScn, GCert Crit Care, GCert Clin Nurs, GCert Mgt

Chapter 54 Fluid, Electrolyte and Acid-Base Balance

3rd and 4th editions Sandra Walker, RN, RM Neonatal Intensive Care Cert, BN Bed, MNS, PhD CQUniversity Australia