

*Seidel's Guide to*

# PHYSICAL EXAMINATION

EIGHTH EDITION

Jane W. Ball  
Joyce E. Dains  
John A. Flynn  
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# PHYSICAL EXAMINATION

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**ELSEVIER**



*We dedicate the eighth edition of this text to our colleague, Henry M. Seidel, MD who passed away in 2010. For seven editions the text has been known as Mosby's Guide to Physical Examination. In Henry's honor and memory we have renamed it Seidel's Guide to Physical Examination.*

*Henry spent all of his professional life (except for time served in the U.S. Army), from college through his appointment as Professor Emeritus of Pediatrics, at The Johns Hopkins University. He received numerous awards and a named scholarship at The Johns Hopkins University, testimony of his service at the bedside, in the lecture and seminar rooms, and as Associate Dean for Student Affairs in the School of Medicine.*

*As an original author we are indebted to him as he contributed greatly to the initial text design as well as to its ongoing development. He understood the importance of communication, sensitivity, and connection with patients, and he was able to share these concepts during the initial book development. He often reminded us that human interaction, sensitivity during history taking, and excellent physical examination skills enable health professionals to understand a patient and develop a healing relationship.*

*This text was one of the earliest collaborations of a physician and nurse author team, in this case to develop a text targeted to students of medicine, nursing, and other allied health professions. Henry's vision for this text meshed with those of the nurse authors, as well as that of William Benedict, MD, the fourth original author. Through Henry's leadership and collaboration, the authors were able to shape this text and share these important values with students. Henry also wisely planned to have the text's vision remain on course by identifying Barry, John and Rosalyn, the current physician authors, to continue that vision. We hope we have fulfilled his vision with this edition.*

# About The Authors

## Jane W. Ball, DrPH, RN, CPNP

Jane W. Ball graduated from The Johns Hopkins Hospital School of Nursing and subsequently received her master's and doctoral degrees in public health from The Johns Hopkins University Bloomberg School of Public Health. She began her nursing career as a pediatric nurse and pediatric nurse practitioner in The Johns Hopkins Hospital. Since completing her public health degrees, she has held several positions that enable her to focus on improving the health care of children, such as serving as the chief of Child Health for the Commonwealth of Pennsylvania Department of Health and as Assistant Professor at the University of Texas at Arlington School of Nursing. For the next 20 years Jane focused her efforts on improving the system of emergency medical care for children while employed by Children's National Medical Center in Washington, DC. She served as the executive director of the National Resource Center at Children's

National Medical Center providing support to two federal programs: Emergency Medical Services for Children and the Trauma-Emergency Medical Services Systems Program. Dr. Ball serves as a consultant to the American College of Surgeons' Committee on Trauma to help states improve their trauma care systems, an investigator for an Emergency Medical Services for Children Program grant awarded to Wake Forest University School of Medicine, and a consultant to the Uniformed Services University of the Health Sciences for the development of a pediatric emergency education program. She is also the author of several pediatric nursing textbooks. Dr. Ball was recognized as a distinguished alumnus of The Johns Hopkins University in 2010.



## Joyce E. Dains, DrPH, JD, RN, FNP-BC, FAANP

As a board-certified family nurse practitioner with doctorates in both public health and law, Joyce E. Dains has had a rich and productive career in education and clinical practice. She graduated as Valedictorian from the New England Baptist Hospital School of Nursing in Boston and subsequently earned a baccalaureate degree in nursing from Boston College, graduating magna cum laude; a master's degree in nursing from Case Western Reserve University; and a doctorate in public health from the University of Texas–Houston. She also completed a post-graduate nurse practitioner program at the Texas Woman's University. She earned her law degree at the University of Houston and practiced law for a brief period. Dr. Dains has been in clinical practice, teaching, and leadership positions at major universities and medical institutions including Ohio State University, the University of Texas–Houston, and Baylor College of

Medicine. She has been instrumental in the education of nursing students, medical students, and other health care professionals. As a family nurse practitioner, she has maintained a clinical practice in a variety of primary care settings. She is currently at the University of Texas MD Anderson Cancer Center where she is Program Director for Advanced Practice Nursing and a Family Nurse Practitioner in the Cancer Prevention Center. Dr. Dains is a Fellow of the American Association of Nurse Practitioners and is the recipient of other distinguished honors, including election to the National Academies of Practice. Dr. Dains is also the author of Elsevier's *Advanced Health Assessment and Clinical Diagnosis in Primary Care*.





## John A. Flynn, MD, MBA, MEd

John A. Flynn completed his undergraduate work at Boston College, graduating magna cum laude with a bachelor's degree in mathematics. He attended medical school at the University of Missouri–Columbia where he was recognized in 2004 with the “Outstanding Young Alumni” award. Dr. Flynn completed his internship and residency at The Johns Hopkins University School of Medicine, followed by a fellowship in rheumatology, and was selected to serve as an assistant chief of service for the Longcope Firm of the Osler Medical Service. Dr. Flynn also completed a master's degree in business administration at The Johns Hopkins University. Dr. Flynn is currently the Director of Clinical Practice Improvement within the Clinical Practice Association, Chief Administrative Officer within the Office of Johns Hopkins Physicians, and Associate Dean of Johns Hopkins University School of Medicine. He holds the D. William Schlott, MD, Professorship in Medicine. Dr. Flynn also serves as the medical director of the spondyloarthritis program at The Johns Hopkins University and is the co-director of the Osler Center for Clinical Excellence. He is a founding member of the Vivien T. Thomas College within

## Barry S. Solomon, MD, MPH

Barry Solomon graduated from the University of Pennsylvania School of Medicine and completed his residency at the Children's Hospital of Pittsburgh. He subsequently completed a fellowship in general academic pediatrics at The Johns Hopkins University School of Medicine, during which time he received a master of public health degree from The Johns Hopkins University Bloomberg School of Public Health. His interests include the integration of children's mental health services in pediatric primary care, injury prevention, community pediatrics training, and medical education. He has given many research presentations and educational workshops at regional and national meetings and has authored numerous publications in peer-reviewed journals. Barry is currently an associate professor of pediatrics in the Division of General Pediatrics and Adolescent Medicine in the School of Medicine, a core faculty member in the Women's and Children's Health Policy Center, and an adjunct faculty member in the Center for Injury Research and Policy in the Bloomberg School of Public Health. He is the medical director

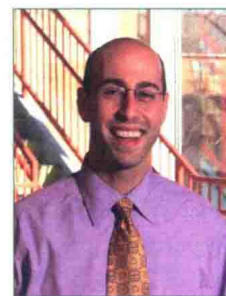
## Rosalyn W. Stewart, MD, MS, MBA

Rosalyn Stewart began her career at the University of Texas Medical Branch where she earned her medical degree and subsequently completed her combined internal medicine–pediatrics residency and a master of science degree in preventive medicine. She is currently an associate professor in internal medicine and pediatrics at The Johns Hopkins University and is also a member of the faculty in the Bloomberg School of Public Health and The Johns Hopkins School of Nursing. She completed a master of business administration degree with an emphasis on health care. She practices both general internal medicine and general pediatrics. Her academic focus is on medical education, primary care, and health disparities. She holds many positions centered on these interests and has been recognized for her ability to carry forth the Osler philosophy, discipline, and practice of medicine. She is associate director of the Longitudinal Ambulatory

The Johns Hopkins University School of Medicine Colleges Advisory Program. Dr. Flynn is a Fellow with The American College of Rheumatology and a Diplomate of The American Board of Rheumatology, as well as a Fellow to The American College of Physicians. Dr. Flynn holds memberships in The American College of Physicians, the American College of Rheumatology, the Society of General Internal Medicine, the Association of Chiefs of General Internal Medicine, the Spondyloarthritis Research and Treatment Network, and the Group for Research and Assessment of Psoriasis and Psoriatic Arthritis. He has served as an editor of *Cutaneous Medicine: Cutaneous Manifestations of Systemic Disease* and the *First and Second Editions of the Oxford American Handbook of Clinical Medicine*. Dr. Flynn's clinical interest is arthritis and his research interests include ambulatory education, the delivery of ambulatory care in an academic setting, and the care of patients with spondyloarthritis.



of the Harriet Lane Clinic, a large pediatric primary care practice that serves as the main outpatient training site for pediatrics residents at The Johns Hopkins University. As medical director, Barry has focused his efforts on enhancing the ability of the Harriet Lane Clinic to serve as a true medical home for urban children and families by providing an array of on-site health and social services, including an interdisciplinary mental health program. As a general pediatrician, he provides primary care in the Harriet Lane Clinic and serves as an inpatient attending in The Johns Hopkins Children's Center. Barry is an admired teacher and mentor to residents and medical students. He is an associate program director for the Johns Hopkins pediatric residency program and a faculty co-leader in the Colleges Advisory Program. In these roles, he serves as a longitudinal faculty advisor to medical students and residents.



Clerkship, a clinical clerkship devoted to primary care and systems of health practice. As the associate director of both Johns Hopkins University Internal Medicine–Pediatrics Urban Health Residency Program and the Osler Internal Medicine Urban Primary Track, she focuses her efforts on assembling a cadre of excellent teachers, training the very best students of medicine in the ongoing continuity of patient care developing new curriculum for the education of the best clinicians. Her goal is to create physician leaders who will serve as primary care systems–level change agents and will provide effective, longitudinal, comprehensive, coordinated, person-focused care for the underinsured inner-city patient.



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# Preface

*Seidel's Guide to Physical Examination* is written primarily for students beginning their careers as a healthcare professional. The core message of our book is that patients are primary and must be served well. Learning how to take histories and perform physical examinations is necessary but not sufficient for the full understanding of patients. The relationship with your patients and the development of trust most often begins with conversation. You need reliable information if you are to serve your patients well. You are, after all, learning the stories of unique individuals, and they involve far more than the sum of body parts and systems. The art and skills involved in history taking and the physical examination are common to all of us, regardless of our particular health profession.

## Organization

The achievement of a constructive relationship with a patient begins with your mastery of sound history taking and physical examination. Chapter 1 offers vital “getting to know you” guidelines to help you learn about the patient as the patient learns about you. Chapter 2 stresses that “knowing” is incomplete without the mutual understanding of cultural backgrounds and differences. Chapter 3 gives an overview of examination processes and the equipment you will need.

Chapters 4, 5, 6, and 7 introduce important elements of assessment: vital signs and pain, mental status, growth and development, and nutrition. Chapters 8 through 22 discuss specific body systems and body parts, with each chapter divided into four major sections:

- Anatomy and Physiology
- Review of Related History
- Examination and Findings
- Abnormalities

Each of these sections begins with consideration of the adult patient and ends, when appropriate, with variations for infants, children, and adolescents; pregnant women; older adults; and individuals with disabilities.

To help you get organized, each chapter starts with a preview of the step-by-step examination process. The Anatomy and Physiology sections begin with the physiologic basis for the interpretation of findings, and they describe the key anatomic

landmarks to guide physical examination. The Review of Related History sections detail a specific method of inquiry when a system or organ-related problem is discovered during the interview or examination. The Examination and Findings sections list needed equipment and then describe in detail the procedures for the examination and the expected findings. These sections encourage you to develop an approach and sequence that is comfortable for you and, particularly, for the patient. In some chapters advanced examination procedures are described for use in specific circumstances or when specific conditions exist. Sample write-up of findings conclude these sections. You will note that the terms “normal” and “abnormal” are avoided whenever possible to describe findings because, in our view, these terms suggest a value judgment that may or may not prove valid with experience and additional information. The Abnormalities sections provide an overview of diseases and associated problems relevant to the particular system or body part. The Abnormalities sections include three-column tables clearly listing pathophysiology, subjective data, and objective data for selected conditions and often include full-color photos and illustrations.

Chapter 23 details the issues relevant to the sports participation evaluation. Chapter 27 provides guidelines for the change in standard examination approaches in emergency and life-threatening situations. This information is only a beginning and is intended to be useful in your clinical decision making. You will need to add other resources to your base of knowledge.

The remaining chapters put it all together. Chapter 24 points the way to integrating what you have learned, making it useful in decision making and problem solving. Chapter 25 provides guidelines in thinking critically about clinical challenges. All you have learned and thought about regarding the patient, along with your decisions must be carefully recorded. Chapter 26 describes how to do this, with particular emphasis on the Problem Oriented Medical Record (POMR) and the use of SOAP (Subjective findings, Objective findings, Assessment, and Plan) to document your patients' problems completely.

The thoroughly updated appendixes and companion website content provide clinical tools and resources to document observations or problems and complete the physical examination, preserving a continuous record.



## Special Features

The basic structure of the book—with its consistent chapter organization and the inclusion of special considerations sections for infants, children, adolescents, pregnant women, and older adults—facilitates learning.

- Physical Variations boxes highlight variations from expected findings.
- Differential Diagnosis content—a hallmark of this text—is highlighted throughout.
- Evidence-Based Practice in Physical Examination boxes are reminders that our clinical work—as much as possible—should be supported by sound, proven information.
- Risk Factors boxes highlight modifiable and nonmodifiable risk factors for a variety of conditions.
- Sample Documentation and Examination Summary boxes at the end of each Examination and Findings section model good documentation practice and provide a convenient summary of examination steps.
- Functional Assessment boxes help readers consider specific physical problems and their effect on patient function.
- Staying Well boxes provide a focus on patient wellness and health promotion for a holistic approach.

## New to This Edition


The entire book has been thoroughly updated for this edition. This includes the replacement of illustrations of abnormal findings with updated photos and the use of new full-color photos and drawings to replace one- and two-color illustrations in the seventh edition. There are a total of approximately 1200 illustrations in addition to the numerous tables and boxes that have traditionally given readers easy access to information. Among the many changes:


- Evidence-Based Practice in Physical Examination boxes have been thoroughly updated. These boxes focus on the ongoing need to incorporate recent research into clinical practice and decision making.
- Clinical Pearls and Physical Variations boxes have been updated and revised.
- Mnemonics have been integrated into text where appropriate to assist with history and physical examination assessments.
- The Abnormalities section now includes a summary of the pathophysiology and subjective and objective data associated with the condition or disorder.
- The Techniques and Equipment chapter includes updated recommendations for Standard Precautions.
- A new chapter on vital signs assessment is integrated with pain assessment, considered the fifth vital sign.
- Cancer screening controversies and summary evidence are included in the abdomen, breast, and prostate chapters.
- The emergency or life-threatening situations chapter has been updated.
- The sports participation chapter includes recommendations for assessing and managing patients with sports-related concussions.

## Our Ancillary Package

*Seidel's Physical Examination Handbook* is a concise, pocket-sized companion for clinical experiences. It summarizes, reinforces, and serves as a quick reference to the core content of the textbook.

*Student Laboratory Manual for Seidel's Guide to Physical Examination* is a practical printed workbook that helps readers integrate the content of the textbook and ensure content mastery through a variety of engaging exercises.

 *Instructor Resources* on the companion Evolve website (<http://evolve.elsevier.com/Seidel>) include an extensive electronic image collection and two PowerPoint lecture slide collections that included integrated animations, case studies, and a series of audience response questions. In addition, *TEACH* provides learning objectives, key terms, nursing curriculum standards, content highlights, student and instructor resource lists, teaching strategies, and case studies. Also now available on the Evolve website are two thoroughly revised and expanded Test Banks, in ExamView® format, which faculty can use to create customized exams for medical, allied health, or nursing programs. Together these resources provide the complete building blocks needed for course preparation.

 *Student Resources* on the companion Evolve website include a wide variety of interactive activities, case studies, audio clips of heart, lung, and abdominal sounds, video clips of selected examination procedures, animations depicting content and processes, 270 NCLEX style review questions, and downloadable student checklists and key points. Audio, video, and animations icons have been added throughout the text chapters to highlight physical exam–related media segments provided on the comprehensive Evolve website.

Also available is the thoroughly revised and expanded online course library titled *Physical Examination and Health Assessment Online*, which is an exhaustive multimedia library of online resources, including animations, video clips, interactive exercises, quizzes, and much more. Comprehensive self-paced learning modules offer flexibility to faculty or students, with tutorial learning modules and in-depth capstone case studies for each body system chapter in the text. Also included in this online course are advanced practice case studies that put the student in the exam room and test information gathering and differential diagnosis skills. Animations, heart and lung sounds, images, interactive activities, and video clips are embedded in the learning modules and cases to provide a dynamic, multimodal learning environment for today's learners. Available for individual student purchase or as a required course supplement, *Physical Examination and Health Assessment Online* unlocks a rich online learning experience.

An additional electronic offering is the inclusion of this book in *Pageburst*®, a next-generation electronic book platform that allows for highlighting and annotating text content, adding notes, and sharing with other *Pageburst*® users, as well as linking and cross-referencing with other online Elsevier textbooks. This text will also be available in other electronic book formats.

The existing physical examination video series comprises 14 examination videos, each of which features an examination of a



specific body system with animations and illustration overlays to demonstrate examination techniques in greater depth, and a fifteenth “Putting It All Together” video that shows a head-to-toe examination of an adult along with appropriate life span variations. The series has been expanded to include three special topics: *Effective Communication and Interviewing Skills*, *Physical Examination of the Hospitalized Patient*, and *Putting It All Together: Physical Examination of the Child*. All 18 videos in this video series are offered in three formats: DVD, streaming (online), and networkable (for institutional purchase).

## Our Core Values

In the eighth edition of *Seidel's Guide to Physical Examination*, we have made every attempt to consider patients in all of their variety and to preserve the fundamental messages explicit in earlier editions. These include the following:

- Respect the patient.
- Achieve the complementary forces of competence and compassion.
- The art and skill essential to history taking and physical examination are the foundation of care; technologic resources complement these processes.
- The history and physical examination are inseparable; they are one.
- The computer and technology cannot replace you. You, your care and skills are what builds a trusting, fruitful relationship with the patient.
- That relationship can be indescribably rewarding.

We hope that you will find this a useful text and that it will continue to serve as a resource as your career evolves.

## Acknowledgments


The eighth edition of our textbook is possible only because of the professionalism and skills of so many others who really know how to fashion a book and its ancillaries so that it is maximally useful to you. First, there are those instructors and students who have so thoughtfully and constructively offered comment over the years. Improvements in content and style stem in large part from their suggestions.

We have, of course, provided the content, but it has to be accessible to the reader. A textbook needs a style that ensures readability, and our partners at Elsevier have made that happen. Sally Schreffer, our friend and also managing director, nursing and health professions, has been with us and guided us from the first day of planning for the first edition. She continued to exercise the wisdom she demonstrated early on without trampling our sometimes tender sensibilities. We wish her well in retirement, but we are sad that she will not be there to guide the ninth edition.

Each word, figure, and page needs the artful attention of skilled professionals. The whole is a demanding project requiring effective editing and design. This was ensured by Debbie Vogel, publishing services manager, and Bridget Healy, project manager. Bridget did a spectacular job of keeping everything moving with

her qualitative eye for detail throughout. Jessica William's design is visually appealing and showcases the content.

We also want to recognize the indispensable efforts of the entire marketing team led by Pat Crowe and Kim Eaves, as well as the sales representatives, who make certain that our message is honestly portrayed and that comments and suggestions from the field are candidly reported. Indeed, there are so very many men and women who are essential to the creation and potential success of our eighth edition, and we are indebted to each of them.

The remarkable teaching tools we call the ancillaries need special attention. These are the laboratory manual, handbook, instructor's resource manual, test banks, health assessment online, and video series, all demanding an expertise—if they are to be useful—that goes beyond that of the authors. Dr. Denise Vanacore-Chase offers hers for the laboratory manual, the nursing test bank, nursing PowerPoint slides, and TEACH; Frank Bregar offers his for the medical test bank and medical PowerPoint slide collection. The careful attention to all  *evolve* asset development is overseen by David Rushing. The development of *Health Assessment Online* is led by Chris Lay; Nancy Priff, Glenn Harman, and Paul Trumbore's efforts are essential to the success of the video series. And then there is Kristin Geen, our executive content specialist, and Michele Hayden and Jamie Randall, our content managers, who were always quietly there, a firm hand in a velvet glove. A phone call from Shelly or Jamie always ends with the feeling that their suggestions had really originated with us. They made our book better and we thought we were doing it.

Kristin, Shelly and Jamie worked hand in glove with splendid allies. Melissa Rawe, our content development specialist, maintained professional skill and calm and taught us that it is possible to do this and keep life at home and office in proper balance. And Hannah Corrier ensured that, when we used the work of others, it was appropriately acknowledged and recognized.

In addition, we offer many thanks to the following individuals for their contributions of time, talent, expertise, and resources: Craig S. Boisvert; Jason Ferguson; Alicia Greenwell; Carla Lynch; Kristin Ramirez; Anita K. Reed; Susan K. Rice; Susan D. Rymer; Pamela Stockel; Lynn Wimet; and Karen Vanbeek.

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And finally—our families! They are patient with our necessary absences, support what we do, and are unstinting in their love. They have our love and our quite special thanks.

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