

ED Legal Letter

The Essential Monthly Guide to Emergency Medicine Malpractice Prevention and Risk Management
From the publishers of *Emergency Medicine Reports* and *ED Management*

Inside: EMTALA Supplement
and Reader Survey

American Health Consultants Home Page—<http://www.ahcpub.com> For more information, call (800) 688-2421.

CME for Physicians—<http://www.cmeweb.com>

EXECUTIVE EDITOR

James Hubler, MD, JD, FCLM
Clinical Instructor of Surgery, Department of
Emergency Medicine, University of Illinois
College of Medicine at Peoria; EMS Medical
Director, Central Illinois Center for Emergency
Medicine, OSF Saint Francis Hospital,
Peoria, IL

EDITORIAL BOARD

Kay Ball, RN, MSA, CNOR, FAAN
Perioperative Consultant/Educator, K&D
Medical, Lewis Center, OH

Monica C. Berry, BSN, JD, LLM, FASHRM,
CPHRM, Corporate Director, Risk Manage-
ment, Rockford (IL) Health System

Robert Bitterman, MD, JD, FACEP
Director of Risk Management and Managed
Care, Department of Emergency Medicine,
Carolinas Medical Center, Charlotte, NC

Paul Blaylock, MD, JD, FACEP
Emergency Medicine Physician, Southwest
Washington Medical Center, Emanuel Med-
ical Center; Member, Board of Governors,
American College of Legal Medicine; Retired
of Counsel, Miller, Nash, Wiener, Hager &
Carlsen, Attorneys at Law, Portland, OR

Arthur R. Derse, MD, JD, FACEP, FCLM
Director for Medical and Legal Affairs, Center
for the Study of Bioethics, Medical College of
Wisconsin, Milwaukee

Michael A. Gibbs, MD, FACEP,
Medical Director, MEDCENTER Air,
Department of Emergency Medicine,
Carolinas Medical Center; Clinical Instructor of
Emergency Medicine,
University of North Carolina, Chapel Hill

Gregory L. Henry, MD, FACEP
Director of Risk Management, Emergency
Physicians Medical Group, Ann Arbor, MI

Jonathan D. Lawrence, MD, JD, FACEP
Emergency Physician, St. Mary Medical
Center, Medical-Legal Consultant, Long
Beach, CA

J. Tucker Montgomery, MD, JD, FCLM
Montgomery & Pierce, Knoxville, TN

Gregory P. Moore, MD, JD
Department of Emergency Medicine, Indiana
University School of Medicine, Indianapolis

Marshall Salkin, MD, JD, FACEP, FCLM
Emergency Physician, Northwest Community
Hospital, Arlington Heights, IL

Jane A. Severson, RN, MS, MHSA,
University of Michigan Health System, Ann
Arbor, MI

Daniel J. Sullivan, MD, JD, FACEP
Chairman, Department of Emergency
Medicine, Ingalls Memorial Hospital;
Associate Professor of Emergency Medicine,
Rush Medical College, Harvey, IL

Jay C. Weaver, JD, EMT-P
Boston Public Health Commission
Emergency Medical Services
Adjunct Faculty, Northeastern University
Boston

Lynn K. Wittwer, MD, FACEP
Medical Director, Emergency Medicine,
Southwest Washington Medical Center,
Vancouver, WA

James G. Zimmerly, MD, JD, MPH, FACPM,
FCLM, Past President, American College of
Legal Medicine, Adjunct Professor of Law,
Georgetown University Law Center; Associate
Professor of Preventive Medicine, University of
Maryland School of Medicine, Baltimore

Evaluating the patient with minor head trauma

By **Jay C. Weaver, JD, EMT-P**, Boston Public Health Commission, Emergency
Medical Services; Adjunct Faculty, Northeastern University, Boston.

Peer reviewed by **Bryan McNally, MD**, EMS Medicine Fellow, Boston Medical
Center.

Editor's note:

The author presents a concise summary of the diagnostic dilemma that emergency physicians face daily in regard to the patient with minor head trauma. The volume of patients presenting with head injuries precludes the use of routine computed tomography (CT) scanning of all these patients. Both space limitations as well as time constraints in today's emergency department (ED) overcrowding crisis demand judicious use of available resources. Financial restrictions, particularly in our now health maintenance organization (HMO) -dominated society, further necessitate a systematic approach to the evaluation of head-injured patients. The author describes the importance of detailed discharge instructions and having a friend or family member available at discharge to evaluate the patient and ensure return if ominous signs or symptoms develop. This issue presents a sound risk management approach to dealing with these patients.

Introduction

Head trauma often constitutes a true emergency. Dubbed “the silent epidemic” by the National Head Injury Foundation, brain injuries now account for more than half of all trauma deaths in America.^{1,2} More than 1 million Americans seek emergency department treatment for head injuries each year, and approximately 40% of the head trauma patients who arrive unconscious at the hospital eventually prove to have intracranial hematomas.^{3,4} To avoid medical malpractice liability, ED physicians must familiarize themselves with the physical signs, symptoms, diagnosis, and treatment of significant brain injuries. Because most of the litigation commenced against physicians in connection

with head injuries focuses on the misdiagnosis of intracranial hemorrhage, physicians must take care to utilize proper diagnostic procedures in a timely manner so as not to overlook such conditions.

The diagnosis of neurological injuries has evolved dramatically during the last few decades. In the past, ED physicians diagnosed brain injury on the basis of physical examination and patient symptoms. Plain film radiographs proved useful in detecting skull fractures and may have aroused suspicion regarding underlying hemorrhages, but x-ray images provide no definitive information as to the nature, extent, or source of bleeding.⁵

The introduction of CT in 1972 revolutionized the diagnosis of head trauma.⁶ Unlike cranial x-rays, a CT scan of the head provides a quick, exceptionally accurate method of detecting significant soft-tissue injuries such as subdural and epidural hematomas, subarachnoid hemorrhage, and intracerebral bleeding. As Robert Lang noted a decade ago, "The advent of the

CT has made diagnosis [of intracranial hematomas] much more rapid. CT scanners are located in close proximity to EDs, and an accurate diagnosis can be established in a matter of minutes. CT scan is the procedure of choice for patients with head injuries. Angiography is now used only when a scanner is not available."⁷

Unfortunately, such diagnostic advances come at a price. Constrained by the fiscal policies of third-party guarantors such as insurance companies and HMOs, and wary of running up huge hospital bills for under-insured patients, ED practitioners today constantly must balance the cost of diagnostic procedures such as CT scans against the likelihood that a scan will influence the diagnosis.⁸ Rather than blindly ordering a CT scan for every patient who has sustained a blow to the head, emergency physicians tend to utilize these procedures only when the patient's history or physical examination suggests moderate to severe head trauma.⁹ For similar reasons, many physicians no longer routinely hospitalize patients with apparently minor head injuries for "observation." Instead, they selectively admit two classes of patients: those who cannot be observed at home by reliable friends or family members, and those who likely will require neurosurgical intervention.¹⁰

The result, of course, is that significant brain injuries sometimes elude detection; because the condition of patients with intracranial hemorrhages can deteriorate rapidly, some patients whose presentations suggest only superficial injuries die after leaving the hospital.¹¹ Given today's widespread availability of sensitive diagnostic procedures such as CT scans, the misdiagnosis or premature discharge of patients with serious neurological injuries provides fertile ground for medical malpractice and wrongful death actions against ED practitioners and hospitals.

In nearly all medical malpractice actions involving head injury, the conduct at issue falls into one of four categories. Most commonly, the plaintiff claims that the physician misdiagnosed the nature or severity of the injury.¹² Nearly as common are allegations that the physician failed to obtain a CT that would have revealed a treatable condition.¹³ Another set of plaintiffs allege that ED physicians commit malpractice in failing to consult with neurosurgeons.¹⁴ The fourth category of lawsuits revolves around the nature or extent of information provided to head-injured patients and their families.¹⁵ To a large extent, ED practitioners can ward off such actions by familiarizing themselves

ED Legal Letter[™], ISSN 1087-7341, is published monthly by American Health Consultants, 3525 Piedmont Road N.E., Bldg. 6, Suite 400, Atlanta, GA 30305.

Vice President/Publisher: Brenda Mooney
Editorial Group Head: Valerie Loner
Managing Editor: Allison Mechem
Production Editor: Emily Palmer
GST Registration Number: R128870672.
Periodical postage paid at Atlanta GA 30304.
POSTMASTER: Send address changes to *ED Legal Letter*, P.O. Box 740059, Atlanta, GA 30374.

Copyright 2002 by American Health Consultants. All rights reserved. No part of this newsletter may be reproduced in any form or incorporated into any information-retrieval system without the written permission of the copyright owner.

Back issues: \$73. Missing issues will be fulfilled by customer service free of charge when contact ed within one month of the missing issue's date.

Opinions expressed are not necessarily those of this publication. Mention of products or services does not constitute endorsement. Clinical, legal, tax, and other comments are offered for general guidance only; professional counsel should be sought in specific situations.



Now available on-line at www.ahcpub.com/online.html

Statement of Financial Disclosure

To reveal any potential bias in this publication, and in accordance with Accreditation Council for Continuing Medical Education guidelines, Dr. Hubler (executive editor); Advisory Board members Ball, Berry, Bitterman, Blaylock, Derse, Gibbs, Lawrence, Montgomery, Moore, Salkin, Severson, Sullivan, Weaver, Wittwer, and Zimmerly; and Dr. McNally (peer reviewer) have reported no relationships with companies having ties to the field of study covered by this CME program. Dr. Henry (Board member) is a stockholder in Emergency Physician Medical Group, Medical Practice Risk Assessment, and American Physicians Assurance Society, Ltd.

Subscriber Information

Customer Service: (800) 688-2421

Customer Service E-Mail Address:
customerservice@ahcpub.com
Editorial E-Mail Address: allison.mechem@ahcpub.com
World Wide Web: <http://www.ahcpub.com>

Subscription Prices

United States: \$435 per year
Multiple Copies:
2-9 additional copies: \$348 each.
10+ copies: \$261 each.
Canada: \$465 per year plus GST
Elsewhere: \$465 per year

Accreditation

American Health Consultants is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide CME for physicians. American Health Consultants designates this CME activity for 12 credit hours of Category 1 of the Physician's Recognition Award of the AMA. *ED Legal Letter*[™] is also approved by the American College of Emergency Physicians for 12 hours of ACEP Category 1 credit. This CME activity was planned and produced in accordance with the ACCME Essentials.

This continuing education program is sponsored by American Health Consultants, which is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation. Provider approved by the California Board of Registered Nursing. Provider Number CEP 10864.

Questions & Comments

Please contact Allison Mechem,
Managing Editor, at
allison.mechem@ahcpub.com
or (404) 262-5589.

with the signs and symptoms of emergent neurosurgical conditions, and by endeavoring to avoid each of these “pitfall” areas.

Diagnosing Brain Injury

Every patient who arrives in the ED with a head injury should receive a timely assessment, including vital signs, and a thorough neurological examination.¹⁶ This rule applies not only to critically injured patients, but also to those with less severe injuries. As Paul Taheri wrote in 1993, “A large number of patients are evaluated in the ED for apparently minor head injuries. The treatment of these patients represents a difficult triage decision, involving a large number of patients at low but definite risk of death and serious morbidity.”¹⁷

ED practitioners who conduct only cursory examinations of head-injured patients are destined to overlook crucial indicators of significant brain injury. Similarly, those who fail to recognize abnormal neurological findings put their patients at risk for subsequent deterioration. As the following case illustrates, these mistakes may prove costly not only in terms of harm to the patient, but also in terms of economic losses to the hospital and physician.

Case #1

*Campbell v. Shelton.*¹⁸ On Sept. 19, 1992, a high school football player named John Shelton Jr. was tackled by an opposing player while running with the ball. Tumbling out of bounds, he struck his head on a concrete running track that encircled the field. Shelton did not lose consciousness, but he did report “seeing stars” as a result of the impact. Upon returning home after the game, he complained to his mother of a headache.¹⁹

Shelton’s headache persisted for three days, and he began to complain of a backache as well. Shelton reported these symptoms to his coach after football practice on Sept. 22. In response, the coach informed Shelton that he could not play football again until a physician examined him. Later that evening, Shelton’s parents brought him to a local ED, where Shelton described the football incident and informed hospital personnel about his subsequent headaches and backaches. Despite this history, and despite an eye examination that revealed 20/25 vision in a patient who previously had not worn glasses or contact lenses, the ED

physician diagnosed Shelton with a “closed head injury” and discharged him.²⁰

On Sept. 25, Shelton went to Humana Clinic in Clarksville, IN. There, Dr. Cheryl Adams performed an eye examination that revealed 20/40 vision. Dr. Adams prescribed some medication, directed Shelton to follow up with another physician 10 days later, and advised Shelton not to play football for three weeks. Shortly thereafter, Shelton developed a fever that kept him out of school for four days. Upon his return, he did not play football or participate in physical education classes.²¹ Three weeks after the injury, Shelton’s mother brought him back to Humana Clinic. There, Shelton received an examination from a third physician, Dr. Jeff Campbell. In an examination that lasted just four minutes, Dr. Campbell looked in Shelton’s ears, asked whether Shelton still had a headache, and wrote on a prescription pad that Shelton could resume playing football.²²

Three days after this abbreviated examination, Shelton collapsed during a football game. He lapsed into a coma, and was transported to the ED at the University of Louisville Hospital. Doctors there performed surgery to remove a large blood clot from Shelton’s brain. The surgery revealed that Shelton actually had sustained a pair of distinct neurovascular problems — a chronic subdural hematoma (SDH), undoubtedly a result of the original football collision; and a newer, acute subdural component. Shelton remained an inpatient for more than three months, and despite an extensive rehabilitation program, experts later declared that he had suffered permanent brain damage that forever would preclude independent living and gainful employment.²³

Shelton’s parents filed a medical malpractice action on behalf of themselves and their son against Dr. Campbell and the professional group with which he practiced.²⁴ At trial, the Sheltons contended that Dr. Campbell had overlooked signs and symptoms of significant head injury — including persistent headache and backache, visual changes, and a fever of unknown etiology — which had occurred in the wake of the head trauma.²⁵ The Sheltons presented several expert witnesses, including a neurosurgeon who testified that Dr. Campbell had breached the applicable standard of care.²⁶ A jury found against Dr. Campbell and the practice group, and awarded the Sheltons damages of nearly \$4 million.²⁷ The Indiana Court of Appeals later affirmed this judgment.²⁸

As the defendants in *Shelton* learned, an ED practitioner must never adopt a cavalier attitude toward the

diagnosis of head injury. Given the number of patients who seek emergency care for head trauma each year, and in light of the fact that the vast majority of these injuries prove to be minor, a diagnostician must overcome the urge to grow complacent. Overlooking the symptoms of intracranial hemorrhage may prove lethal to the patient, and a single mistake of this type can devastate even the most brilliant medical career.

Utilization of CT Scanning

Decisions regarding the use of CT scanning generate almost as much medical malpractice litigation as all other acts of head injury diagnosis combined.²⁹ While the CT scan has become an invaluable tool in the diagnosis of head injury, the cost associated with this procedure prevents the ED practitioner from using it on every patient who has suffered a blow to the head.³⁰ In the years since CT scanning was introduced, indications for its use on the head-injured patient have proved controversial.³¹ Some experts advocate routine scanning of all patients who present to the ED with a history of unconsciousness or amnesia.³² Routine CT scanning pays for itself, they argue, because it minimizes the expense of hospitalization, rehabilitation, lost wages, and litigation that often results from misdiagnosis.³³

Other experts recommend more judicious use of CT scanning. Anxious to avoid the expense associated with unnecessary diagnostic procedures, and contending that a thorough neurological examination remains the best predictor of serious complications, these researchers argue that CT scanning should be reserved for patients who display a diminished level of consciousness in the ED or who manifest other physical findings indicative of serious head injury, such as a depressed skull fracture.³⁴⁻³⁷ The failure of neurosurgical experts to reach a consensus on this issue leaves the standard of care open to speculation. As a result, an ED practitioner who elects not to order a CT scan for a patient who has sustained a seemingly minor head injury may come under attack from experts who favor routine CT scanning, particularly if the patient's condition later deteriorates. The following cases illustrate the types of litigation that may ensue.

Case #2

*Rahilly v. North Adams Regional Hospital.*³⁸
At approximately midnight on Aug. 10, 1988,

5-month-old Jeremy Rahilly developed respiratory distress. Jeremy's father placed a call to police, and an ambulance transported Jeremy to North Adams Regional Hospital in western Massachusetts.³⁹

The physician who examined the infant in the ED found him "limp and pale, breathing at a rate of four respirations a minute," and unable to focus his eyes. The physician attempted to intubate Jeremy, but he inserted the endotracheal tube into the esophagus, and oxygen entered the infant's stomach rather than his lungs.⁴⁰

Jeremy's pediatrician, Dr. Michael Sussman, arrived at the hospital shortly before 1 a.m. He examined the infant and diagnosed him with "respiratory arrest" and "possible hypoxic cerebral injury" without ordering a CT scan. After speaking with Jeremy's father, Dr. Sussman ordered the infant transferred by New England Life Flights Inc. helicopter to Baystate Medical Center, which, unlike North Adams, had a pediatric intensive care unit (ICU).⁴¹

A physician at Baystate's ED described Jeremy's mental status as "marginally responsive" upon the child's arrival at 3:24 a.m. After consulting with the director of the pediatric ICU, a second-year pediatric resident, Dr. Paul Marz, ordered a lumbar puncture. The sample from the puncture contained blood, so Dr. Marz ordered a CT scan. This procedure, which was not performed until 8 a.m., showed evidence of intracranial hemorrhage and findings consistent with generalized anoxia. Jeremy died four days later. The physician who pronounced the infant dead listed the final diagnosis as "Anoxic brain damage. Intracranial hemorrhage. Aspiration pneumonia."⁴²

Suspecting abuse, the medical examiner ruled Jeremy's death a case of homicide, and the commonwealth charged the infant's father with murder. The father gained an acquittal, and he subsequently brought a medical malpractice action against North Adams Regional Hospital, Baystate Medical Center, numerous physicians, nurses, a respiratory therapist, and New England Life Flights Inc. A medical malpractice tribunal then was convened, as required by the statutory law of Massachusetts, to determine whether Mr. Rahilly's offer of proof, if properly substantiated, "was sufficient to raise a legitimate question of liability appropriate of inquiry."⁴³

The plaintiff's offer of proof principally consisted of a letter written by Dr. Robert Buscho, a physician who specialized in emergency medicine, among other areas. According to Dr. Buscho, Dr.

Sussman should have performed and documented a complete history and medical examination of the infant. Failure to do so, Dr. Buscho wrote, prevented the staff at North Adams from discovering an existing scalp contusion, a finding that would have led the physicians to perform a CT scan and discover the intracranial hemorrhage that eventually killed Jeremy. In Dr. Buscho's words, "Not only was there clinical evidence of a head injury that was not appreciated, but also, in any unconscious and unresponsive child, a CT scan should be performed to rule out a number of intracranial conditions."⁴⁴

Dr. Buscho faulted the care rendered by Baystate Medical Center as well. Rather than performing a lumbar puncture, he wrote, the physicians at Baystate should have performed an immediate CT scan. Dr. Buscho suggested that the Baystate physicians compounded this error by failing to obtain a CT scan as soon as the lumbar puncture revealed evidence of intracranial bleeding. According to Dr. Buscho, the delay in ordering the CT scan contributed to Jeremy's brain injury by delaying the institution of measures intended to reduce the infant's increased intracranial pressure.⁴⁵ "It is my opinion," Dr. Buscho wrote in summary, "that a number of individuals who treated Jeremy Rahilly failed to meet accepted medical standards and contributed to his eventual injury and death. Furthermore, there are many elements of medical negligence in this case."⁴⁶

The medical malpractice tribunal concluded that Mr. Rahilly's offer of proof was sufficient as to some of the defendants, but not to others. When Mr. Rahilly failed to produce the bond required by statute to proceed against those defendants against whom he had offered insufficient evidence, a judge entered a judgment of dismissal.⁴⁷ The Appeals Court of Massachusetts later affirmed the judgment of dismissal with respect to the nonphysician personnel of North Adams Regional Hospital, but vacated the judgments of dismissal against the remaining defendants, including Dr. Sussman and the physicians who had treated Jeremy at Baystate, thereby allowing Mr. Rahilly to proceed with his claims against them.⁴⁸

Case #3

*Heise v. Presbyterian Hospital of Dallas.*⁴⁹ On the evening of April 7, 1988, a woman named Kathleen Heise was assaulted as she walked along a street in

Dallas. A person who witnessed the attack later reported that the unidentified assailant struck Ms. Heise with a forearm to her neck. The witness and another passerby who stopped to help reported that they found Ms. Heise lying unconscious on the sidewalk. Someone called an ambulance, and paramedics transported her to the ED of Presbyterian Hospital. The paramedics documented the witnesses' accounts of Ms. Heise's unconsciousness in their run report.⁵⁰

When Ms. Heise arrived at Presbyterian Hospital at 9:30 p.m., she complained of nausea. She appeared confused, agitated, and restless, and did not cooperate with the doctors and nurses. At the request of a nurse, an ED physician, Dr. Michael B. West, convinced Ms. Heise to remain in the ED. Dr. West did not examine the patient, however, and in fact spent less than a minute with her. Another physician, Dr. Albert C. Broders, assumed responsibility for Ms. Heise's care from 9:30 p.m. until 6:30 a.m. the next day. Dr. Broders attempted to conduct a physical examination of Ms. Heise, but he abandoned these efforts because Ms. Heise repeatedly pushed his hands away. He later claimed that he did not observe any signs of severe injury, and he did not order a CT scan or any other tests.⁵¹

The physician who relieved Dr. Borders, Dr. Dirk A. Frater, finally conducted the first complete physical examination of Ms. Heise sometime after 6:30 a.m. on April 8. He ordered several tests, including a chest x-ray, but did not order a CT scan of the head. Despite the reports of unconsciousness on the sidewalk, and despite Ms. Heise's earlier abnormal behavior in the ED, Dr. Frater concluded that the patient had not sustained a neurological injury. He did not consult with a neurosurgeon, and discharged Ms. Heise home at approximately 1:30 p.m. on April 8.⁵²

That evening, Ms. Heise started to vomit and complained of an excruciating headache. She returned to the Presbyterian Hospital ED, where a fourth physician, Dr. Franklin J. Fleischhauer, examined her, ordered a CT scan of her head, and called in a neuroradiologist. To keep the patient calm and to relieve the pain of her headache, Dr. Fleischhauer prescribed meperidine (Demerol). Dr. Fleischhauer also prescribed promethazine (Phenergan) to reduce her nausea. Shortly after the CT scan, Ms. Heise stopped breathing. Hospital personnel quickly resuscitated her, and a neurosurgeon, Dr. Richard L. Weiner, told Dr. Fleischhauer that a

head injury had caused the respiratory arrest.⁵³

In fact, the CT scan indicated severe head trauma. Ms. Heise had sustained a fracture of her posterior skull, and her brain had swollen considerably. She died at 11:20 a.m. the next day, and a subsequent autopsy identified “craniocerebral injuries” as the cause of death.⁵⁴ Ms. Heise’s parents brought a medical malpractice action against the hospital and all of the ED physicians who had treated their daughter. In their complaint, they alleged that the doctors and nurses had failed to make a sufficiently rapid diagnosis of the head injury, and that they had failed to treat the injury in a timely manner.⁵⁵

At trial, the Heises called an ED physician from California, Dr. Frederick J. Condo, as an expert witness. Dr. Condo testified that if the physicians treating Ms. Heise at Presbyterian had performed a CT scan during her first visit to the ED, they could have identified the brain swelling and corrected the head injury promptly. He further testified that failure to perform this procedure constituted a breach of the standard of care, and that the defendants’ actions had proximately caused Ms. Heise’s death. The defendants objected to this evidence, arguing that only a neurosurgeon could testify as to the proximate cause of the patient’s death. The trial court sustained the objection, and the Heises’ theory of recovery failed for want of testimony as to the cause in fact.⁵⁶

On appeal, the Heises contended that the trial court had abused its discretion in disqualifying Dr. Condo from testifying on the issue of proximate cause. The appellate court reversed the trial court’s decision, noting that Texas law permits testimony regarding proximate cause by “a doctor of the same school of practice as the defendant,” and that Dr. Condo, like the defendants, practiced in the field of emergency medicine. The court went on to observe that Dr. Condo had received training in neurology while in medical school, during residency, and during his fellowship; that throughout his career in medicine, he had treated patients with severe head injuries; and that he had learned from neurosurgeons how they treat such injuries. The appeals court therefore held that the plaintiffs had met their burden of establishing Dr. Condo as a medical expert, and it remanded the case for retrial.

While the CT scanning of patients with mild or moderate head injuries remains a subject of intense controversy, the emergency physician should err on the side of caution. In both aforementioned cases, the presence of ominous signs should have alerted the

ED physicians to the possibility of intracranial hemorrhage. In *Rahilly*, the patient arrived at the ED with flaccid muscle tone and agonal respirations. External evidence of head trauma went undetected, allegedly due to an inadequate physical examination. As soon as the lumbar puncture revealed blood, the physicians should have ordered a CT scan of the head. In light of the patient’s condition, the decision to wait several hours before performing a noninvasive procedure such as a CT scan cannot be defended.

Similarly, in *Heise*, the witnesses’ description of head and neck trauma with unconsciousness, coupled with a persistent alteration in mental status, should have triggered an immediate CT scan of the head. Even those researchers who have advocated limited CT utilization would agree that patients with presentations such as these warrant CT investigation.

While the cost associated with routine CT scanning poses a valid concern, the risk and disability generated by an overlooked intracerebral hemorrhage can be enormous. Given the speed and accuracy of CT scanning, the ED practitioner should over-utilize, rather than under-utilize, the CT scanner in the presence of head injury when intracerebral injury clinically is suspected even remotely.

Neurosurgical Consultation

The failure of an ED practitioner to consult with a neurosurgeon is another issue that sometimes triggers litigation following the treatment of a head injury patient.

Just as the indications for CT scanning of head-injured patients have generated controversy within the medical community, so, too, have the disposition options regarding such patients. Some experts advocate the hospitalization of every head trauma patient who presents to the ED with altered mentation or focal hemispheric deficit, even if a CT scan of the head reveals no intracranial abnormality.⁵⁷ Others feel that a head-injured patient with a Glasgow Coma Scale (GCS) score of 14 or higher may be observed safely at home in the absence of complicating factors such as a skull fracture, advanced age, progressive neurological deterioration, focal neurological findings, or the lack of a reliable observer.⁵⁸

At what point, though, should the ED practitioner consult a specialist? Clearly, those patients who are likely to require neurosurgical intervention should be referred early during the course of treatment to a

neurosurgical service, even if this means transferring a patient to another facility.⁵⁹ This class of patients includes those who manifest signs of elevated intracranial pressure (ICP), persistently decreased level of consciousness, deterioration of neurological functioning, depressed or basilar skull fractures, or focal neurological deficits.⁶⁰ A patient with head injuries of mild or moderate severity may benefit from neurosurgical consultation as well, although the need for such consultation will depend upon the patient's clinical presentation.⁶¹ At times, the failure of an ED physician to recognize the need for neurosurgical intervention has constituted negligence.⁶² Indeed, as the following case illustrates, an ED practitioner may incur liability simply by failing to consult with a neurosurgeon in a timely fashion.⁶³

Case #4

*Kiniry v. Danbury Hospital.*⁶⁴ On Nov. 23, 1974, at approximately 9 p.m., 30-year-old Richard Kiniry fell down the basement stairs in his home, striking his head and losing consciousness for more than eight minutes. His wife called an ambulance. The responding emergency medical technicians (EMTs) observed that Mr. Kiniry was awake but disoriented and that he soon lapsed into "semiconsciousness." After splinting Mr. Kiniry's deformed wrist, the ambulance crew transported him to Danbury Hospital, arriving in the ED at approximately 9:42 p.m.⁶⁵

A full-time ED physician, Dr. Homer L. Fegley, obtained a history of the incident from the patient, the patient's wife, and the EMTs. Dr. Fegley's neurological examination revealed normal reflexes, but he observed that Mr. Kiniry's pupils were small and non-reactive. The doctor ordered skull and wrist x-rays and he telephoned the hospital's orthopedic surgeon, but did not consult with the on-call neurosurgeon.⁶⁶

During Mr. Kiniry's stay in the ED, he progressively became more confused and started to complain of a headache. The hospital radiologist reported to Dr. Fegley that the skull radiograph revealed a fracture over the middle meningeal artery. Dr. Fegley discussed the situation with Mrs. Kiniry, advised her that Mr. Kiniry required hospital admission for observation, and told her that an orthopedic surgeon would set the wrist fracture.⁶⁷

Danbury Hospital's on-call orthopedic surgeon, Dr. Thomas M. Malloy, examined Mr. Kiniry in the

ED's orthopedic room at approximately 11:15 p.m. He set the fractured wrist, ordered prochlorperazine (Compazine) for Mr. Kiniry's nausea, and ordered the patient admitted to the hospital's ICU for observation of the head injury.⁶⁸

Mr. Kiniry arrived in the ICU at approximately 12:45 a.m. Initially he appeared lethargic, but during the next two hours he grew increasingly restless, agitated, and combative. Eventually he became incoherent and delusional, and had to be restrained. Mr. Kiniry's pupils grew unequal in size, then became fixed and dilated, and he demonstrated greater movement on one side of his body than the other. The nursing staff alerted Dr. Malloy of these developments at approximately 2:15 a.m. Dr. Malloy, in turn, telephoned the on-call neurosurgeon, Dr. Jesse Malapez. Dr. Malapez arrived to examine Mr. Kiniry at 3:10 a.m., but by that time the patient had lapsed into a coma.⁶⁹

Dr. Malapez took Mr. Kiniry to the operating room, where he removed a large epidural hematoma that had formed as a result of the temporal bone fracture and resultant laceration of the middle meningeal artery. Dr. Malapez also discovered and removed a small SDH on the opposite side of Mr. Kiniry's brain. Mr. Kiniry failed to regain consciousness, and he died six days after surgery.⁷⁰

The executrix of Mr. Kiniry's estate, Mary S. Kiniry, brought a wrongful death action against Danbury Hospital and Drs. Fegley and Malloy, alleging medical malpractice. Dr. Malloy settled with the plaintiff for \$250,000, and the plaintiff withdrew the claim against him.⁷¹ At trial, Ms. Kiniry presented expert testimony that the hospital had failed to implement adequate rules requiring immediate consultation with a neurosurgeon when a patient with head injuries such as Mr. Kiniry's entered the ED. The plaintiff also presented evidence that the hospital's nursing staff had failed to monitor Mr. Kiniry's condition closely, and that the nurses should have called the attending physician more quickly when the patient's condition started to deteriorate. The plaintiff's expert witnesses went on to criticize Dr. Fegley for conducting an inadequate neurological examination, for failing to contact a neurosurgeon immediately upon learning of Mr. Kiniry's skull fracture, for failing to issue adequate nursing instructions, and for referring Mr. Kiniry's care to an orthopedic surgeon who was not qualified to treat head injuries. According to the plaintiff's expert witnesses, each of these acts and omissions constituted a departure from the applicable standard of care and was

a substantial factor in causing Mr. Kiniry's death.⁷² The jury found both of the defendants liable and awarded Ms. Kiniry \$1.8 million. While the trial court later reduced the size of the award by the amount of Dr. Malloy's settlement,⁷³ the Connecticut Supreme Court affirmed the resulting \$1.55 million judgment.⁷⁴

Failure to Provide Instructions and Information

Not all head trauma patients experience symptoms during their stay in the ED. Those with acute epidural hematomas sometimes arrive at the hospital during a "lucid interval."⁷⁵ Chronic SDHs may lie dormant for weeks, or even months, before headaches, seizures, or other neurological sequelae appear.⁷⁶ In fact, the pattern of delayed symptoms following head trauma occurs with sufficient frequency that neurosurgeons sometimes refer to this sequence as the "talk and deteriorate syndrome."⁷⁷

The temporarily benign appearance of such patients may lead to their premature discharge from the ED. To ensure that patients return quickly to the hospital in the event of subsequent deterioration, ED personnel must provide all departing head injury patients with a detailed set of discharge instructions.⁷⁸ These instructions should include, at a minimum, the diagnosis, medication instructions, a summary of monitoring requirements, signs and symptoms indicative of deterioration, a method of follow-up, and a plan for returning to the ED in the event of deterioration.⁷⁹

In *Pillsbury-Flood v. Portsmouth Hospital*, the defendant hospital learned that the failure to provide written discharge instructions to a head-injured patient may impart medical malpractice liability.⁸⁰ In that case, an ED physician sent a car-accident victim home after a neurological examination revealed no evidence of intracranial injury. The patient, who had not received a copy of the hospital's "head trauma sheet," died at home from an acute SDH the next afternoon, prompting the patient's wife to bring a medical malpractice action against the hospital and its personnel.⁸¹ While the lawsuit ultimately failed for want of proximate cause evidence, the plaintiff did produce expert testimony that the verbal discharge instructions given by the ED physician "were totally inadequate."^{82,83} Since some courts have relaxed the burden of proof regarding causation when a decedent such as the one in *Pillsbury-Flood* has suffered a "loss of chance," the plaintiff in this case might have prevailed had she advanced her claim in another jurisdiction.⁸⁴

ED personnel have an obligation to provide head-injured patients with other types of information, as well. The doctrine of informed consent necessitates the disclosure of all information that a patient might reasonably require in order to reach an intelligent decision about treatment options. An ED practitioner treating a victim of head trauma, therefore, has a duty to discuss with the patient or the patient's family the availability of beneficial procedures, such as CT scanning, as well as limitations on the hospital's capabilities.⁸⁵ As the following case illustrates, ED personnel may incur liability should they fail to provide such information.

Case #5

Martin v. Richards.⁸⁶ On the evening of July 10, 1985, 14-year-old Cheryl Martin rode her bicycle into the back of a dump truck. She lost consciousness for an undetermined period of time, vomited five or six times, and demonstrated amnesia before her arrival at Fort Atkinson (WI) Memorial Hospital. The physician on duty in the ED, Dr. William H. Richards, performed an examination and discovered swelling and bruising in Cheryl's right zygomatic area. He took a skull x-ray but did not order a CT scan, and ultimately diagnosed Cheryl as having sustained a concussion.⁸⁷

Dr. Richards conveyed this information to Cheryl's father. He then explained that Cheryl could go home, but that in his opinion she should remain at Fort Atkinson Memorial for observation. During the course of this conversation, Dr. Richards did not disclose that Fort Atkinson Memorial possessed a CT scanner, nor did he explain that such machines could diagnose head injuries more accurately than plain film radiographs. Dr. Richards also did not explain that Cheryl would require transfer to a different facility should neurological complications arise, since Fort Atkinson Memorial did not have a neurosurgeon.⁸⁸

Cheryl's father consented to his daughter's admission. Shortly after midnight, a nurse found Cheryl irritable and uncommunicative, but the nurse did not report these findings to any physician. One hour later, the nurse discovered that Cheryl had become unresponsive, with a fixed, dilated left pupil. The nurse reported these changes to Dr. Richards, who in turn notified Dr. Mark Hansen, the physician responsible for Cheryl's inpatient care. Dr. Hansen arranged for a helicopter to transfer Cheryl to the University of Wisconsin Hospital in Madison, where a CT scanner and neurosurgeons were

available.⁸⁹ A CT scan performed at the University of Wisconsin Hospital revealed a large epidural hematoma. Cheryl underwent surgical evacuation of the hematoma at 3:55 a.m., and again later in the day, to stem continued bleeding. Cheryl survived, but emerged from the surgery a partial spastic quadriplegic.⁹⁰

Cheryl's parents brought a medical malpractice action on behalf of themselves and their daughter against Dr. Richards, Dr. Hansen, Fort Atkinson Memorial Hospital, and others. At trial, the plaintiffs alleged that the failure to obtain a CT and the decision to admit Cheryl to a facility lacking neurosurgical capability constituted negligence. The plaintiffs also contended that the staff of Fort Atkinson Memorial rendered negligent care, and that Drs. Richards and Hansen failed to provide Cheryl's parents with information relevant to their daughter's care, as required by Wisconsin statutory law.⁹¹ A jury found that the doctors had not acted negligently in diagnosing and treating Cheryl's injury, and that the nurses, despite having negligently monitored Cheryl's condition, had not caused her subsequent injuries. The jury did find, however, that Dr. Richards had negligently failed to inform Cheryl's parents about alternative forms of treatment. The jury awarded the Martins \$5 million in damages, but the court granted Dr. Richards' post-trial motion to dismiss the informed-consent portion of the complaint on grounds that the doctor need not have revealed information that would have become important only in the "extremely remote" event that his patient developed an intracranial bleed.⁹² The court of appeals ordered the decision against Dr. Richards to stand, but it remanded the case to determine, among other issues, whether the doctors' failure to provide statutorily required information had proximately caused Cheryl's additional harm. The Supreme Court of Wisconsin agreed with the appeals court that given the serious consequences of an epidural hematoma, a 1-3 in 100 chance that a patient will develop intracranial bleeding is not an "extremely remote possibility."⁹³ Observing that Mr. Martin might have requested a CT scan, or that he might have preferred that his daughter be admitted at a hospital with neurosurgical capability, the Supreme Court reinstated the jury verdict and ordered full payment of damages.^{94,95}

Avoiding Liability in Management of Head Trauma

Adequate head trauma care begins even before the patient reaches the ED. Hospitals lacking

around-the-clock CT scanning and neurosurgical coverage make poor destinations for patients with head injuries, and depending on the distance involved, ED personnel providing on-line medical direction to paramedics and EMTs may wish to order such facilities bypassed. This kind of "prehospital triage" generally does not enhance the liability of the medical direction provider, in part because many states have conferred statutory immunity upon those who make such decisions.⁹⁶ To the contrary, referral of patients with moderate or severe head injuries to a specialty center actually diminishes the potential for litigation by averting subsequent diagnostic and transfer-related dilemmas.⁹⁷ At the same time, hospitals must avoid misrepresenting their CT and neurosurgical capabilities, because to do so may create negligence liability by depriving head-trauma patients of services available elsewhere.⁹⁸

Once the head-trauma patient has arrived in the ED, qualified hospital personnel must conduct a timely and thorough screening examination that includes vital signs.⁹⁹ Patients who display any type of neurological abnormality should receive the immediate attention of a physician. Those who are triaged to a waiting area must be checked at regular intervals to guard against deterioration.¹⁰⁰

Regardless of a patient's outward appearance, an ED physician should examine the patient as soon as staffing permits. The examining physician must be able to recognize the signs and symptoms of intracranial hemorrhage and other neurological emergencies; otherwise, the need for neurosurgical intervention may go unnoticed.¹⁰¹ ED practitioners should avoid unnecessary diagnostic procedures, of course, but CT scanning and neurosurgical consultation should be obtained early if any doubt exists as to the severity of the trauma.¹⁰² Similarly, when the treating facility lacks CT scanning and neurosurgical capabilities, the physician should consider transfer early in the course of treatment, before deterioration sets in.¹⁰³

ED practitioners should communicate regularly with patients and family members to ensure that they fully appreciate the severity of the injury and understand available treatment options.¹⁰⁴ Every patient discharged from the ED should receive both verbal and written instructions, since this combination has been shown to increase the likelihood of comprehension.¹⁰⁵ For the same reason, written discharge instructions should incorporate extremely simplistic language.¹⁰⁶

Debate still exists regarding the criteria for hospitalization of head-trauma patients. For more than a decade, researchers have advocated the routine “clearing” of head injuries through a combination of detailed neurological examination and CT scanning.¹⁰⁷ Recent studies suggest, however, that asymptomatic, neurologically intact patients can leave the hospital safely with a responsible observer, even after unconsciousness or amnesia.¹⁰⁸ Still, given the severe consequences that accompany overlooked intracranial hemorrhage, ED practitioners best can avoid liability by erring on the side of caution and discharging only those patients who have demonstrated no prolonged (longer than five minutes) alteration in consciousness and have a normal neurologic exam. In patients with focal findings, confusion, or prolonged loss of consciousness, CT scanning should be performed prior to discharge.

Conclusion

Head trauma poses a unique diagnostic and therapeutic challenge to the ED practitioner because complications, while rare, may lead to disastrous consequences if not detected early.¹⁰⁹ ED personnel must act promptly to diagnose serious neurosurgical conditions such as intracranial hemorrhage before the patient’s condition deteriorates. Failure to utilize available diagnostic resources such as CT scanning and neurosurgical consultation may constitute medical malpractice. Hospitals and their personnel may incur liability as well for prematurely discharging head-injured patients, or for failing to provide such patients with adequate discharge instructions or information about treatment options. While recent studies seem to indicate that EDs sometimes over-treat patients with minor head injuries, the risk of sudden deterioration in such patients justifies a cautious approach.¹¹⁰ If doubt exists as to the severity of a head injury, over-treatment may, in fact, prove useful in avoiding costly litigation.

Endnotes

1. Lang RGR. Emergency Drainage of Traumatic Intracranial Hematomas. In: *Clinical Procedures in Emergency Medicine*, 2nd ed, Roberts JA and Hedges JR, eds. Philadelphia: W.B. Saunders; 1991: 961.
2. Pitts LH, Martin N. Head injuries. *Surg Clin North Am* 1982; 47:62. Rockswold GL, Head injuries. In: *Emergency Medicine,*

- A Comprehensive Study Guide* 4th ed. Tintinalli JE, et al., eds. New York: McGraw-Hill Professional Publisher; 1996: 1139.
3. The Centers for Disease Control. Traumatic Brain Injury in the United States: A Report to Congress. U.S. Department of Public Health: 1992.
4. Becker DP, et al. The outcome from severe head injury with early diagnosis and intensive management. *J Neurosurg* 1977; 47:491.
5. Orriston WW Jr., Webb SM. The History of Neuroradiology. In: *Neuroimaging*. Philadelphia: W.B. Saunders; 2000: 7. Rockswold, *supra* note 2, at 1143; Lang, *supra* note 1, at 961.
6. Lang, *supra* note 1, at 961; Orriston and Webb, *supra* note 5, at 7. See also Kearns v. Hartford Fire Insurance Co., 450 So. 2d 1024, 1024 (La. Ct. App. 1984) (noting that the brain scan was the appropriate diagnostic tool for evaluating neurological complaints as of 1976, but that the CT had replaced the brain scan as the national standard of care by 1984).
7. Lang, *supra* note 4, at 962.
8. Dacey RG et al. Neurosurgical complications after apparently minor head injuries. *J Neurosurg* 1986; 65:203-210. Nicoll CD, et al. Diagnostic testing and medical decision making. In: *Current Medical Diagnosis and Treatment* 40th ed. Tierney LM, et al., eds. New York: McGraw-Hill Professional Publisher; 2001:1617 (noting that a single imaging study may cost more than \$1,400, and that diagnostic procedures now account for approximately one-fifth of all healthcare expenditures in the United States). See also Stein SL and Ross SE. Mild head injury: A plea for early CT scanning. *J Trauma* 1992; 33:11-13.
9. Dacey, *supra* note 8, at 210. Miller EC, et al. Minor head trauma: Is computed tomography always necessary? *Ann Emerg Med* 1996; 27: 290-293. Vilke GM. Blunt head trauma. In: *The 5 Minute Emergency Medicine Consult*. Rosen P, et al, eds. Philadelphia: Lippincott, Williams & Wilkins; 1999: 472.
10. Rockswold, *supra* note 2, at 1144. Stein, *supra* note 8, at 640. Taheri PA, et al. Can patients with minor head injuries be safely discharged home? *Arch Surg* 1993; 128:289, 290. Vilke, *supra* note 9, at 473.
11. *E.g.*, *Lassai v. Holy Cross Hosp.*, 586 N.E.2d 568, 568 (Ill. App. Ct. 1991).
12. *E.g.*, *Sledge v. Colbert County Northwest Alabama Healthcare Auth.*, 669 So.2d 182, 182 (Ala. Civ. App. 1995); *Campbell v. Shelton*, 727 N.E.2d 495, 495 (Ind. Ct. App. 2000); *Kearns*, 450 So.2d at 1024. See also *Brilliant v. Royal*, 582 So.2d 512, 512 (Ala. 1991).
13. *E.g.*, *Lassai*, 586 N.E.2d at 568; *Williams v. Dauterive Hosp., Inc.* 771 So.2d 763, 763 (La. Ct. App. 2000); *Rahilly v. North Adams Reg'l Hosp.*, 636 N.E.2d 280, 280 (Mass. App. Ct. 1994); *Heise v. Presbyterian Hosp. of Dallas*, 888 S.W.2d 264, 264 (Tex. Ct. App. 1994).
14. *E.g.*, *Kiniry v. Danbury Hosp.*, 439 A.2d 408, 408 (Conn. 1981); *Monti v. Silver Cross Hosp.*, 637 N.E.2d 427, 427 (Ill. App. Ct. 1994).
15. *E.g.*, *Pillsbury-Flood v. Portsmouth Hospital*, 512 A.2d 1126, 1126 (N.H. 1986); *Martin v. Richards*, 531 N.W.2d 70, 70 (Wisc. 1995); *Kuklinski v. Rodriguez*, 552 N.W.2d 869 (Wisc. Ct. App. 1996).
16. Dent DL, et al. Prognostic factors after acute subdural hematoma. *J Trauma* 1995;39:36. Rockswold, *supra* note 2, at 1142. Taber KH, et al. Intracranial hemorrhage. In: *Neuroimaging* Orrison WW Jr., ed. Philadelphia: W.B. Saunders; 2000:853.
17. Taheri, *supra* note 10, at 290.
18. 727 N.E.2d 495, 495 (Ind. Ct. App. 2000).
19. *Campbell v. Shelton*, 727 N.E.2d 495, 497 (Ind. Ct. App. 2000).

20. *Id.*
21. *Id.*
22. *Id.*
23. *Id.*
24. *Id.* at 496.
25. *Id.* at 501.
26. *Id.* at 497.
27. *Id.* at 496.
28. *Id.* at 502.
29. *E.g.*, *Lassai*, 586 N.E.2d at 568; *Williams v. Dauterive Hosp., Inc.* 771 So.2d 763, 763 (La. Ct. App. 2000); *Rahilly v. North Adams Reg'l Hosp.*, 636 N.E.2d 280, 280 (Mass. App. Ct. 1994); *Heise*, 888 S.W.2d at 264; *Martin*, 531 N.W.2d at 70.
30. *Dacey*, *supra* note 8, at 210.
31. *See Taheri*, *supra* note 10, at 290.
32. Harad FT, Kerstein MD. Inadequacy of bedside clinical indicators in identifying intracranial injury in head trauma patients. *J Trauma* 1992; 32:359-363. Shackford SR, et al. The clinical utility of computer tomographic scanning and neurologic examination in the management of patients with minor head injuries. *J Trauma* 1992; 33:385-393. Stein, *supra* note 8, at 13. Stein SL, Ross SE. The value of computerized tomographic scans in patients with low risk head injuries. *Neurosurg* 1990;26:638-640.
33. Shackford, *supra* note 32, at 393; Stein, *supra* note 8, at 13.
34. *Dacey*, *supra* note 8, at 210.
35. Feurerman T, et al. Value of skull radiography, head computer tomographic scanning, and admission for observation in cases of minor head injury. *Neurosurg* 1988; 22:449-452.
36. *Id.*
37. Miller, *supra* note 9, at 293.
38. 636 N.E.2d 280 at 280.
39. *Rahilly*, 636 N.E.2d 280 at 281.
40. *Id.*
41. *Id.* at 282.
42. *Id.*
43. *Id.* at 281.
44. *Id.* at 282.
45. *Id.* at 285.
46. *Id.* at 282.
47. *Id.* at 281.
48. *Id.* at 285.
49. 888 S.W.2d at 264.
50. *Id.* at 265.
51. *Id.*
52. *Id.*
53. *Id.*
54. *Id.*
55. *Id.* at 264-65.
56. *Id.* at 265.
57. Feurerman, *supra* note 35, at 452; Rockswold, *supra* note 2, at 1144. Ropper AH. Trauma of the head and spinal cord. In: *Harrison's Principles of Internal Medicine*, 15th ed. Braunwald E, et al., eds. New York: McGraw-Hill Professional Publisher; 2001:2439-2440. Teheri, *supra* note 10, at 290; Vilke, *supra* note 9, at 473.
58. Rockswold, *supra* note 2, at 1144; Stein, *supra* note 32, at 640. *See also* Borczuk P. Predictors of intracranial injury in patients with mild head trauma. *Ann Emerg Med* 1995; 25:731-732.
59. Rockswold, *supra* note 2, at 1144; Stein, *supra* note 32, at 640 (recommending that every patient whose GCS is 13 or less be treated at Level I or Level II trauma center).
60. Rockswold, *supra* note 2, at 1144-45. Ropper, *supra* note 57, at 2439-40; Vilke, *supra* note 9, at 473; *See also* Borczuk, *supra* note 58, at 735.
61. Rockswold, *supra* note 2, at 1144; Vilke, *supra* note 9, at 473.
62. *E.g.*, Kiniry, *supra* note 14, at 410-16.
63. *Id.*
64. 439 A.2d 408 at 408.
65. Kiniry, 439 A.2d 408 at 408.
66. *Id.* at 410.
67. *Id.*
68. *Id.*
69. *Id.* at 410-11.
70. *Id.* at 411.
71. *Id.* at 410.
72. *Id.* at 411.
73. *Id.* at 410.
74. *Id.* at 416.
75. Rockswold, *supra* note 2, at 1141; Ropper, *supra* note 57, at 2434-2439.
76. Graham D, Gennarelli T. Trauma. In: *Greenfield's Neuropathology*, 6th ed. Graham DI, Lantos PL, eds. London, UK: Edward Arnold; 1997: 218. Rockswold, *supra* note 2, at 1142. Ropper, *supra* note 57, at 2434-2439.
77. Rockswold, *supra* note 2, at 1145.
78. Vilke, *supra* note 9, at 473.
79. *See Pillsbury-Flood*, 512 A.2d at 1127.
80. *Id.* at 1126.
81. *Id.* at 1127.
82. *Id.* at 1130.
83. *Id.* at 1128.
84. *Id.* at 1129; *Thompson v. Sun City Community Hosp., Inc.*, 688 P.2d 605, 616 (Ariz. 1984); *Hamil v. Bashline*, 392 A.2d 1280, 1280 (Pa. 1978); *Hershovits v. Group Health Cooperative*, 664 P.2d 474, 474 (Wash. 1983).
85. *Kuklinski*, 552 N.W.2d at 871; *Martin*, 531 N.W.2d at 78.
86. *Martin*, 531 N.W.2d at 70.
87. *Id.* at 73-74.
88. *Id.* at 74.
89. *Id.*
90. *Id.*
91. *Id.* at 74-75.
92. *Id.* at 75.
93. *Id.*
94. *Id.* at 81.
95. *Id.* at 73.
96. *E.g.*, Del. Code Ann. tit. 16 § 9813 (2001); Fla. Stat. ch. 401.265 (2000) ; Me. Rev. Stat. Ann. tit. 32 § 93-A (West 1999); N.D. Cent. Code § 23-01.2-01 (2001). *See also* Ga. Code Ann. § 31-11-8 (2001) (conferring immunity upon physicians acting as medical advisors to ambulance services).
97. *See* Mass. Gen. L. ch. 111C § 11 (2000) (establishing a "statewide coordinated trauma care system," including "prehospital care management guidelines for triage and transportation of pediatric and adult trauma patients," *Rahilly*, 636 N.E.2d 280 at 281.
98. *See* Mass. Gen. L. ch. 111C § 11(e)(2000) (prohibiting hospitals not designated as trauma centers from using the term "trauma center" or "trauma facility" in advertising or other publicly disseminated information; *Monti*, 637 N.E.2d at 427 (medical malpractice claim surviving summary judgment where hospital allegedly held itself out as trauma center notwithstanding absence of sole staff neurosurgeon).
99. *See Yaney v. McCray Memorial Hosp.*, 496 N.E.2d 135, 137 (Ind. Ct. App. 1986).
100. *See Feeny v. New England Medical Center*, 615 N.E.2d 585, 585 (Mass. 1993). *See also* *Martin*, 531 N.W.2d at 74-75.
101. *See Campbell*, 727 N.E.2d at 496-501 (failure of ED physician

CE/CME Objectives

[For information on subscribing to the CE/CME program, contact customer service at (800) 688-2421 or e-mail customerservice@ahcpub.com.]

The participants will be able to:

- identify high-risk patients and use tips from the program to minimize the risk of patient injury and medical malpractice exposure;
- identify a “standard of care” for treating particular conditions covered in the newsletter;
- identify cases in which informed consent is required;
- identify cases which include reporting requirements; and
- discuss ways in which to minimize risk in the ED setting.

to recognize signs and symptoms of intracranial hemorrhage held to constitute negligence).

102. Harad & Kerstein, *supra* note 32, at 363; Shackford, *supra* note 32, at 393; Stein, *supra* note 8, at 13; Stein & Ross, *supra* note 32, at 640.
103. *E.g.*, *Rahilly*, 636 N.E.2d at 280.
104. *E.g.*, *Martin*, 531 N.W.2d at 70.
105. Spandorfer JM, et al. Comprehension of discharge instructions by patients in an urban ED. *Ann Emerg Med* 1995; 25:71-74.
106. Jolly BT. Simplification of ED discharge instructions improves patient comprehension. *Ann Emerg Med* 1995;26:443-446.
107. Harad & Kerstein, *supra* note 32, at 363; Shackford, *supra* note 32, at 393; Stein, *supra* note 8, at 13; Stein & Ross, *supra* note 32, at 640.
108. Miller, *supra* note 9, at 293.
109. Taheri, *supra* note 10, at 290.
110. Miller, *supra* note 9, at 293.

CE/CME Questions

14. Which of the following is *correct* in regard to a patient who lost consciousness for one minute after blunt trauma to the head:
 - A. A detailed neurological examination should be conducted and CT scan ordered only if focal neurologic findings, GCS less than 14, confusion, and depressed skull fracture are found on physical examination.
 - B. The patient should be admitted to the hospital’s neurosurgical service immediately.
 - C. Skull films should be ordered to detect skull fracture.
 - D. CT scanning should be done on all patients
15. ED personnel incur a serious risk of liability for all of the following *except*:
 - A. ordering paramedics with a severely head-injured patient to bypass a community hospital lacking a CT scanner in favor of a more distant facility with full neurosurgical capabilities.
 - B. failing to order a CT scan for a patient who suffered prolonged loss of consciousness after blunt head trauma.
 - C. admitting a severely head-injured infant to a hospital lacking a neurosurgical service without first discussing the admission with the patient’s parents.
 - D. failing to admit a patient whose condition has progressively deteriorated after a head injury.
16. Which of the following best describes the current standard of care regarding head trauma management?
 - A. All patients who have sustained head trauma should be hospitalized for observation.
 - B. All patients who have demonstrated focal neurologic deficit should receive CT scan, neurosurgical referral, and admission.
 - C. Patients who display evidence of intracranial hemorrhage on CT scan can be discharged with a responsible observer.
 - D. Patients who demonstrate progressive deterioration after sustaining head trauma can be admitted to a medical-surgical unit, rather than an available neurosurgical unit.
17. Before discharging a neurologically intact patient with evidence of a minor head injury, the ED practitioner should do which of the following?
 - A. Transfer the patient to a Level I trauma center for admission to the neurosurgical service.
 - B. Order a CT scan of the head and request evaluation by a neurosurgeon.
 - C. Ask the patient to remain in the ED for a 24-hour observation period.
 - D. Provide the patient with verbal and written instructions, and arrange for observation by a reliable individual.

with head trauma and loss of consciousness because the medical-legal risks are great.