

HOSPITAL PHYSICIAN®

EMERGENCY MEDICINE BOARD REVIEW MANUAL

PUBLISHING STAFF

PRESIDENT, GROUP PUBLISHER

Bruce M. White

EXECUTIVE EDITOR

Debra Dreger

SENIOR EDITOR

Bobbie Lewis

EDITOR

Robert Litchkofski

ASSISTANT EDITOR

Melissa Frederick

EDITORIAL ASSISTANT

A.C. Arkles

EXECUTIVE VICE PRESIDENT

Barbara T. White, MBA

PRODUCTION DIRECTOR

Suzanne S. Banish

PRODUCTION ASSOCIATES

Tish Berchtold Klus

Christie Grams

Mary Beth Cunney

ADVERTISING/PROJECT MANAGER

Patricia Payne Castle

NOTE FROM THE PUBLISHER:

This publication has been developed without involvement of or review by the American Board of Emergency Medicine.



Endorsed by the
Association for Hospital
Medical Education

The Association for Hospital Medical Education endorses HOSPITAL PHYSICIAN for the purpose of presenting the latest developments in medical education as they affect residency programs and clinical hospital practice.

Acute Back Pain

Series Editor: Susan B. Promes, MD, FACEP

Associate Residency Director

Department of Emergency Medicine

Alameda County Medical Center—Highland Hospital

Oakland, CA

Assistant Clinical Professor

Department of Medicine

University of California, San Francisco

San Francisco, CA

Author: Cherie A. Hargis, MD

Attending Physician

Department of Emergency Medicine

Alameda County Medical Center—Highland Hospital

Oakland, CA

Assistant Clinical Professor

Department of Internal Medicine

University of California, San Francisco

San Francisco, CA

Table of Contents

Introduction	2
Epidemiology	2
Structural Sources of Pain	2
Approach to Assessment	3
Causes of Back Pain in Children.	7
Causes of Back Pain in Younger Adults.	8
Causes of Back Pain in Older Adults	10
References	11

Cover Illustration by Christie Grams

Copyright 2001, Turner White Communications, Inc., 125 Stafford Avenue, Suite 220, Wayne, PA 19087-3391, www.turner-white.com. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, electronic, photocopying, recording, or otherwise, without the prior written permission of Turner White Communications, Inc. The editors are solely responsible for selecting content. Although the editors take great care to ensure accuracy, Turner White Communications, Inc., will not be liable for any errors of omission or inaccuracies in this publication. Opinions expressed are those of the authors and do not necessarily reflect those of Turner White Communications, Inc.

Acute Back Pain

INTRODUCTION

Back pain is a prevalent problem that affects all age-groups, although it is more common in adults. The etiology of back pain ranges from the ordinary, such as nonspecific musculoskeletal syndromes, to the disabling or catastrophic, such as neoplasms or infections. Patient presentation can range from benign or subtle to dramatic but may not correlate with illness severity. Due to this variability, clinicians must use a systematic approach when evaluating patients with back pain. In its clinical practice guidelines for acute low back pain in adults, the Agency for Healthcare Research and Quality (AHRQ) recommends that physicians conduct a focused history and physical examination to seek signs or symptoms that may indicate the presence of serious underlying illness (eg, fracture, tumor, or cauda equine syndrome).¹ The presence or absence of “red flag” findings guides further testing and treatment.

This manual describes an approach to evaluation of back pain in children and adults principally based on the AHRQ guidelines, with a focus on historical and physical examination red flags and their etiologic associations. It reviews causes of acute (< 3 months’ duration) back pain in all age-groups. Although the red-flag approach was designed for adults, the principles involved can apply to children as well because several of the serious underlying illnesses that cause back pain in children (tumor, infection) are the same as those in adults.

EPIDEMIOLOGY

Although back pain traditionally is considered a rare complaint in children, studies suggest that 26% to 36% of children and adolescents experience back pain; however, only 2% of children younger than 15 years present for medical attention.² More than 50% of children who presented with atraumatic back symptoms to orthopedic referral centers received a specific diagnosis; 6% to 11% of these children had tumors.² In primary care settings, fewer than 5% of patients aged 20 to 55 years have a serious etiology for their back pain, whereas 20% of patients older than 55 years do.³

In the majority of younger adult patients (< 65 years), the natural history of back pain is episodic. Pain usually

lasts 2 to 3 weeks, with 70% of cases resolving within 1 month and 90% resolving within 2 months.³ Peak prevalence for the onset of low back pain occurs between 45 and 60 years. Back pain is the chief cause of disability in patients aged 45 years and younger.⁴ Direct health costs related to back pain exceed \$24 billion, and estimates of lost productivity are between \$50 and \$100 billion annually.⁵

In older patients, it is dangerous to attribute back pain solely to the “aging process.” Although the incidence and prevalence of back pain is not well characterized in this age-group, most older patients report symptom onset before age 65 years.⁶ A clinician should be wary when an older patient reports new-onset back pain, especially if the patient has a history of cancer.

STRUCTURAL SOURCES OF PAIN

Many sources contribute to the multifactorial etiology of back pain. Pain-sensitive structural elements of the vertebral column include the outer annulus fibers of the disk, vertebral body periosteum, facet joint capsule, and anterior and posterior longitudinal ligaments. Other pain-sensitive structures are ligaments, paraspinous muscles, fascia, vasculature, and spinal nerve roots. Back pain is often attributed to the nerves, disks, and facet joints, but the myofascial system that interconnects the vertebrae and musculoskeletal system may also be considered a key source of symptoms.

Referred spondylogenic pain may be felt in the sacroiliac joints, buttocks, groin, or upper posterior thigh but seldom extends below the knee. In the primary care setting, sciatica in which surgery is necessary occurs in about 2% to 4% of low back pain patients.^{4,7} The pain of classic sciatica radiates from the back and extends below the knee into the posterolateral leg, lateral foot, and entire sole. Sciatica usually heralds a nerve root compression and may be caused by disk herniation, spinal stenosis (central or lateral-foraminal), intraspinal tumors, infections, and sacroiliac disorders. Paresthesias, muscle weakness, or reflex changes may coexist.

The spinal cord tapers into the conus medullaris at the L1-L2 interspace, but nerve roots continue as the cauda equina. Lumbosacral pathology usually manifests as nerve root dysfunction rather than spinal cord pathology. Nerve roots descend until they exit the intervertebral foramina