

# PATHOPHYSIOLOGY

Includes  
*Nursing  
Notes!*

PRENTICE HALL NURSING

## REVIEWS & RATIONALES

Detailed outline of pathophysiology

The source for NCLEX and course review

NCLEX-style questions with comprehensive rationales

*Nursing Notes* reference card included

Free CD-ROM and Companion Website with much more

MARY ANN HOGAN • KAREN HILL

[www.prenhall.com/hogan](http://www.prenhall.com/hogan)



# Pathophysiology

## *Reviews & Rationales*

**Mary Ann Hogan, RN, CS, MSN**

Clinical Assistant Professor  
University of Massachusetts, Amherst  
Amherst, Massachusetts

**Karen Hill, PhD, RN**

Assistant Professor of Nursing  
Southeastern Louisiana University  
Hammond, Louisiana

Prentice  
Hall

Upper Saddle River, New Jersey 07458

## Library of Congress Cataloging-in-Publication Data

Hogan, Mary Ann, MSN.

Pathophysiology: reviews & rationales/Mary Ann Hogan, Karen Hill.

p. ; cm.—(Prentice Hall nursing reviews & rationales)  
Includes index.

ISBN 0-13-030450-6

1. Physiology, Pathological—Outlines, syllabi, etc. 2.  
Nursing—Outlines, syllabi, etc.

[DNLM: 1. Nursing Assessment—methods—Outlines. 2.  
Pathology—Outlines. WY 18.2 H714p 2003] I. Hill, Karen,  
RN. II. Title. III. Series.

RB113 .H625 2003

616.07—dc21

2002014480

Notice: Care has been taken to confirm the accuracy of the information presented in this book. The authors, editors, and the publisher, however, cannot accept any responsibility for errors or omissions or for the consequences for application of the information in this book and make no warranty, express or implied, with respect to its contents.

The authors and the publisher have exerted every effort to ensure that drug selections and dosages set forth in this text are in accord with current recommendations and practice at time of publication. However, in view of ongoing research, changes in government regulations, and the constant flow of information relating to drug therapy and drug reactions, the reader is urged to check the package inserts of all drugs for any change in indications of dosage and for added warnings and precautions. This is particularly important when the recommended agent is a new and/or infrequently employed drug.

The authors and publisher disclaim all responsibility for any liability, loss, injury, or damage incurred as a consequence, directly or indirectly, of the use and application of any of the contents of this volume.

**Publisher:** Julie Levin Alexander

**Assistant to Publisher:** Regina Bruno

**Executive Editor:** Maura Connor

**Managing Development Editor:** Marilyn Meserve

**Development Editor:** Jeanne Allison

**Director of Production and Manufacturing:** Bruce Johnson

**Managing Production Editor:** Patrick Walsh

**Production Liaison:** Danielle Newhouse

**Production Editor:** Jessica Balch, Pine Tree Composition

**Manufacturing Buyer:** Pat Brown

**Design Director:** Cheryl Asherman

**Design Coordinator:** Maria Guglielmi

**Interior Designer:** Jill Little

**Cover Designer:** Joseph DePinho

**Electronic Art Creation:** Precision Graphics

**Marketing Manager:** Nicole Benson

**Assistant Editor:** Yesenia Kopperman

**Editorial Assistant:** Sladjana Repic

**Production Information Manager:** Rachele Strober

**Manager of Media Production:** Amy Peltier

**New Media Project Manager:** Stephen Hartner

**Composition:** Pine Tree Composition, Inc.

**Printer/Binder:** Courier/Westford

**Cover Printer:** Phoenix Color

Pearson Education Ltd., *London*

Pearson Education Australia Pty. Limited, *Sydney*

Pearson Education Singapore, Pte. Ltd.

Pearson Education North Asia Ltd., *Hong Kong*

Pearson Education Canada, Ltd., *Toronto*

Pearson Educación de México, S.A. de C.V.

Pearson Education—Japan, *Tokyo*

Pearson Education Malaysia, Pte. Ltd.

Pearson Education, Upper Saddle River, New Jersey

**Copyright © 2004 by Pearson Education, Inc., Upper Saddle River, New Jersey 07458.** All rights reserved. Printed in the United States of America. This publication is protected by Copyright and permission should be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or likewise. For Information regarding permission(s), write to: Rights and Permissions Department.

Prentice  
Hall

10 9 8 7 6 5 4 3 2  
ISBN 0-13-030450-6

# Preface

## **INTRODUCTION**

Welcome to the new Prentice Hall Reviews and Rationales Series! This 9-book series has been specifically designed to provide a clear and concentrated review of important nursing knowledge in the following content areas:

- Child Health Nursing
- Maternal-Newborn Nursing
- Mental Health Nursing
- Medical-Surgical Nursing
- Pathophysiology
- Pharmacology
- Fundamentals and Skills
- Nutrition and Diet Therapy
- Fluids, Electrolytes, & Acid-Base Balance

The books in this series have been designed for use either by current nursing students as a study aid for nursing course work or NCLEX-RN licensing exam preparation, or by practicing nurses seeking a comprehensive yet concise review of a nursing specialty or subject area.

This series is truly unique. One of its most special features is that it has been authored by a large team of nurse educators from across the United States and Canada to ensure that each chapter is written by a nurse expert in the content area under study. Prentice Hall Health representatives from across North America submitted names of nurse educators and/or clinicians who excel in their respective fields, and these authors were then invited to write a chapter in one or more books. The consulting editor for each book, who is also an expert in that specialty area, then reviewed all chapters submitted for comprehensiveness and accuracy. The series editor designed the overall series in collaboration with a core Prentice Hall team to take full advantage of Prentice Hall's cutting edge technology, and also reviewed the chapters in each book.

All books in the series are identical in their overall design for your convenience (further details follow at the end of this section). As an added value, each book comes with a

comprehensive support package, including free CD-ROM, free companion website access, and a Nursing Notes card for quick clinical reference.

## STUDY TIPS

Use of this review book should help simplify your study. To make the most of your valuable study time, also follow these simple but important suggestions:

- Use a weekly calendar to schedule study sessions.
  - Outline the timeframes for all of your activities (home, school, appointments, etc.) on a weekly calendar.
  - Find the “holes” in your calendar—the times in which you can plan to study. Add study sessions to the calendar at times when you can expect to be mentally alert and follow it!
- Create the optimal study environment.
  - Eliminate external sources of distraction, such as television, telephone, etc.
  - Eliminate internal sources of distraction, such as hunger, thirst, or dwelling on items or problems that cannot be worked on at the moment.
  - Take a break for 10 minutes or so after each hour of concentrated study both as a reward and an incentive to keep studying.
- Use pre-reading strategies to increase comprehension of chapter material.
  - Skim the headings in the chapter (because they identify chapter content).
  - Read the definitions of key terms, which will help you learn new words to comprehend chapter information.
  - Review all graphic aids (figures, tables, boxes) because they are often used to explain important points in the chapter.
- Read the chapter thoroughly but at a reasonable speed.
  - Comprehension and retention are actually enhanced by not reading too slowly.
  - Do take the time to reread any section that is unclear to you.
- Summarize what you have learned.
  - Use questions supplied with this book, CD-ROM, and companion website to test your recall of chapter content.
  - Review again any sections that correspond to questions you answered incorrectly or incompletely.

## TEST TAKING STRATEGIES

Use the following strategies to increase your success on multiple-choice nursing tests or examinations:

- Get sufficient sleep and have something to eat before taking a test. Take deep breaths during the test as needed. Remember, the brain requires oxygen and glucose as fuel. Avoid concentrated sweets before a test, however, to avoid rapid upward and then downward surges in blood glucose levels.
- Read each question carefully, identifying the stem, the four options, and any key words or phrases in either the stem or options.
  - Key words in the stem such as “most important” indicate the need to set priorities, since more than one option is likely to contain a statement that is technically correct.
  - Remember that the presence of absolute words such as “never” or “only” in an option is more likely to make that option incorrect.

- Determine who is the client in the question; often this is the person with the health problem, but it may also be a significant other, relative, friend, or another nurse.
- Decide whether the stem is a true response stem or a false response stem. With a true response stem, the correct answer will be a true statement, and vice-versa.
- Determine what the question is really asking, sometimes referred to as the issue of the question. Evaluate all answer options in relation to this issue, and not strictly to the “correctness” of the statement in each individual option.
- Eliminate options that are obviously incorrect, then go back and reread the stem. Evaluate the remaining options against the stem once more.
- If two answers seem similar and correct, try to decide whether one of them is more global or comprehensive. If the global option includes the alternative option within it, it is likely that the more global response is the correct answer.

## THE NCLEX-RN LICENSING EXAMINATION

The NCLEX-RN licensing examination is a Computer Adaptive Test (CAT) that ranges in length from 75 to 265 individual (stand-alone) test items, depending on individual performance during the examination. Upon graduation from a nursing program, successful completion of this exam is the gateway to your professional nursing practice. The blueprint for the exam is reviewed and revised every three years by the National Council of State Boards of Nursing according to the results of a job analysis study of new graduate nurses (practicing within the first six months after graduation). Each question on the exam is coded to one *Client Need Category* and one or more *Integrated Concepts and Processes*.

### Client Need Categories

There are 4 categories of client needs, and each exam will contain a minimum and maximum percent of questions from each category. Each major category has subcategories within it. The *Client Need* categories according to the NCLEX-RN Test Plan effective April 2001 are as follows:

- Safe, Effective Care Environment
  - Management of Care (7–13%)
  - Safety and Infection Control (5–11%)
- Health Promotion and Maintenance
  - Growth and Development Throughout the Lifespan (7–13%)
  - Prevention and Early Detection of Disease (5–11%)
- Psychosocial Integrity
  - Coping and Adaptation (5–11%)
  - Psychosocial Adaptation (5–11%)
- Physiological Integrity
  - Basic Care and Comfort (7–13%)
  - Pharmacological and Parenteral Therapies (5–11%)
  - Reduction of Risk Potential (12–18%)
  - Physiological Adaptation (12–18%)

### Integrated Concepts and Processes

The integrated concepts and processes identified on the NCLEX-RN Test Plan effective April 2001, with condensed definitions, are as follows:

- Nursing Process: a scientific problem-solving approach used in nursing practice; consisting of assessment, analysis, planning, implementation, and evaluation.

- **Caring:** client-nurse interaction(s) characterized by mutual respect and trust and directed toward achieving desired client outcomes.
- **Communication and Documentation:** verbal and/or nonverbal interactions between nurse and others (client, family, health care team); a written or electronic recording of activities or events that occur during client care.
- **Cultural Awareness:** knowledge and sensitivity to the client's beliefs/values and how these might impact on the client's healthcare experience.
- **Self-Care:** assisting clients to meet their health care needs, which may include maintaining health or restoring function.
- **Teaching/Learning:** facilitating client's acquisition of knowledge, skills, and attitudes that lead to behavior change.

More detailed information about this examination may be obtained by visiting the National Council of State Boards of Nursing website at <http://www.ncsbn.org> and viewing the *NCLEX-RN Examination Test Plan for the National Council Licensure Examination for Registered Nurses*.\*

## HOW TO GET THE MOST OUT OF THIS BOOK

### Chapter Organization

Each chapter has the following elements to guide you during review and study:

- **Chapter Objectives:** describe what you will be able to know or do after learning the material covered in the chapter.

### OBJECTIVES

- Review basic principles of growth and development.
  - Describe major physical expectations for each developmental age group.
  - Identify developmental milestones for various age groups.
  - Discuss the reactions to illness and hospitalization for children at various stages of development.
- **Review at a Glance:** contains a glossary of key terms used in the chapter, with definitions provided up-front and available at your fingertips, to help you stay focused and make the best use of your study time.

### REVIEW AT A GLANCE

**anticipatory guidance** the process of understanding upcoming developmental needs and then teaching caregivers to meet those needs

**cephalocaudal development** the process by which development proceeds from the head downward through the body and towards the feet

**chronological age** age in years

**critical periods** times when an individual is especially responsive to certain environmental effects, sometimes called sensitive periods

**development** an increase in capability or function; a more complex concept that

is a continuous, orderly series of conditions that lead to activities, new motives for activities; and eventual patterns of behavior

**developmental age** age based on functional behavior and ability to adapt to the environment; does not necessarily correspond to chronological age



- Pretest: this 10-question multiple choice test provides a sample overview of content covered in the chapter and helps you decide what areas need the most—or the least—review.

## Pretest

- 1 The nurse discusses dental care with the parents of a 3-year-old. The nurse explains that by the age of 3, their child should have:
  - (1) 5 “temporary” teeth.
  - (2) 10 “temporary” teeth.
  - (3) 15 “temporary” teeth.
  - (4) 20 “temporary” teeth.
- 2 The mother of a 6-month-old infant is concerned that the infant’s anterior fontanel is still open. The nurse would inform the mother that further evaluation is needed if the anterior fontanel is open after:
  - (1) 6 months.
  - (2) 10 months.
  - (3) 18 months.
  - (4) 24 months.

- Practice to Pass questions: these are open-ended questions that stimulate critical thinking and reinforce mastery of the chapter content.



### Practice to Pass

What would you explain as normal motor development for a 10-month old infant?

- NCLEX Alerts: the NCLEX icon identifies information or concepts that are likely to be tested on the NCLEX licensing examination. Be sure to learn the information flagged by this type of icon.

### NCLEX!

- Case Study: found at the end of the chapter, it provides an opportunity for you to use your critical thinking and clinical reasoning skills to “put it all together;” it describes a true-to-life client case situation and asks you open-ended questions about how you would provide care for that client and/or family.

## Case Study

A 6-month-old female infant is brought into the pediatric clinic for a well-baby visit. You as the pediatric nurse will be assigned to care for this family.

- ① Identify the primary growth and development expectations for a 6-month-old.
- ② What type common behavior is expected of this 6-month-old towards the nurse?
- ③ What immunization(s) are recommended at this age to maintain health and wellness?

*For suggested responses, see page 406.*



- **Posttest:** a 10-question multiple-choice test at the end of the chapter provides new questions that are representative of chapter content, and provide you with feedback about mastery of that content following review and study. All pretest and posttest questions contain rationales for the correct answer, and are coded according to the phase of the nursing process used and the NCLEX category of client need (called the Test Plan). The Test plan codes are PHYS (Physiological Integrity), PSYC (Psychosocial Integrity), SECE (Safe Effective Care Environment), and HPM (Health Promotion and Maintenance).

## Posttest

- 1 When using the otoscope to examine the ears of a 2-year-old child, the nurse should:
  - (1) Pull the pinna up and back.
  - (2) Pull the pinna down and back.
  - (3) Hold the pinna gently but firmly in its normal position.
  - (4) Hold the pinna against the skull.
- 2 To assess the height of an 18-month-old child who is brought to the clinic for routine examination, the nurse should:
  - (1) Measure arm span to estimate adult height.
  - (2) Use a tape measure.
  - (3) Use a horizontal measuring board.
  - (4) Have the child stand on an upright scale and use the measuring arm.

## CD-ROM

For those who want to practice taking tests on a computer, the CD-ROM that accompanies the book contains the pretest and posttest questions found in all chapters of the book. In addition, it contains 10 NEW questions for each chapter to help you further evaluate your knowledge base and hone your test-taking skills. In several chapters, one of the questions will have embedded art to use in answering the question. Some of the newly developed NCLEX test items are also designed in this way, so these items will give you valuable practice with this type of question.

## Companion Website (CW)

The companion website is a “virtual” reference for virtually all your needs! The CW contains the following:

- 50 NCLEX-style questions: 10 pretest, 10 posttest, 10 CD-ROM, and 20 additional new questions
- Definitions of key terms: the glossary is also stored on the companion website for ease of reference
- In Depth With NCLEX: features drawings or photos that are each accompanied by a one- to two-paragraph explanation. These are especially useful when describing something that is complex, technical (such as equipment), or difficult to mentally visualize.
- Suggested Answers to Practice to Pass and Case Study Questions: easily located on the website, these allow for timely feedback for those who answer chapter questions on the web.

## **Nursing Notes Clinical Reference Card**

This laminated card provides a reference for frequently used facts and information related to the subject matter of the book. These are designed to be useful in the clinical setting, when quick and easy access to information is so important!

## **ABOUT THE PATHOPHYSIOLOGY BOOK**

---

Chapters in this book cover “need-to-know” information about pathophysiology of a wide variety of health problems. They include health problems that relate to the respiratory, cardiovascular, neurological, musculoskeletal, gastrointestinal, endocrine, renal, reproductive, and integumentary systems. Others chapters address immunological, hematological, oncological, and infectious health problems. Finally, the last two chapters review two unique areas, genetically transmitted health problems and multisystem health problems. Mastery of the information in this book and effective use of the test-taking strategies described will help the student be confident and successful in testing situations, including the NCLEX-RN, and in actual clinical practice.

## **ACKNOWLEDGMENTS**

---

This book is a monumental effort of collaboration. Without the contributions of many individuals, this first edition of *Pathophysiology: Reviews and Rationales* would not have been possible. We gratefully acknowledge all the contributors who devoted their time and talents to this book. Their chapters will surely assist both students and practicing nurses alike to extend their knowledge in the area of pathophysiology.

We owe a special debt of gratitude to the wonderful team at Prentice Hall Health for their enthusiasm for this project, as well as their good humor, expertise, and encouragement as the series developed. Maura Connor, Executive Editor for Nursing, was unending in her creativity, support, encouragement, and belief in the need for this series. Marilyn Meserve, Senior Managing Editor for Nursing, devoted many long hours to coordinating different facets of this project, and tirelessly and cheerfully encouraged our efforts as well. Her high standards and attention to detail contributed greatly to the final “look” of this series. Jeanne Allison, Developmental Editor, actively kept in communication with the different writers in this book and also facilitated getting the book itself into production. Editorial assistants, including Beth Ann Romph, Sladjana Repic, and others, helped to keep the project moving forward on a day-to-day basis, and we are grateful for their efforts as well. A very special thank you goes to the designers of the book and the production team, led by Danielle Newhouse, who brought our ideas and manuscript into final form.

Thank you to the team at Pine Tree Composition, led by Project Coordinator Jessica Balch, for the detail-oriented work of creating this book. We greatly appreciate their hard work, attention to detail, and spirit of collaboration. A special thanks also goes to Yesenia Kopperman, Assistant Editor for Nursing at Prentice Hall, and to Carlos Cooper, Lisa Donovan, and staff at the Pearson Education Development Group for designing and producing the *Nursing Notes* clinical reference card that accompanies this book.

Mary Ann Hogan acknowledges and gratefully thanks my husband Michael and children Mike Jr., Katie, Kristen, and Billy, who sacrificed hours of time that would have been spent with them, so that I could bring this book to publication. Your love and support kept me energized, motivated, and at times, even sane. I love you all!

Karen Yvonne Hill acknowledges my wonderful family Bobby, B.J., Kristopher, and Lindsey for their understanding and patience through this process. You were always supportive, encouraging and helped out whenever possible. I love each of you for being behind me in this effort. I dedicate this book to my husband, Bobby, who is my best friend, the best father, a wonderful husband, and willing to sacrifice so much for me. Thanks to you all!

---

\*Reference: National Council of State Boards of Nursing, Inc. *NCLEX Examination Test Plan for National Council Licensure Examination for Registered Nurses*. Effective April, 2001. Retrieved from the World Wide Web September 5, 2001 at <http://www.ncsbn.org/public/resources/res/NCSBNRNTTestPlanBooklet.pdf>.

# Contributors

**Julie A. Adkins, RN, MSN, FNP**  
Family Nurse Practitioner  
West Frankfort, Illinois  
*Chapters 10 and 14*

**Jana G. Brannan, MN, RN, CNAA**  
Instructor  
Southeastern Louisiana University  
Hammond, Louisiana  
*Chapter 17*

**Carol D. Clark, MS, RN, ANP, GNPC**  
Associate Professor  
Indiana Wesleyan University  
Marion, Indiana  
*Chapter 8*

**Cathy Cormier, MN, RN, C**  
Instructor  
Southeastern Louisiana University  
Hammond, Louisiana  
*Chapter 5*

**Mical DeBrow, PhD, RN**  
Vice President/Healthcare Services  
Gulf South Health Plans  
Baton Rouge, Louisiana  
*Chapter 12*

**Joseann Helmes DeWitt, MSN, RN, C,  
CLNC**  
Assistant Professor  
Alcorn State University School of Nursing  
Natchez, Mississippi  
*Chapter 9*

**Lynn H. Doyle, RN, MS, CPNP**  
Assistant Professor Pediatrics  
Marian College  
Fond du Lac, Wisconsin  
*Chapter 16*

**Pam Hamre, RN, MS, CNM**  
Assistant Professor  
College of St. Catherine  
St. Paul, Minnesota  
*Chapter 11*

**Ann Harley, EdD, RN**  
Professor  
Carson Newman College  
Jefferson City, Tennessee  
*Chapter 3*

**Sherry Hendrickson, RN, PhD, CS**  
Assistant Professor of Clinical Nursing  
The University of Texas at Austin  
Austin, Texas  
*Chapter 4*

**Karen Hill, PhD, RN**  
Assistant Professor  
Southern Louisiana University  
Hammond, Louisiana  
*Chapter 1*

**Barbara Moffett, PhD, RN**  
Associate Professor  
Southeastern Louisiana University  
Hammond, Louisiana  
*Chapter 13*

**Patsy Rider, RN, MSN, CS**

Instructor

The University of Texas at Austin  
Austin, Texas

*Chapter 4*

**Diane E. Smith, MSN, RN**

Baton Rouge, Louisiana

*Chapter 6*

**Susan K. Steele, MN, RN, AOCN**

Oncology Clinical Nurse Specialist/Assistant  
Professor

Our Lady of the Lake College  
Baton Rouge, Louisiana

*Chapter 15*

**Betty Jane Sylvest, BSN, RN, MSN**

Instructor

University of Southern Mississippi  
Hattiesburg, Mississippi

*Chapter 2*

**Eugenia H. Tickle, RN, MSN, EdD**

Associate Professor

Midwestern State University  
Wichita Falls, Texas

*Chapter 7*

# Reviewers

**Janie Butts, DSN, RN**

Assistant Professor  
University of Southern Mississippi  
Hattiesburg, Mississippi

**Christine A. Cannon, RN, PhD**

Associate Professor  
University of Delaware  
Newark, Delaware

**Linda Covington, PhD**

Associate Professor  
Middle Tennessee State University  
Murfreesboro, Tennessee

**Barbara Daniel, MEd, MS, CRNP**

Professor  
Cecil Community College  
North East, Maryland

**Ann M. Findley, PhD**

Associate Professor  
Department of Biology  
University of Louisiana at Monroe  
Monroe, Louisiana

**Diane Ford, RN, MS, FNP, CS**

Assistant Professor  
Andrews University  
Berrien Springs, Michigan

**Wanda Gifford, RN, MSN, CS, FNP**

Family Nurse Practitioner/Instructor  
St. Josephs College  
Rensselaer, Indiana

**Sandra Smith Huddleston, RN, PhD**

Associate Professor  
Berea College  
Berea, Kentucky

**Robin Kirschner, RN, MA, CPAN**

Professor  
Scottsdale Community College  
Scottsdale, Arizona

**Jane Koeckeritz, RN, PhD**

Professor  
University of Northern Colorado  
Greeley, Colorado

**James A. Metcalf, PhD**

Professor  
George Mason University  
Fairfax, Virginia

**Mercy Mammah Popoola, RN, CNS, PhD**

Assistant Professor  
Georgia Southern University  
Statesboro, Georgia

**Elizabeth Ann Rettew, MSN, RN, FNP-BC**

Associate Professor  
Malone College  
Canton, Ohio



# Student Consultants

**Alisa Beaulieu**  
Santa Fe Community College  
Gainesville, Florida

**Alison Cody**  
Germanna Community College  
Locust Grove, Virginia

**Daniel Dale**  
Valdosta State University  
Valdosta, Georgia

**Stephanie Hornby**  
George Mason University  
Fairfax, Virginia

**Amy Jeter**  
Ohio University-Chillicothe  
Chillicothe, Ohio

**Joan Lawrence**  
Auburn University  
Auburn, Alabama

**Lisa Marie Mays**  
Boise State University  
Boise, Idaho

**Shawn Shaughnessy**  
Santa Fe Community College  
Gainesville, Florida

**Phyllis Thieken**  
Ohio University-Chillicothe  
Chillicothe, Ohio

**Jenefer Thomas**  
Boise State University  
Boise, Idaho

**Gyleen Vickerman**  
Boise State University  
Boise, Idaho

**Carolyn Wilkinson**  
Auburn University  
Auburn, Alabama



CHAPTER 1

# Growth and Development

Kimberly A. Serroks, MSN, RN

Kimberly A. Serroka, MSN, RN

Introduction to Growth  
and Development  
Biologic Growth and Development

Growth and Development Theories  
Child's Reaction to Illness  
and Hospitalization

### Child's Reaction to Death and Dying

## OBJECTIVES

- Review basic principles of growth and development.
- Describe major physical expectations for each developmental age group.
- Identify developmental milestones for various age groups.
- Identify major stages of psychosocial and cognitive development for children at various age groups.
- Discuss the reactions to illness and hospitalization for children at various stages of development.
- Discuss the reaction to death and dying for children at various stages of development.

## Media Link

Use the CD-ROM enclosed with *Now ENR*, or log onto the address given to access the free, interactive Companion Website created for this edition. The CD-ROM and Companion Website accompanying this book offer additional features, *including* *updates and job notices*, *2003 ENR Reader's Case Studies*, *Glossary*, *in English and Spanish*, *INDEX*, and more.

[www.prenhall.com/hogart](http://www.prenhall.com/hogart)

2 Chapter 1 Growth and Development  
REVIEW QUESTIONS

## REVIEW AT A GLANCE

**developmental guidance** the process of understanding upcoming developmental needs and then teaching caregivers to meet those needs

**infantile development** the process by which development proceeds from the head downward through the body and towards the feet

**teratological age** age to years critical periods, times when an individual is especially susceptible to certain environmental influences, sometimes called sensitive periods

**development** an increase in capability to function, a more complex concept that is continuous, orderly series of changes that lead to activities, new motives for activities, and eventual patterns of behavior

**developmental age** age based on functional behavior and ability to adapt to the environment. Does not necessarily correspond to chronological age.

**differentiation** the development of simple operations to more complex ones and functions

**egocentrism** the inability to put oneself in another's place; unable to see things from any other perspective other than one's own; cannot see another's point of view or any reason to do so

**growth** an increase in physical size

**growth spurt** brief periods of rapid increase in growth rate

**object permanence** the knowledge that an object or person continues to exist when not seen, heard, or felt

proximodistal development: the principle by which development proceeds from the center of the body outward to the extremities

regression: use of behavior that is more appropriate to an earlier stage of development, often used to cope with stress or anxiety

ritualized: the toddler's need to maintain sameness and consistency, provides a sense of comfort

separation anxiety: distressful behavior observed in young children separated from familiar caregivers

therapeutic play: planned play techniques that provide an opportunity for children to deal with their fears and concerns related to illness or hospitalization

### Pretest

- 1 The mother did not deny sexual acts with the parents of a 3-year-old. The mother explains that by the age of 5, their child should know that the father is not the mother's husband.
- 2 The mother of a 6-month-old infant is concerned that the infant's enuresis (wetness) is still open. The item is needed if the mother feels that the infant's enuresis is still open after 6 months.
- 3 The nurse has discussed appropriate support of the young infant to prevent injuries from falls. The mother who needs further education is the mother who states:
  - (1) "My child should be allowed to have his walker near the stairs."
  - (2) "I know how to keep him supervised on my bed."
  - (3) "I can sit on without support."
  - (4) "Before my child is standing, I should place the crib in the lowest level."
- 4 The 9-year-old child is at the 50th percentile for weight and at the 40th percentile for height. The school nurse will interpret that this child is:
  - (1) Underweight or small in stature.
  - (2) Overweight or large in stature.
  - (3) Experiencing a pubertal growth spurt.
  - (4) Normal.
- 5 In discussing sexual maturation with a health class, the teacher should include the information that secondary sex characteristics begin to appear at:
  - (1) 10 years in girls, 12 years in boys
  - (2) 12 years in girls, 10 years in boys
  - (3) 10 years in girls and boys
  - (4) 12 years in girls and boys

**Review at a Glance** contains a glossary of key terms used in the chapter, with definitions provided up-front and available at your fingertips, to help you stay focused and make the best use of your study time.

The **Pretest** is a 10-question multiple choice test providing a sample overview of content covered in the chapter and helps you decide what areas need the most – or the least – review.

The Practice to Pass questions are open-ended questions that stimulate critical thinking and reinforce mastery of the chapter content.

## Chapter 6 Neurologic Health Problems

- 7. **Child and family education**
  - Teach parents use of physical therapy strategies such as range of motion exercises to use at home
  - Child will need to learn self care skills such as how to feed and dress self and perform hygiene tasks
  - Teach parents special feeding techniques and use of adaptive devices such as special喂料器 and dishes; parents may need to be taught how to do gastrointestinal tube feedings if indicated.
- 8. **Evaluation**
  - Child demonstrates optimal physical mobility and self-care skills
  - Child demonstrates adequate nutrition, as evidenced by age-appropriate maintenance or increase in height and weight
  - Child is free from injury
  - Child is interacting with the child and able to comprehend the child's needs
  - Child demonstrates adequate energy level, as evidenced by ability to participate in daily routine
  - Child demonstrates understanding of the child's health problems

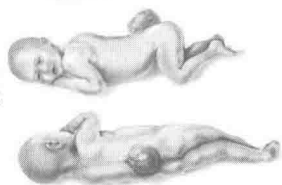
B. Neural tube defects

1. Description: neural tube defect that develops during the first trimester of fetal development; occurs at any place along the spinal canal (see Figure 6-2)
2. Etiology and pathophysiology
  - a. Etiology is unknown but thought to be associated with folic acid deficiency in mother's diet; the degree of disability is determined by the location of



Figure 6-2

Infant with lumbarsacral  
myelomeningocele.  
Source: Bell, J. & Bender, R.  
(1998). Pediatric nursing:  
Caring for children  
2nd ed., Stamford, CT  
Appleton & Lange, p. 783



**NCLEX** The NCLEX icon identifies information or concepts that are likely to be tested on the NCLEX licensing examination.

A detailed **Outline Review** of core content is given to provide both a comprehensive overview and review.

The **Case Study**, found at the end of the chapter, provides an opportunity for you to use your critical thinking and clinical reasoning skills to “put it all together.” It describes a true-to-life client case situation and asks you open-ended questions about how you would provide care for that client and/or family.

The **Posttest** is a 10-question multiple-choice test at the end of the chapter providing new questions that are representative of chapter content. This posttest provides you with feedback about mastery of that content following review and study.

**Answers and Rationales** For all questions, answers and rationales for each correct answer are provided.

