

ARCO

MASTER THE EMT-BASIC CERTIFICATION EXAM

3rd Edition

Greg Santa-Maria



An ARCO Book

ARCO is a registered trademark of Thomson Learning, Inc., and is used herein under license by Thomson Peterson's.

About Thomson Peterson's

Thomson Peterson's (www.petersons.com) is a leading provider of education information and advice, with books and online resources focusing on education search, test preparation, and financial aid. Its Web site offers searchable databases and interactive tools for contacting educational institutions, online practice tests and instruction, and planning tools for securing financial aid. Thomson Peterson's serves 110 million education consumers annually.

For more information, contact Thomson Peterson's, 2000 Lenox Drive, Lawrenceville, NJ 08648; 800-338-3282; or find us on the World Wide Web at www.petersons.com/about.

© 2005 Thomson Peterson's, a part of The Thomson Corporation
Thomson Learning™ is a trademark used herein under license.

Previous editions published as *EMT—Basic Certification Exam* © 2001, 2003

Dedication

This book is dedicated to the spirit of my friend, Neil Hyland, who gave his life in the line of duty while responding to another's call for help. — March 2, 1995

The following textbooks were referenced in the writing of this book:

American Academy of Orthopedic Surgeons. *Emergency Care and Transportation of the Sick and Injured*. 7th ed. Jones and Bartlett.

Henry, Mark C., and Edward R. Stapleton. *EMT Prehospital Care*. 2nd ed. Philadelphia: Saunders, 1997.

McSwain, Norman E., et al. *The Basic EMT: Comprehensive Prehospital Patient Care*. St. Louis: Mosby Lifeline, 1997.

O'Keefe, Michael F., et al., *Brady Emergency Care*. 8th ed. Upper Saddle River: Brady/Prentice Hall, 1998.

Editor: Joe Krasowski; Production Editor: Alysha Bullock; Manufacturing Manager: Ray Golaszewski; Composition Manager: Linda M. Williams

ALL RIGHTS RESERVED. No part of this work covered by the copyright herein may be reproduced or used in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, Web distribution, or information storage and retrieval systems—without the prior written permission of the publisher.

For permission to use material from this text or product, submit a request online at www.thomsonrights.com

Any additional questions about permissions can be submitted by e-mail to thomsonrights@thomson.com

ISBN 0-7689-1986-X

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1 07 06 05

Third Edition

Contents

Before You Begin	ix
How This Book Is Organized	ix
Special Study Features	ix
You're Well On Your Way To Success	x

PART I: ALL ABOUT THE EMT

1 Getting Started	3
Levels of Certification	4
Job Description of the EMT-Basic	6
Clinical Integration	12
Critical Incident Stress Debriefing	15
Preparing for the Written Exam	16
Examination Day	19
What Happens After You Pass Your Exam?	22
Types of EMS Provider Agencies	24
Summing It Up	26

PART II: DIAGNOSING STRENGTHS AND WEAKNESSES

Practice Test 1: Diagnostic	29
Preparing to Take the Diagnostic Test	29
Basics of Emergency Medical Care	35
Airway	42
Assessment	48
Medical	55
Trauma	66
Infants and Children	73
Operations	75
Answer Key and Explanations	78

PART III: EMT-BASIC REVIEW

2	Anatomy and Physiology Review	117
	Medical Terminology	117
	Topographic Anatomy	132
	Anatomy and Physiology by Body System	133
	Continue to Educate Yourself	149
	Summing It Up	151
3	EMT-Basic Practical Skills Evaluation	153
	Guidelines for Taking a Practical Skills Examination	153
	The Practical Skills	153
	Practicing Skills	154
	Skills Examination Day	155
	EMT-Basic Skills Evaluation Sheets	157
	Summing It Up	184

PART IV: PRACTICE TEST

Practice Test 2	189
Answer Key and Explanations	202

APPENDIXES

A	Availability of Training	215
B	Professional EMS Organizations and Journals	225

Petersons.com/publishing

Check out our Web site at www.petersons.com/publishing to see if there is any new information regarding the tests and any revisions or corrections to the content of this book. You should also carefully read the material you receive from the Archdiocese when you register for the test. We've made sure the information in this book is accurate and up-to-date; however, the test format or content may have changed since the time of publication.

ANOTHER RECOMMENDED TITLE

ARCO Master the Firefighter Exam

ACKNOWLEDGMENTS

In writing this book, I tapped the resources, support, and assistance of many people. I watched what started out as a concept turn into an actual completed piece of work. After many hours of labor, I must acknowledge many people who, in one way or another, made this project possible.

To Denise, Dominick, and Samantha. Your encouragement and support are the only reason that this project ever got finished. You guys are my spirit, and my heart beats with and for you. I love you all always.

My writing experience and career would have never taken a successful turn had it not been for my medical director and friend Richard Westfal, M.D. His encouragement to pursue written projects and his selfless dedication to the field of emergency medicine was the catalyst for my beginning to write this text. In the same breath, I must mention Mr. Joseph Davis. Joe has been my mentor and my friend since I arrived at Saint Vincent's Hospital in New York City. His undying support and patience in my development as an educator has not gone unrecognized and never will.

A special and personal thanks to my Lakota Tiyošpaye for teaching me that spiritual support is the greatest gift you can give. My sister, Steph Quickbear, who pointed me down the good road, Cal Thunderhawk (my Bro), and Regina (Brooklyn in da house!) Thunderhawk, for teaching me with actions and not words. Our all-night discussions are always lessons in true friendship and dedication, Pilamaya. (POC my Kolas)

Finally to my EMS partner and best friend, Howard Gelfman, for teaching me that it's not always good to just go "take a look," and that when your cup fills up with knowledge, by emptying it, you may gain more. You can never learn enough.

If I missed anybody, it is truly by oversight. Thank you.

Before You Begin

HOW THIS BOOK IS ORGANIZED

This book provides a step-by-step tutorial for taking the EMT–Basic Certification Exam, including preparation to help you score high on both the written exam and the Practical Skills Evaluation.

- **Part I** provides essential general information about life as an EMT and how to prepare for the EMT–Basic Certification Exam. You’ll learn what it takes to start and maintain a career in emergency medical services, prepare a proper resume, interview properly, and understand the examination process.
- **Part II** is a full-length Diagnostic Test. It can show you where your skills are strong and where they need some shoring up.
- **Part III** is the coaching program. This section provides a comprehensive review of the important topics you will see on the exam.
- **Part IV** contains a full-length practice EMT–Basic Certification Exam, including detailed answer explanations.

SPECIAL STUDY FEATURES

ARCO Master the EMT–Certification Exam is designed to be as user-friendly as it is complete. To this end, it includes several features to make your preparation easier.

Overview

Each chapter begins with a bulleted overview listing the topics that will be covered in the chapter. You know immediately where to look for a topic that you need to work on.

Summing It Up

Each chapter ends with a point-by-point summary that captures the most important points. The summaries are a convenient way to review the content of these chapters.

Also, be sure to look in the margins of the book for extra information and advice, including:

Note

Notes highlight critical information about life as an EMT.

Tip

Tips draw your attention to valuable concepts and advice for tackling the EMT–Basic Certification Exam.

Alert!

Alerts will do just what they say—alert you to common pitfalls. This information reveals and eliminates the myths and misconceptions many people have about a career as an EMT and the process for becoming certified.

By taking full advantage of all the Special Study Features, you will become much more comfortable when preparing for and taking the EMT–Basic Certification Exam.

YOU'RE WELL ON YOUR WAY TO SUCCESS

Congratulations on your decision to start a career in Emergency Medical Services (EMS). You have taken the first step in a lifelong career of helping people during their most trying times. As an EMS provider, you will witness and experience things that most of your family and friends will only experience while watching the news. We look forward to helping you raise your scores and improve your chances of becoming a certified EMT. Good luck!

PART I

ALL ABOUT THE EMT

CHAPTER 1 Getting Started

Getting Started

OVERVIEW

- Levels of certification
- Job description of the EMT-Basic
- Clinical integration
- Critical incident stress debriefing
- Preparing for the written exam
- Examination day
- What happens after you pass your exam?
- Types of EMS provider agencies
- Summing it up

Consider the fact that in every city and state, there are Emergency Medical Technicians (EMTs) standing by to answer a call for help. Like you, these people are dedicated to saving lives. Your daily contribution to the preservation of life and, more importantly, the quality of life, will long be remembered. The patient whose life you have touched forever will remember you long after you have forgotten about the call. There is no greater feeling of accomplishment than to arrive on the scene of an emergency and to breathe life back into a cardiac arrest patient or save the life of a child. There is also nothing worse than to arrive on the scene of an emergency and, despite your own best efforts, lose the patient to an illness or injury. Sometimes all of your training and best efforts are not enough. Fortunately, you do not have to deal with these crisis situations alone.

The life of an EMS provider is exciting, exhilarating, and heartbreaking—all at the same time. It takes someone who is committed to lifelong learning. There is no place in EMS for a person who completes an EMT program and shuts the door on learning. Every EMS student needs to understand that completing an EMS program is just the beginning. Passing your exam does not make you an EMT or Paramedic. The real test is not on paper or in a classroom. The real test comes after you pass the course and examinations and are at work in the field. The dedication of the EMS personnel is tested every day on every call. Your ability to remain calm and retain your critical-thinking skills in the face of a sometimes disastrous situation is what makes

you an EMS provider. Then and only then will you fall back on your education. Then and only then will your lifelong dedication pay off.

To meet the constant challenges of their profession, EMS providers must seek out new opportunities to learn. There are constant changes in the world of emergency medicine that must be addressed. EMS providers must stay on the cutting edge of technology while remaining compassionate and caring individuals. EMS providers must be advocates of patient care and stand up for the rights of their patients. You must remember that to your patients, you are a total stranger to whom they have entrusted their lives. EMS providers must reciprocate by maintaining the highest standard of skills and knowledge while remaining compassionate and sensitive to the needs of the patient.

NOTE

Keep in mind that for every hour you spend reviewing the information presented in this book, you will be that much more prepared for your career as an EMT.

LEVELS OF CERTIFICATION

There are several levels of EMS certification. Below you will find descriptions of each level. This is a general list since in many states, there are variations made to some of the levels of certifications. In addition, some states may have added other levels.

Lay Rescuer

A lay rescuer is usually the first person who will come into contact with a patient. The lay rescuer could be a professional or a family member or bystander who is trained in CPR or basic first aid. The actions of this person may be crucial to the survival of the patient. There are several organizations that provide training for lay rescuers. The best known are the American Heart Association and the American Red Cross. Local organizations may also provide lay rescuer training. These training programs are all offered with different curriculum. People who wish to become trained as a lay rescuer should contact a local emergency or first-aid squad for additional information.

Certified First Responder

Some cities and states have first-responder programs for their regions. In New York City, for example, the Fire Department has trained its engine company personnel to the first-responder level. First-responder units respond to the emergency call with personnel who are trained in the administration of oxygen as well as basic airway and other lifesaving procedures. First responders may also be trained in defibrillation. Using an Automated External Defibrillator (AED), they may defibrillate patients in cardiac arrest within minutes of the emergency. These first responders are responsible for saving hundreds of lives each year.

Emergency Medical Technician–Basic

The Emergency Medical Technician–Basic-level responder must complete a course based on National Highway Traffic Safety Administration—Department of Transportation (NHTSA–DOT) guidelines. EMT–Basics are trained in the recognition of and intervention in medical and trauma emergencies. This training encompasses airway management, scene assessment, medical (including the use of the Automated External Defibrillator), and trauma emergencies as well as pediatric and obstetric/gynecological emergencies. The EMT–Basic is also trained in assisted medication administration, which requires a basic knowledge of pharmacology. The EMT–Basic training may also encompass advanced airway management using the endotracheal tube. This level of training may be enhanced on a state-by-state basis.

Emergency Medical Technician–Intermediate

The training of the Emergency Medical Technician–Intermediate encompasses all the training of the Emergency Medical Technician–Basic, with several additional areas of study. The EMT–Intermediate (based on approval by the certifying state) can be trained in advanced airway management using the endotracheal tube, intravenous fluid administration, and medication administration (including medications for diabetic as well as cardiovascular emergencies). Several states offer variations in this level of training based on regional needs.

Emergency Medical Technician–Paramedic

The Emergency Medical Technician–Paramedic is the highest level of training offered for field EMS providers. The EMT–Paramedic completes an NHTSA–DOT-approved training program that includes a comprehensive knowledge in anatomy and physiology, pharmacology, cardiology, and trauma management. This course also contains detailed training in pediatrics. EMT–Paramedics are required to complete several hundred hours of clinical training (usually 1,400 hours or more) as well as a field internship. There are also various specialty areas that an EMT–Paramedic can pursue. Some of these areas include critical-care transport, pediatric transport, and air medical transport. The EMT–Paramedic usually operates in a well-equipped Mobile Intensive Care unit, which can serve as a one-bed emergency room. EMT–Paramedics administer a full spectrum of cardiac medications as well as medications for other medical emergencies. They are also trained in advanced airway management using endotracheal tubes, Needle Cricothyroidotomy kits, and pleural decompression kits. EMT–Paramedic training can be enhanced to meet the needs of a specific region, although the core curriculum remains constant.

The information provided in this section is a general overview of the training levels of EMS providers. For more comprehensive information, contact your state EMS office. The addresses, phone numbers, and Web sites of all state EMS offices can be found in Appendix A.

JOB DESCRIPTION OF THE EMT-BASIC

The following job description is based on the NHTSA–DOT EMT–Basic Curriculum.

Career Requirements

- Responds to emergency calls to provide efficient and immediate care to the critically ill and injured and transports patients to medical facilities
- Drives an ambulance to the address or location given, using the most expeditious route, depending on traffic and weather conditions
- Observes traffic ordinances and regulations concerning emergency vehicle operation
- Upon arrival at the scene of crash or illness, parks the ambulance in a safe location to avoid additional injury
- Prior to initiating patient care, “sizes-up” the scene to determine that the scene is safe, the mechanism of injury or nature of illness, total number of patients, and to request additional help if necessary
- In the absence of law enforcement, creates a safe traffic environment, such as the placement of road flares, removal of debris, and direction of traffic for the protection of the injured and those assisting in the care of injured patients
- Determines the nature and extent of illness or injury and establishes priority for required emergency care
- Based on assessment findings, renders emergency medical care to adult, infant, and child, and to medical and trauma patients (Duties include, but are not limited to, opening and maintaining an airway, ventilating patients, and cardiopulmonary resuscitation, including use of automated external defibrillators.)
- Provides prehospital emergency medical care of simple and multiple system trauma, such as controlling hemorrhage; treating shock (hypoperfusion); bandaging wounds; immobilizing painful, swollen, and deformed extremities; assisting patients with prescribed medications, including sublingual nitroglycerin, epinephrine auto-injectors, and hand-held aerosol inhalers; administering oxygen, oral glucose, and activated charcoal
- Reassures patients and bystanders by working confidently and efficiently
- When a patient must be extricated from entrapment, assesses the extent of injury and gives all possible emergency care and protection to the trapped patient and uses the prescribed techniques and appliances for safely removing the patient, radios the dispatcher for additional help or special rescue and/or utility services, provides simple rescue service if the ambulance has not been accompanied by a specialized unit, and provides additional care in triaging the injured in accordance with standard emergency procedures

- Complies with regulations on the handling of the deceased, notifies authorities, and arranges for protection of property and evidence at scene
- Places stretcher in ambulance and ensures that the patient and stretcher are secured while continuing emergency medical care
- Determines the most appropriate facility to which the patient will be transported, unless otherwise directed by medical direction; reports directly to the emergency department or communications center the nature and extent of injuries, the number being transported, and the destination to assure prompt medical care upon arrival
- Identifies assessment findings that may require special professional services and assistance be immediately available upon arrival at the medical facility
- Constantly assesses patient during trip to the emergency facility and administers additional care as needed or directed
- Assists in lifting and carrying patient out of the ambulance and into the receiving facility
- Reports verbally and in writing about the emergency medical care performed on the patient at the emergency scene and in transit to the receiving facility staff for purposes of records and diagnostics
- Restocks and replaces used linens, blankets and other supplies; cleans all equipment following appropriate disinfecting procedures; checks all equipment so that the ambulance is ready for the next run; keeps ambulance in efficient operating condition; ensures that the ambulance is cleaned and washed and kept neat and orderly
- In accordance with local, state, or federal regulations, decontaminates the interior of the vehicle after patient transport with contagious infection or hazardous materials exposure
- Determines that the vehicle is in proper mechanical condition by checking items required by service management and maintains familiarity with specialized equipment used by the service
- Attends continuing education and refresher training programs as required by employers, medical direction, licensing, or certifying agencies
- Meets qualifications within the functional job analysis

Responding to a Hazardous Material (HAZ-MAT) Emergency

First responders must be alert for hazardous materials when responding to every call. The dispatcher may provide information such as unusual signs and symptoms (e.g., pungent odor, eye irritation) or the address might suggest that the call involves a chemical release. The presence of hazardous materials may be obvious, as in the case of noxious fumes, gasoline, or corrosive liquid spills. In other situations, the hazardous nature of the chemical(s) may not be immediately apparent, as with odorless but poisonous and/or flammable vapors and liquids or radioactive materials. If a vehicle has a diamond-shaped placard or an orange-numbered panel

ALERT!

The hazard, or lack thereof, must be determined immediately before first responders enter a chemically contaminated area.

on the side or rear, the cargo should be assumed to be hazardous. Unfortunately, not all hazardous materials transport vehicles are clearly marked. Many delivery trucks regularly carry hazardous materials that could be released during a collision, yet the appropriate signage is often missing. Therefore, first responders should use caution when attempting rescues at any incident scene.

TRAVELING TO THE SCENE

An EMS responding to potential hazardous materials incidents should consider:

- activities to undertake en route and upon arrival at the scene
- guidelines for assessment, decontamination, and treatment of affected persons
- patient transport to the hospital

These steps must be practiced before a hazardous materials emergency occurs. EMS personnel should know their responsibilities and how to perform them. Also, all required equipment should be readily accessible and ready to use.

While in transit to an incident scene, the responder should pay attention to clues that suggest the possibility of hazardous materials. For example, billowing smoke or clouds of vapor could indicate the presence of a dangerous substance(s). The senses are among the best tools for detecting chemicals, particularly the sense of smell. Should an odor be detected, however, responders are advised to move a safe distance away until they can determine its source. Failure to do so could result in injury, illness, or death. Despite their value, sensory signals, such as smell, color, and nasal or eye irritation, are not always reliable indicators. Their presence depends on the chemical(s) involved and on the surrounding conditions. The nature of an incident is also key to identifying the possibility of hazardous materials. Accidents involving railroad tank cars or tanker trucks, or incidents at fixed locations where chemicals are used or stored, often indicate the presence of hazardous materials.

Emergency responders should pay attention to factors such as wind direction and topography when approaching a suspected hazardous materials incident and advance upwind and upgrade of suspected chemical emissions. They also need to consider that low-lying areas such as creeks and streambeds, or in urban areas such as courtyards or near tall buildings, may contain vapor clouds protected from dispersal by the wind.

Responders should attempt to gather as much information as possible while traveling to an incident.

A checklist to help determine initial actions should be developed and made available to all EMS personnel. It should include:

- Type and nature of incident
- Caller's telephone number

- Knowledge of whether a chemical(s) may be involved
- Chemical and trade name(s) of substance(s) involved
- Number and ages of victims
- Symptoms experienced by the patients
- Nature of injuries
- State of the material (solid, liquid, gas)
- Method of exposure (inhalation, skin contact, etc.)
- Length of exposure

Using as much information as can be gleaned en route, emergency responders should relay their observations to a designated resource center (Poison Control Center) for information regarding definitive care procedures. If a hazardous substance has been identified, responders should locate specific information on the chemical(s) by consulting reference guidebooks, Web sites, database networks, telephone hotlines, Material Safety Data Sheets (MSDSs), and the Department of Transportation's *North American Emergency Response Guidebook*.

Chemical-specific information can help identify possible health hazards, including the nature of possible injuries; potential methods of exposure; risk of secondary contamination; required personal protective equipment (PPE); the need for decontamination; decontamination procedures; the appropriate safe distance from the hazard to protect EMS personnel, the public, and property from exposure to contaminants or other dangers such as fire or explosion.

Communications with other agencies or services should also be initiated while en route to the event site. If an Incident Command System (ICS) has been implemented, the Incident Commander (IC) will identify the best approach route, the possible dangers involved, and the estimated number of injuries. Communications between onsite response personnel and receiving facilities should be kept open to relay as much advance information as possible. Communications should also be established with local fire and police departments, and with the hazmat response team, if appropriate.

AT THE SCENE

Upon arrival at a scene, an initial assessment of the nature and extent of the incident should be conducted and additional support requested, if necessary. A first-in responder should also confirm that local authorities have been notified and are aware that hazardous materials might be involved.

Unless otherwise directed, responders should park at a safe distance that is upwind, upgrade, and pointing away from any incident where hazardous materials are suspected. Responders must also remain alert to the possibility that the incident is the result of an intentional criminal act, with the presence of secondary devices intended to injure emergency personnel.

NOTE

If available, plans should be reviewed to assist with locating proper vehicle staging locations, evacuation routes, and patient treatment centers.

Here are some general guidelines for responders:

- ❶ Do not drive or walk through any spilled or released materials, including smoke, vapors, and puddles.
- ❷ Avoid unnecessary contamination of equipment.
- ❸ Do not attempt to recover shipping papers or manifests unless adequately protected.
- ❹ Avoid exposure while approaching a scene.
- ❺ Do not approach anyone exposed to contaminated areas.
- ❻ Do not attempt a rescue unless trained and equipped with appropriate PPE for the situation.
- ❼ Report all suspicious packages, containers, or people to the command post.

ALERT!

Do not remove non-ambulatory patients from the Exclusion Zone unless properly trained personnel with the appropriate PPE are available and a decontamination corridor has been established.

The first units to arrive at a large industrial or storage facility, transportation accident, or mass gathering location should anticipate a rush of evacuating victims. Proper steps must be taken to keep responders from becoming contaminated or otherwise harmed (e.g., use of a PA system to give instructions).

The top priority for first responders is scene isolation. Keep others away! Keep unnecessary equipment from becoming contaminated by giving exact information on safe routes of arrival and vehicle staging locations, and by reporting anything suspicious.

First responders should immediately establish an Exclusion (Hot) Zone, making sure not to become exposed during the process. The Exclusion Zone should encompass all contaminated areas, and no unauthorized personnel should be allowed to enter that Zone. Anyone leaving the Exclusion Zone should be considered contaminated, requiring assessment and possible decontamination.

Additional zones, including a Contamination Reduction (Warm) Zone and a Support (Cold) Zone, should be delineated at the first available opportunity. Depending upon available personnel, this may be the primary responsibility of the IC or responders other than EMS.

EMS responders who are not properly trained and equipped should stay out of the Exclusion and Contamination Reduction Zones. While it is recommended that all EMS personnel be trained and equipped to work (at a minimum) in Level C PPE, this does not provide maximum skin or respiratory protection. Entry into a Hot or Warm Zone requires a determination that the level of PPE being worn affords adequate protection.

In addition to providing patient care in the Support Zone, qualified EMS personnel may be asked to assume any of the following roles: Safety Officer, EMS Section Officer (e.g., triage, treatment, transportation, communications), Rehabilitation Officer, or Public Information Officer. EMS personnel also frequently provide medical surveillance for the HAZ-MAT team.

CONSIDERATIONS FOR PATIENT TREATMENT

For the most part, a contaminated patient is like any other patient except that responders must protect themselves and others from dangers due to secondary contamination. Response personnel must first address life-threatening issues and gross decontamination before taking supportive measures. If spinal immobilization appears necessary, it should be initiated as soon as possible. Primary surveys should be accomplished simultaneously with decontamination, and secondary surveys completed as conditions allow. When treating patients, personnel should consider the chemical-specific information received from the Poison Control Center and other information resources.

PATIENT TRANSPORT TO THE HOSPITAL

When transporting a contaminated patient by ambulance, special care should be exercised to prevent contamination of the vehicle and subsequent patients. Exposed surfaces that the patient is likely to contact should be protected with disposable sheeting. The use of both chemically resistant backboards and disposable sheeting are highly recommended. If a wooden backboard is used, it should be wrapped in a disposable cover or it may have to be discarded.

Unnecessary equipment should be stored in a safe location or removed; equipment that does come in contact with the patient should be segregated for decontamination or disposal. The patient should be as clean as possible before transport, and further contact with contaminants should be avoided. No patient should be transported who has not, at a minimum, undergone gross decontamination. Protective clothing should be worn by response personnel, as appropriate. If secondary decontamination cannot be performed prior to transport, responders should attempt to prevent the spread of contamination by wrapping the patient loosely but completely in a large blanket or sheet. Body bags are not recommended for encapsulating patients for physiological and mental health reasons. Consideration should also be given to chemicals that present the added danger of accelerated skin absorption due to heat. The name(s) of the involved chemicals, if identified, and any other data available, should be recorded before leaving the scene. Oxygen should be administered for any victim with respiratory problems unless contraindicated. Eyes that have been exposed should be irrigated with available saline or water, and irrigation should be continued en route to the hospital. Personnel should also be alert for any signs of respiratory distress, cardiovascular collapse, or gastrointestinal complaints. Seizures may occur and should be treated according to local protocol.

Patients experiencing pain as a result of their injuries should be treated per medical control or agency protocol. Various types and degrees of burns should be treated per local burn protocol or Burn Center instructions. In the case of acid and alkaline burns to the eyes, they should be continuously irrigated en route to the hospital. Control and proper disposal of the

NOTE

In multiple patient situations, proper triage procedures should be implemented using local emergency response plans.

run-off is necessary to avoid injury to the patient and prehospital caregiver(s). Verbal reassurances and other forms of psychological support are also important to minimize further fear and anxiety.

During transport, ambulance personnel should use appropriate respiratory protection and provide the maximum fresh air ventilation (e.g., open windows) that weather conditions permit to the patient's and driver's compartments, regardless of the presence or absence of odors.

En route, responders should contact the receiving hospital and provide an update on treatment provided or required and any other pertinent clinical information. Instructions for the procedure to enter the hospital with a contaminated patient should also be requested. Facilities receiving a potential hazardous materials patient will need as much information as possible—as soon as possible.

Responding to a Terrorist Attack

There are guidelines in place to aid EMTs in handling large-scale disasters, particularly those associated with terrorist attacks. These guidelines include:

- **Responding to the disaster scene with emergency medical personnel and equipment.**
- **Upon arrival at the scene, assuming appropriate role in the ICS.** If ICS has not been established, initiate one in accordance with the jurisdiction's emergency management system.
- **Triaging, stabilizing, treating, and transporting the injured.** Coordinate with local and regional hospitals to ensure casualties are transported to the appropriate facilities.
- **Establishing and maintaining field communications and coordination with other responding emergency teams (medical, fire, police, public works, etc.), and radio or telephone communications with hospitals as appropriate.**
- **Directing the activities of private, volunteer, and other emergency medical units, as well as bystander volunteers as needed.**
- **Evacuating patients from affected hospitals and nursing homes if necessary.**

CLINICAL INTEGRATION

In addition to classroom training, EMT–Basic students should be provided with the opportunity to enhance their knowledge by integrating classroom training with clinical internships. These internships should be provided to all EMT–Basic students, regardless of their training program. EMT–Basic students should be aware that clinical requirements vary from region to region. The

recommended clinical interface is for EMT–Basic students to complete at least five patient history and physical assessments.

EMT–Basics should take full advantage of their clinical time. EMS instructors should make it mandatory that students attend a minimum of 20 hours of ambulance clinical as well as 20 hours of emergency department clinical. If the EMT–Basic program requires less clinical interaction, students should ask to attend additional hours.

Students should make every effort to interact with as many patients as possible during their clinical time. Student interaction should include the following:

Patient History and Physical Examinations

This interaction includes a discussion with patients based on their current medical problem as well as a past medical history. The physical examination should be complete and follow the guidelines for the physical examination on the skill sheet found in Chapter 4 of this book.

Medical Interventions

Students should observe any and all interventions as well as seek out the explanation behind these interventions. Students should participate in interventions that are within their scope of practice. EMT–Basic students should not participate in interventions that are not clearly defined in their scope of practice.

Ambulance Preparation

Students on a field clinical should assist the personnel with their duties regarding ambulance maintenance. Students should check the vehicle's equipment and, if required, ask what each piece of equipment is used for and how it is used. EMT–Basic students should always know where each piece of equipment is located in the event of an emergency.

All interaction among EMT–Basic students should be documented on field clinical assessment forms. These forms are provided by instructors and should be filled out by students or their preceptors at the clinical site. Students should receive a copy of this form to evaluate their performance.

EMERGENCY VEHICLE OPERATIONS

- 1 Emergency operations are authorized only to responses deemed emergencies by dispatch protocol and where the risks associated with emergency operations demonstrably make a difference in patient outcome.
- 2 Upon dispatch, emergency operations are only authorized when the dispatch call type justifies an emergency response.

- 3 All operations considered non-emergency shall be made using headlights only—no light bars, beacons, corner or grill flashers, or sirens shall be used. During a non-emergency operation, the EMS response vehicle should be driven in a safe manner and is not authorized to use any emergency vehicle privileges as provided for in the Vehicle and Traffic Law.
- 4 Emergency operations are authorized at a scene when it is necessary to protect the safety of EMS personnel, patients, or the public.
- 5 EMS response vehicles do not have an absolute right of way. It is a qualified right that should not be taken lightly.
- 6 During an emergency operation the vehicle's headlights and all emergency lights shall be illuminated and the siren used as required in the Vehicle and Traffic Law.
- 7 Once on the scene, the decision for determining the type of response for additional EMS vehicles responding to the scene shall be made by a certified provider following assessment of the scene and all patients. It is the responsibility of that certified responder to notify the dispatcher or other responding units of the type of response that is warranted, emergency or non-emergency.
- 8 The EMT in charge of patient care. Following assessment of the patient, he or she is responsible for determining the response type en route to the hospital.
- 9 EMS response vehicles shall not exceed posted speed limits by more than 10 miles per hour.
- 10 EMS response vehicles shall not exceed posted speed limits when proceeding through intersections with a green signal or no control device.
- 11 When an EMS response vehicle approaches an intersection, with or without a control device, the vehicle must be operated in such a manner as to permit the driver to make a safe controlled stop if necessary.
- 12 When an EMS response vehicle approaches a red light, stop sign, stopped school bus or a non-controlled railroad crossing, the vehicle must come to a complete stop.
- 13 The driver of an EMS response vehicle must account for all lanes of traffic prior to proceeding through an intersection and should treat each lane of traffic as a separate intersection.
- 14 When an EMS response vehicle uses the median (turning lane) or an oncoming traffic lane to approach intersections, it must come to a complete stop before proceeding through the intersection with caution.

- 15 When traffic conditions require that an EMS response vehicle travels in oncoming traffic lanes, the maximum speed is 20 miles per hour.
- 16 The use of escorts and convoys is discouraged. Emergency vehicles should maintain a minimum distance of 300 to 400 feet when traveling in emergency mode in ideal conditions. This distance should be increased when conditions are less than ideal.

NOTE

Every EMS response vehicle must be driven safely at all times. This means not exceeding the speed limit in most cases. Drivers exercising any of the Vehicle and Traffic Law privileges must do so cautiously and with regard for the safety of all others.

Types of Responses

- Non-emergency Operations refer to operations where an EMS response vehicle is out on a non-emergency, also called a *routine operation*. All routine operations are considered non-emergency and are made using headlights only. No light bars, beacons, corner or grill flashers, or sirens are used. During a non-emergency operation, the ambulance shall be driven in a safe manner and is not authorized to use any emergency vehicle privileges as provided for in the Vehicle and Traffic Law.
- Emergency Operations refer to any response to the scene or the hospital where the driver of the emergency vehicle actually perceives, based on instructions received or information available to him or her, the call to be a true emergency. Emergency Medical Dispatch (EMD) classifications, indicating a true or potentially true emergency, should be used to determine the initial response type. Patient assessments made by a certified care provider should determine the response type (usually C or U as an emergency) to the hospital. In order for a response to be a true or potentially true emergency, the operator or certified care provider must have a credible reason to believe that emergency operations may make a difference in patient outcome. During an emergency operation, headlights and all emergency lights are illuminated and the siren used as necessary.

CRITICAL INCIDENT STRESS DEBRIEFING

Critical Incident Stress Debriefing (CISD) is a group technique used after a critical incident. It is designed to minimize the impact of that event and to aid in the recovery of people who have been exposed to disturbing events. Critical Incident Stress Debriefings were designed by Jeffrey T. Mitchell, Ph.D., founder of The International Critical Incident Stress Foundation Inc. Initially developed for firefighters, paramedics, and police officers, the Mitchell Model has been modified and expanded for use in natural disasters, school-based incidents, and in a variety of other settings.

What Is Critical Incident Stress?

Critical incidents are events that are outside the normal range of a person's experiences. They are usually unexpected and so powerful that an individual is unable to cope with them.

No two people react the same way to an event. Some people may have no reaction. Others may suffer from nightmares, sleep disturbance, nervousness, confusion, anxiety, irritability, inability to concentrate, sadness, depression, and anger. Physical symptoms may include rapid heartbeat, night sweats, headaches, and dizziness.

Job performance may also suffer as will other aspects of the individual's life. Sexual function may be affected as well as one's ability to interact with family and friends.

Most reactions last only a few days. However, they can sometimes last for weeks or even months. In some instances, symptoms appear immediately. In others, symptoms may be delayed or not appear at all.

Tips to Avoid Critical Incident Stress

The best way to deal with Critical Incident Stress is to prevent it. While that is not always possible, there are steps you can take to minimize it. These include:

- When possible, know what to expect in advance.
- Make sure you are properly trained for the incident you are being sent out to handle.
- If it is an extended operation, adequate rest breaks should be provided and/or personnel alternated.
- Make sure you have access to food and water following the incident.
- Avoid caffeine and alcohol after the incident.
- Understand that it is normal to feel bad for a short time following the incident; feelings do not disappear, they need time to fade.
- An informal debriefing should be held within a few hours of the incident to allow personnel to vent and share their feelings about what happened. This also helps assess the need for a formal debriefing.

PREPARING FOR THE WRITTEN EXAM

The certification examination is the final test of the ability of a candidate to meet the performance objectives to become an EMT–Basic. There are many ways to prepare for this examination.

Study Habits

An examination is an evaluation tool. The written examination evaluates your aptitude for knowledge retention. You should follow a hard and fast rule of progressive study. As the course begins to run full steam, the amount of study time should increase. There are modules in the EMT–Basic curriculum that will require many hours of self-study. As these courses are usually

condensed into a short period of time, it is expected that you will reserve several hours of personal time per week to study for your examination.

Developing good study habits is essential to retaining information and passing the examination. “Cramming” is not a productive study habit. Studies have shown that cramming reduces retention.

Refer to the study tips below and keep them in mind as you prepare for the exam. You will find that by following these few tried and true rules, your study time may decrease, while your retention increases.

TIP

Learning to study properly is just as important as the material you are trying to study.

- 1 **Never study when you are tired.** Studying when you are tired will almost always be a fruitless. There comes a time each day when your body needs to rest. Attempts at studying—especially difficult technical information—are usually weak at best. You should allow time for ample rest.
- 2 **Choose a time when you are usually most awake, and make that your study time.** All people are different: some are more alert in the morning; some are more alert in the evening. The best judge of your inner clock is you. You know when you are most alert. If you wake up in the morning and are at your best, then choose that time as your study time. Try to put at least 45 minutes a day aside at that time. You may find that 45 minutes of study during your peak times is much more efficient than two hours when you're tired.
- 3 **Find a quiet and comfortable place.** It is essential to be comfortable while studying. You should find a place in your home or study area that provides quiet and comfort. The temperature of the room should be set to a temperature that is good for you. It is a good idea not to make the room too hot. Heat tends to make a person sleepy or uncomfortable. Silence is another factor. It is always better to have a quiet area. Attempting to study with the television on or the stereo playing is planning to fail. It may relax you to have music playing in the background; however, the brain will be distracted since it will have to retain your studies as well as process the background music. Studying in a room with other people is also discouraged. Constant disruptions will throw off your concentration and create confusion.
- 4 **Never study when you're hungry.** Hunger is a great distracter. If you are hungry, you will think about food and not about your studies. So if you are hungry, eat prior to beginning your studies. Try to avoid snacks that are high in sugar and caffeine. These types of food will provide a temporary rush and then crash you. Fruits, salads, and vegetables are good foods to eat before studying.
- 5 **Study in short time blocks.** Professional studies have shown that retention is better when a student studies in shorter blocks of time. The average maximum study time

should be about 45 minutes. The brain gets tired after 45 minutes of retention and needs a break. Study for 45 minutes, take a break, rest your eyes, and go for a walk. While you are in your resting phase, try to go over in your head the things that you have just studied—this will help you to retain what you just studied. Go back to studying only when your head feels clear again.

DIRECTED STUDY

NOTE

It is essential to find a direction in your studies.

People tend to study subjects they are comfortable with and avoid subjects they find difficult. For example, the student who is well-versed in cardiac emergencies will tend to spend more time studying cardiac emergencies. This is due to that fact that he or she understands the topic and retains the information much more readily. The problem with this is that weaker areas are never approached. This may lead to poor scores on the examination.

There are many ways to direct your study. One of the best ways is to keep a record of your quiz and examination scores for each topic. As you find a trend toward weaker areas, focus on them. Study a topic where you have not done well. This will strengthen your knowledge and make you a well-rounded EMS provider. You may also ask your instructor. Many EMS instructors can provide an item analysis for class final examinations (which you are sure to have before the certification examination). Ask your instructor to share your item analysis with you. This will identify your weaker areas and let you know what areas to practice. Most EMS instructors are happy to assist you in this area. In order to prepare students for the upcoming certification examination, some instructors assign homework based on a student's item analysis.

STUDY GUIDES

Many EMS instructors have written study guides for all levels of EMS provision (you are reading one now). The candidate should find one or two study guides he or she is comfortable with and stick with them. It is not necessary to purchase the bookstore's entire stock of EMT–Basic study guides in order to pass your examination. A good review guide, course textbook and workbook, and some guidance from your course instructor are all you need to prepare for the examination.

By following these suggestions you will retain more information. As you develop good study habits, you will notice other things that help you study better. Incorporate what you've learned about your own study habits into these suggestions to develop an effective study plan that is right for you.

The Night Before

The night before your examination could very well set the tone for the entire examination. Below are several Dos and Don'ts on the night before the examination.

- ❶ **DON'T stay up all night cramming.** This is the absolute worst thing you can do. All-night cramming will have one effect on you: It will make you tired and easily confused. The candidate who stays up all night will tend to confuse facts on the examination. There is a saying that says, "If you don't know it by now, you won't learn it in one night."
- ❷ **DON'T use drugs or alcohol to help you sleep.** Although it may help you sleep, most people who drink alcohol or take drugs to assist sleep are misguided. Alcohol and drugs do not provide a restful sleep. As a matter of fact, alcohol will put you to sleep, only to wake you up in an hour or two, preventing restful sleep.
- ❸ **DO plan on getting your required amount of sleep—no more, no less.** Most people know exactly how much sleep they need to function properly. If you need eight hours of sleep to get a good jump on your day, then plan on getting that much sleep. If you sleep too much or too little, it could have a detrimental effect on your performance. Too much sleep can be just as bad as not enough sleep.
- ❹ **DO avoid stressful situations.** You should avoid all stress the night before the examination. Personal issues, especially sensitive ones, should be avoided the night before your examination. They will only serve to distract you, prevent a good night's sleep, and limit study effectiveness.

TIP

If you have studied throughout your course, you should spend the final night reviewing key terms and concepts.

EXAMINATION DAY

Examination day can be as stressful as any other important day in your life. Some candidates build up so much stress that they arrive at the examination site in a cold sweat. This can wear on your ability to answer questions. Follow the professional tips below to do your best on exam day:

- ❶ **Eat a good breakfast.** It is advisable to eat something; however, a full-course 16-ounce steak will probably work against you. When you eat large amounts of food, the body moves blood from the vital organs to the stomach in order to digest the food. This makes you tired and inefficient. Eat a light snack, fruit, vegetables, or salad. Eat just enough to hold you over for the examination. After the examination, you can feast.
- ❷ **Avoid high sugars and caffeine.** Foods and drinks containing large amounts of caffeine and sugar will work for a short period of time, but will leave you extremely tired as they wear off. This can affect your ability to answer questions or comprehend a

scenario. In addition, coffee and tea are diuretics. This will cause problems with concentration if you must keep leaving your seat to go to the restroom. Orange juice or any other fruit juices are exceptional ways to stay hydrated while taking an examination. And, of course, water is also an excellent way to remain hydrated during the examination.

- 3 **Arrive at the exam site early.** If your examination starts at 9:00 a.m., plan to be there at 8:00 a.m. There is nothing worse than showing up at an examination late or leaving with just enough time to find no parking spaces or be delayed by an accident on the road.
- 4 **Sit in a well-lit and comfortable area.** This tip is good if you are familiar with the classroom layout. Most examinations are administered in the same room in which you took your course. If you are familiar with the layout, find a seat that is comfortable. Sitting near an open window or under the air conditioning or heat diffuser can be very distracting. Size up the examination room and pick a good seat. This is another reason why arriving early is beneficial.

Answering Exam Questions

When you take an exam, you will find that most exams consist of multiple-choice questions. Here are some proven strategies to help you answer multiple-choice questions most effectively:

- 1 **Read the whole question and all of the answer choices before choosing the correct answer.** When taking the examination, read the entire question, including the answers, before choosing a response. You may find that there was a distracting statement in the question, and the answer you choose may be incorrect.
- 2 **Look for key words in the questions.** Questions with words in bold or italics are keys to what the question is looking for. Words like *except*, *if*, *and*, and *which* are clues to specific findings in the answer choices. Make sure you locate the keys in each question.
- 3 **Read scenario questions carefully.** Most examinations have scenarios with several questions related to it. Read the scenario carefully and completely. Don't jump to the questions until you are confident that you understand the scenario. Answer one question at a time and go back to the scenario if you must. In some cases, a question that has an unclear answer will be answered in the next question, so be vigilant.
- 4 **Take your time—but not too much time.** Most examinations are timed, so don't spend too much time on any one question. Try to figure out approximately how much time you need per question, then begin your test. Examination proctors will usually make "time remaining" announcements. Judge your speed accordingly. In addition, this

is not a race. Do not rush through an examination. There are no extra points finishing first.

- 5 **If you are unable to answer a question, move on and come back later.** Some questions are answered later on in the test. You can use this to your advantage when dealing with a difficult question. Move on and come back to it. Just make sure that you also skip the space on the answer sheet.
- 6 **When you are done, go back and check your answers.** It is always good practice to spot-check your answers. If you complete the examination and there is time left, go back and look over the examination again. There is no law that says once you're done, you cannot look at the examination booklet. Read the questions, answer them again, then check your new answer against the one on the answer sheet. They should match. If they do not, read the question and try to reevaluate it, then choose the answer that seems most correct to you.

Anatomy of a Question

A question is an evaluation tool—nothing more. It is designed to extract a fact from you to see if you can comprehend it and relate it to a proper answer. Most examination questions are multiple choice, so we will discuss the structure of a multiple-choice question.

Q Which of the following is a late sign of shock?

- (A) Alteration of mental status
- (B) Decreased blood pressure
- (C) Hypoperfusion
- (D) Increased pulse rate

A **The correct answer is (B).** In every multiple-choice question, there are usually four answer choices. Only one of them is the correct answer. The other three are there for effect. One of the three is called a distracter. A distracter is an answer choice that may appear to be correct, but for one reason or another, is incorrect. In the question above, it is quite clear that decreased blood pressure is the correct answer, until you start thinking about hypoperfusion. Hypoperfusion is the definition of shock; however, under the stress of an examination, you may start thinking, "Is hypoperfusion the definition of late shock or early shock?" Hence, it is a distracter. The other answer choices are called throwaways. They are useless fill-ins that are usually easily dismissed as incorrect answers.

We know in the question above that alteration of mental status and increased pulse rate are early signs of shock. So, we throw them away. Now, we only have to choose between two answers. Even if you have to guess, it increases your chances of correctly answering the question.

TIP

A good rule to follow is that if you do not know the correct answer, find the answers that you know are not correct and throw them away.

WHAT HAPPENS AFTER YOU PASS YOUR EXAM?

NOTE

Your resume should be concise but comprehensive. Proper resumes should be only one page in length and list several years of work experience, even if it is not in the field for which you are now applying.

Preparing a Proper Resume

Once you have passed your exam and are certified or licensed to work as an EMT–Basic, you should prepare a proper resume and send it to the agencies for which you aspire to work.

A proper resume should include your career goal as well as past employment and training. It should also list any certifications and expiration dates so that a prospective employer is aware of your expertise in the field of emergency medical services.

Many EMS provider agencies that deliver emergency care to a specific service area (911 employers) may not hire newly certified EMT–Basic personnel until they gain some experience on an ambulance. This is not cause for concern. If you cannot gain employment with one of these agencies, you may want to apply with a proprietary provider of EMS (private ambulance). Proprietary providers do routine and high-risk transports. They may also offer additional specialty training to help you gain experience.

Another way to gain experience is to volunteer with a local ambulance company. Volunteer agencies usually provide 911 services to their community and are a great way to gain experience and connect with people who have the same interests as you. Many EMT–Basics who move on to paid EMS provider positions retain their position with their volunteer agency because it offers good experience in emergency medical care and gives them a chance to serve their community.

The following page includes a sample resume that you may use as a model when creating your own resume.

SAMPLE RESUME

Joseph B. EMT
304 Pleasant Lane
Anywhere, USA 99999
555-555-5555

OBJECTIVE: A career in Emergency Medical Services where the application of my professional knowledge and skills will assist sick and injured patients to access emergency medical care in a timely and professional fashion.

EXPERIENCE:
2003–Present Franks Oxygen Service, Anywhere, USA
Deliver oxygen to health-care facilities, fire departments, and EMS stations
Ensure safety measures are in place
Facilitate safe and efficient delivery of bottled gases, according to state and local laws

EDUCATION: Anywhere High School, Anywhere, USA, 2003
EMT–Basic Certification
Anywhere USA EMS Academy, Anywhere, USA

CERTIFICATIONS: Anywhere State EMT–Basic Provider, # 380076,
Expires 8/30/07
Pre-hospital Trauma Care course
Pre-hospital Pediatric Care course

INTERESTS: Computers, ice hockey, and science fiction

NOTE

Come to your interview with a few letters of recommendation from recent employers or your EMS instructor that outline your drive and dedication to the profession. A recommendation letter can go a long way, especially if your new employer knows the person who wrote the letter.

Interviewing

Interviewing for any position can be stressful. Even the most experienced people in the workforce can get nervous before an interview. The secret to a successful interview is to remain calm and to talk positively about yourself. Negative comments are simply that, negative, and will not help you gain employment. Any negative experiences from a previous employer should be left out of your interview.

On the day of your interview, get there early, dress appropriately (suit and tie or dress), and bring a copy of your resume.

When you arrive at your interview, be patient and polite. Sit down with your potential employer and answer the questions slowly and calmly. Try to stay on topic and away from personal feelings about any issues that may come up. Discuss your good qualities and your work ability. Ask questions that are pertinent to the position and clarify any questions you may have.

When the interview is over, shake hands and thank the interviewer for his or her time. Ask if it is okay to call back in a few days just to touch base and see how things are going. Do not say, "Well, do I have the job?" Some employers will hire on the spot, but most will call in a few days after they have conducted several interviews. If you are called back for a second interview, approach it as if it were your first. Repeat your good qualities and answer any questions honestly and concisely.

Don't get discouraged if the first employer does not hire you. Just keep trying. Eventually you will break into a rewarding and exciting career as an EMT–Basic.

TIP

Eye contact is important. Maintain direct eye contact while making a point. Do not stare at the floor or a wall the entire time. Eye contact shows confidence.

TYPES OF EMS PROVIDER AGENCIES

There are many types of EMS provider agencies with which you may seek employment. Listed below are several types of agencies that may provide Emergency Medical Services in your area.

Volunteer Agency

A volunteer EMS agency is made up of area residents who are EMS providers. They are community-minded people who provide a needed and appreciated service to the sick and injured of their community. This is a great place to start even before you become a certified EMT. These agencies will usually sponsor people in EMS courses. In most cases, you won't get paid for being there, but you will certainly gain much needed experience in the field of EMS.

Municipal Agency

A municipal agency is usually a city-, state-, or town-run EMS provider agency. You will come in contact with municipal systems in larger cities and towns. Employment with these agencies will usually require a written examination. Once hired, you will probably attend the EMS academy for additional training. These are good agencies to work for, and many offer civil service positions and benefits as well as career mobility.

Hospital-Based Agency

Many hospitals have their own ambulance services that cover a specific area around the hospital. In many areas, EMS systems were developed by hospital-based ambulances and grew into municipalities. Hospital-based agencies are similar agencies to municipal agencies and often work in the same areas with municipal agencies to deliver emergency medical care.

Proprietary Agency

Proprietary agencies are also called private ambulance companies. Private ambulance companies transport high- and low-risk specialty patients. They are specialized crews that are assigned to a specific hospital or area and work by contract with that hospital to provide transport. Many proprietary agencies also provide 911 services to contracted service areas. There are many large proprietary agencies nationwide that will offer many different positions in EMS provision, including air medical transport.

Other Agencies

Some other EMS agencies to consider are first-response agencies, which provide first-responder units to emergency calls; air medical transports, which provide helicopter and fixed-wing aircraft for patient transport; and specialty assignments like movie sets and shipboard EMS. Overseas employers routinely advertise for EMS providers in the national EMS journals.

As an EMS provider, there are many opportunities to provide patient care in a number of different settings. Keep your options open and find the one that best suits your needs or interests.

SUMMING IT UP

- There are five levels of EMT certification: Lay Rescuer, Certified First Responder, EMT–Basic, EMT–Intermediate, and EMT–Paramedic.
- There are seven steps to help you prevent Critical Incident Stress.
- Developing good study habits is essential to scoring high on the EMT–Basic Certification Exam.
- To effectively answer multiple-choice question presented on the EMT–Basic Certification Exam, you must understand the anatomy of a multiple-choice question.
- Preparing a proper resume and interviewing well are important steps in becoming employed as an EMT–Basic.

PART II

DIAGNOSING STRENGTHS AND WEAKNESSES

PRACTICE TEST 1: DIAGNOSTIC

Practice Test 1: Diagnostic

PREPARING TO TAKE THE DIAGNOSTIC TEST

An examination is an evaluation tool. To become certified or licensed in the EMS field, you must satisfactorily complete your final evaluation. Therefore, you should evaluate yourself to identify areas of strength and weakness. Taking the Diagnostic Test in this chapter will help you determine your strengths and weaknesses and apportion your study time.

The Diagnostic Test is made up of multiple-choice questions. Note: The Diagnostic Test contains twice as many questions as you will see on the actual test. We have done this to provide you with the most comprehensive evaluation tool possible.

We suggest that you answer the questions as if you were taking the actual test. If possible, take the test in one sitting. After you have completed the entire test, compare your answers with the correct answers and their corresponding explanations.

As you take the Diagnostic Test, write down any questions you have so you can research them later or ask your instructor for further explanation.

**PRACTICE TEST 1: DIAGNOSTIC ANSWER SHEET****Basics of Emergency Medical Care**

- | | | | |
|-------------|-------------|-------------|-------------|
| 1. A B C D | 14. A B C D | 27. A B C D | 39. A B C D |
| 2. A B C D | 15. A B C D | 28. A B C D | 40. A B C D |
| 3. A B C D | 16. A B C D | 29. A B C D | 41. A B C D |
| 4. A B C D | 17. A B C D | 30. A B C D | 42. A B C D |
| 5. A B C D | 18. A B C D | 31. A B C D | 43. A B C D |
| 6. A B C D | 19. A B C D | 32. A B C D | 44. A B C D |
| 7. A B C D | 20. A B C D | 33. A B C D | 45. A B C D |
| 8. A B C D | 21. A B C D | 34. A B C D | 46. A B C D |
| 9. A B C D | 22. A B C D | 35. A B C D | 47. A B C D |
| 10. A B C D | 23. A B C D | 36. A B C D | 48. A B C D |
| 11. A B C D | 24. A B C D | 37. A B C D | 49. A B C D |
| 12. A B C D | 25. A B C D | 38. A B C D | 50. A B C D |
| 13. A B C D | 26. A B C D | | |

Airway

- | | | | |
|-------------|-------------|-------------|-------------|
| 1. A B C D | 11. A B C D | 21. A B C D | 31. A B C D |
| 2. A B C D | 12. A B C D | 22. A B C D | 32. A B C D |
| 3. A B C D | 13. A B C D | 23. A B C D | 33. A B C D |
| 4. A B C D | 14. A B C D | 24. A B C D | 34. A B C D |
| 5. A B C D | 15. A B C D | 25. A B C D | 35. A B C D |
| 6. A B C D | 16. A B C D | 26. A B C D | 36. A B C D |
| 7. A B C D | 17. A B C D | 27. A B C D | 37. A B C D |
| 8. A B C D | 18. A B C D | 28. A B C D | 38. A B C D |
| 9. A B C D | 19. A B C D | 29. A B C D | 39. A B C D |
| 10. A B C D | 20. A B C D | 30. A B C D | 40. A B C D |

Assessment

- | | | | |
|-------------|-------------|-------------|-------------|
| 1. A B C D | 12. A B C D | 23. A B C D | 34. A B C D |
| 2. A B C D | 13. A B C D | 24. A B C D | 35. A B C D |
| 3. A B C D | 14. A B C D | 25. A B C D | 36. A B C D |
| 4. A B C D | 15. A B C D | 26. A B C D | 37. A B C D |
| 5. A B C D | 16. A B C D | 27. A B C D | 38. A B C D |
| 6. A B C D | 17. A B C D | 28. A B C D | 39. A B C D |
| 7. A B C D | 18. A B C D | 29. A B C D | 40. A B C D |
| 8. A B C D | 19. A B C D | 30. A B C D | 41. A B C D |
| 9. A B C D | 20. A B C D | 31. A B C D | 42. A B C D |
| 10. A B C D | 21. A B C D | 32. A B C D | 43. A B C D |
| 11. A B C D | 22. A B C D | 33. A B C D | 44. A B C D |

answer sheet



Medical

- | | | | |
|-------------|-------------|-------------|-------------|
| 1. A B C D | 21. A B C D | 40. A B C D | 59. A B C D |
| 2. A B C D | 22. A B C D | 41. A B C D | 60. A B C D |
| 3. A B C D | 23. A B C D | 42. A B C D | 61. A B C D |
| 4. A B C D | 24. A B C D | 43. A B C D | 62. A B C D |
| 5. A B C D | 25. A B C D | 44. A B C D | 63. A B C D |
| 6. A B C D | 26. A B C D | 45. A B C D | 64. A B C D |
| 7. A B C D | 27. A B C D | 46. A B C D | 65. A B C D |
| 8. A B C D | 28. A B C D | 47. A B C D | 66. A B C D |
| 9. A B C D | 29. A B C D | 48. A B C D | 67. A B C D |
| 10. A B C D | 30. A B C D | 49. A B C D | 68. A B C D |
| 11. A B C D | 31. A B C D | 50. A B C D | 69. A B C D |
| 12. A B C D | 32. A B C D | 51. A B C D | 70. A B C D |
| 13. A B C D | 33. A B C D | 52. A B C D | 71. A B C D |
| 14. A B C D | 34. A B C D | 53. A B C D | 72. A B C D |
| 15. A B C D | 35. A B C D | 54. A B C D | 73. A B C D |
| 16. A B C D | 36. A B C D | 55. A B | 74. A B C D |
| 17. A B C D | 37. A B C D | 56. A B C D | 75. A B C D |
| 18. A B C D | 38. A B C D | 57. A B C D | 76. A B C D |
| 19. A B C D | 39. A B C D | 58. A B C D | 77. A B C D |
| 20. A B C D | | | |

Trauma

- | | | | |
|-------------|-------------|-------------|-------------|
| 1. A B C D | 15. A B C D | 29. A B C D | 43. A B C D |
| 2. A B C D | 16. A B C D | 30. A B C D | 44. A B C D |
| 3. A B C D | 17. A B C D | 31. A B C D | 45. A B C D |
| 4. A B C D | 18. A B C D | 32. A B C D | 46. A B C D |
| 5. A B C D | 19. A B C D | 33. A B C D | 47. A B C D |
| 6. A B C D | 20. A B C D | 34. A B C D | 48. A B C D |
| 7. A B C D | 21. A B C D | 35. A B C D | 49. A B C D |
| 8. A B C D | 22. A B C D | 36. A B C D | 50. A B C D |
| 9. A B C D | 23. A B C D | 37. A B C D | 51. A B C D |
| 10. A B C D | 24. A B C D | 38. A B C D | 52. A B C D |
| 11. A B C D | 25. A B C D | 39. A B C D | 53. A B C D |
| 12. A B C D | 26. A B C D | 40. A B C D | 54. A B C D |
| 13. A B C D | 27. A B C D | 41. A B C D | 55. A B C D |
| 14. A B C D | 28. A B C D | 42. A B C D | |

**Infants and Children**

- | | | | |
|------------|------------|-------------|-------------|
| 1. A B C D | 5. A B C D | 9. A B C D | 12. A B C D |
| 2. A B C D | 6. A B C D | 10. A B C D | 13. A B |
| 3. A B C D | 7. A B C D | 11. A B C D | 14. A B C D |
| 4. A B C D | 8. A B C D | | |

Operations

- | | | | |
|------------|-------------|-------------|-------------|
| 1. A B C D | 8. A B C D | 14. A B C D | 20. A B C D |
| 2. A B C D | 9. A B C D | 15. A B C D | 21. A B C D |
| 3. A B C D | 10. A B C D | 16. A B C D | 22. A B C D |
| 4. A B C D | 11. A B C D | 17. A B C D | 23. A B C D |
| 5. A B C D | 12. A B C D | 18. A B C D | 24. A B C D |
| 6. A B C D | 13. A B C D | 19. A B C D | 25. A B C D |
| 7. A B C D | | | |

answer sheet

BASICS OF EMERGENCY MEDICAL CARE

Directions: Each question has a maximum of four possible answers. Choose the letter that best answers the question and mark your answer on the answer sheet.

1. Which of the following is NOT a component of the EMS system?
 - (A) 911 dispatcher
 - (B) First responders
 - (C) Emergency department staff
 - (D) All of the above are correct.
2. The EMT-Basic may provide all of the following patient interactions EXCEPT
 - (A) detailed physical assessments.
 - (B) ventilation using a bag-valve-mask ventilator.
 - (C) field administration of medications in cardiac arrest.
 - (D) spinal immobilization.
3. Which of the following is the primary responsibility of the EMT-Basic?
 - (A) Patient care
 - (B) Patient transport
 - (C) Patient safety
 - (D) Personal safety
4. The definition of quality improvement is
 - (A) the review of system aspects that need improvement based on an identified problem.
 - (B) the identification of a possible problem and its correction before it surfaces.
 - (C) a medical director review of patient call reports.
 - (D) an EMT-Basic documentation of patient interactions.
5. The ultimate responsibility for patient care is at the discretion of
 - (A) the EMT-Basic on scene.
 - (B) the physician medical director.
 - (C) advanced-level providers on-scene (if applicable).
 - (D) the emergency department staff.
6. Many EMS calls can cause a stress reaction in the EMT-Basic. However, there are specific calls that have a higher incidence of stress reaction. Of the following calls, which would have the highest incidence of stress for the EMT-Basic?
 - (A) A 75-year-old cardiac patient, who feels better after assisted medication
 - (B) A 3-year-old child who is unconscious and not breathing after being struck by an automobile
 - (C) A 50-year-old male with an amputated hand
 - (D) A 17-year-old female who has overdosed on Tylenol

diagnostic test

7. You are a new EMT-Basic, and you have been placed with an experienced partner. After a few quiet tours, you notice that your partner seems uninterested in work, is very irritable with you, complains of difficulty sleeping, and hardly ever eats anything. You consider this a sign of what?
- (A) Your partner may be having a cumulative stress reaction.
 - (B) Your partner is having an acute stress reaction.
 - (C) Your partner does not like new EMT-Basics.
 - (D) You disregard these actions, thinking that some people are just like this.
8. Of the following, which is NOT a good example of stress reduction practices?
- (A) Maintaining a properly balanced diet
 - (B) Going out for drinks after each shift
 - (C) Exercising
 - (D) Following a regimen for relaxation
9. You respond to a call for a patient with difficulty breathing. Upon your arrival, you find a 38-year-old male who has been coughing for two weeks and complaining of night sweats and low-grade fever. During your assessment, you notice that other people in the house also have the same type of cough and fever. Your scene assessment reveals the possibility that this patient may be suffering from
- (A) chronic bronchitis.
 - (B) a communicable disease.
 - (C) an asthma attack.
 - (D) influenza.
10. Gloves should be worn when treating which of the following patients?
- (A) A 45-year-old male patient with AIDS who has been vomiting blood
 - (B) A 75-year-old female complaining of excessive vomiting
 - (C) A 15-year-old female who has a laceration to her right lower leg
 - (D) All of the above
11. You respond to an overturned tanker truck. There is no placard on the truck, but you notice a milky blue liquid on the ground that has the distinct odor of onions. The driver of the truck is lying on the ground in this unidentified substance. You should do all of the following EXCEPT
- (A) approach the driver carefully and rapidly extricate him, being careful not to step in the puddle of liquid.
 - (B) request a haz-mat response team to extricate and decontaminate the driver.
 - (C) set up a triage area in the event that this incident produces more than one patient.
 - (D) set up a treatment area and await decontaminated patients for treatment.

- 12.** You arrive at the scene of a shooting inside a tavern. On your arrival, you notice two large crowds who are obviously still fighting with each other. An intoxicated male approaches you frantically, telling you that his friend is inside and was shot in the chest. Your initial actions are to
- (A) take your equipment inside and attempt to access the patient.
 - (B) request immediate police assistance and do not enter the tavern until they arrive.
 - (C) ask the male to have his friends provide you protection.
 - (D) have the patient brought out to you by his friends.
- 13.** Responding to an emergency call, assessing, and providing treatment and transport are all part of the EMT-Basic's
- (A) response to consent.
 - (B) scope of practice.
 - (C) liability.
 - (D) treatment protocol.
- 14.** The definition of expressed consent is
- (A) consent to treat a refusing patient by court order.
 - (B) treatment of an unconscious patient.
 - (C) treatment of a patient after he or she has made an informed decision to be treated.
 - (D) forcibly treating a patient even though he or she refuses care.
- 15.** The definition of implied consent is
- (A) consent to treat a refusing patient by court order.
 - (B) treatment of an unconscious patient.
 - (C) treatment of a patient after he or she has made an informed decision to be treated.
 - (D) forcibly treating a patient even though he or she refuses care.
- 16.** You are on the scene of a diabetic call. On your arrival, the family had already administered glucose paste and the patient is now coming around. You identify yourself and explain to the patient why you are there. The patient allows a full assessment but refuses transport to the hospital. You should do all of the following EXCEPT
- (A) explain the risks of refusal of transport.
 - (B) explain to the patient that he or she may contact the emergency service if the problem happens again.
 - (C) obtain a patient signature on the refusal form, as well as a witness signature.
 - (D) None of the above
- 17.** You respond to a call for a 21-year-old patient with hyperventilation syndrome. On your arrival, the patient is adamantly refusing an assessment. You tell her that it is necessary and do your assessment against her will, even though she keeps telling you to leave her alone. You may be found guilty of
- (A) assault.
 - (B) battery.
 - (C) negligence.
 - (D) abandonment.

- 18.** You and your partner are on the scene of a minor car accident and treating one patient who will require stitches at the local hospital. You hear on the EMS radio that there is a patient shot two blocks away, and the police are asking for an ambulance forthwith. You tell the patient you are treating to seek alternate transport to the hospital and respond to the shooting. You may be charged with
- (A) assault.
 - (B) battery.
 - (C) negligence.
 - (D) abandonment.
- 19.** You are treating a patient for a possible fractured ankle. You and your partner arrive at the hospital and ask the patient to hop over to the wheelchair. In doing so, the patient falls and injures his arm. You may be guilty of
- (A) assault.
 - (B) battery.
 - (C) negligence.
 - (D) abandonment.
- 20.** You transport several children to the hospital after an incident in the school cafeteria produced a toxic gas. When you arrive at the emergency department, you notice a film crew standing there. The newsperson is asking the names and conditions of the children. You freely give the names and conditions. You have done which of the following?
- (A) Breached patient confidentiality
 - (B) Committed negligence
 - (C) Committed abandonment
 - (D) Treated under false implied consent
- 21.** When responding to a crime scene, the first responsibility is
- (A) providing care to any injured parties.
 - (B) maintaining the scene evidence.
 - (C) questioning bystanders about the perpetrator.
 - (D) securing the scene until police arrive.
- 22.** All of the following are considered vital signs EXCEPT
- (A) blood pressure.
 - (B) motor function.
 - (C) pulse rate.
 - (D) respiratory rate.
- 23.** Respiratory rate is assessed by counting
- (A) breaths for 15 seconds and multiplying by four.
 - (B) breaths for 30 seconds and multiplying by two.
 - (C) breaths for a full 60 seconds.
 - (D) full chest rises for 60 seconds.
- 24.** You are assessing a patient's respirations. You notice that there is stridor, nasal flaring, and accessory muscle use; the patient is sitting in a tripod position. You can state that the patient has _____ breathing.
- (A) regular
 - (B) shallow
 - (C) labored
 - (D) rapid
- 25.** Pulse rate is assessed by counting
- (A) impulses for 30 seconds and multiplying by two.
 - (B) impulses for 15 seconds and multiplying by four.
 - (C) breaths for a full 60 seconds.
 - (D) full chest rises only for 60 seconds.

FOR QUESTIONS 26–29, MATCH THE SKIN COLOR TO ITS POSSIBLE CAUSES.

26. Cyanosis

- (A) Liver abnormalities
- (B) Inadequate oxygenation
- (C) Impaired perfusion status
- (D) Heat exhaustion

27. Jaundice

- (A) Liver abnormalities
- (B) Inadequate oxygenation
- (C) Impaired perfusion status
- (D) Heat exhaustion

28. Pallor

- (A) Liver abnormalities
- (B) Inadequate oxygenation
- (C) Impaired perfusion status
- (D) Heat exhaustion

29. Flushing

- (A) Liver abnormalities
- (B) Inadequate oxygenation
- (C) Impaired perfusion status
- (D) Heat exhaustion

30. Cool and clammy skin is a sign of _____, while hot and dry skin is a sign of _____.

- (A) shock . . . heat exposure
- (B) fever . . . heat loss
- (C) cold exposure . . . heat exposure
- (D) fever . . . heat loss

31. When assessing for normal capillary refill, you should see blood return to the blanched extremity in _____ seconds; longer blood return times indicate _____.

- (A) 4 seconds . . . hypertension
- (B) 4 seconds . . . poor circulation
- (C) 2 seconds . . . hypertension
- (D) 2 seconds . . . poor circulation

32. You respond to a call for an unconscious patient. On your arrival, you find a 28-year-old male unconscious on the floor. His girlfriend states that he was fine and then just passed out. Your assessment reveals constricted pupils. You suspect this patient has overdosed on

- (A) barbiturates.
- (B) alcohol.
- (C) narcotics.
- (D) benzodiazepines.

33. Your patient is unconscious after being struck on the head with a lead pipe. In a patient with severe head injury, you would expect his pupils to be unreactive or

- (A) unequal.
- (B) constricted.
- (C) dilated.
- (D) unaffected.

34. During assessment, you shine your penlight in the patient's eye. You would expect the pupils to respond by

- (A) dilating unilaterally.
- (B) dilating bilaterally.
- (C) constricting unilaterally.
- (D) constricting bilaterally.

35. Contraction of the left ventricle and its resulting blood flow reading is known as

- (A) diastolic blood pressure.
- (B) systolic blood pressure.
- (C) arterial pressure.
- (D) positive pressure.

36. The blood pressure that signifies the relaxation stage of the ventricles is known as

- (A) diastolic blood pressure.
- (B) systolic blood pressure.
- (C) arterial pressure.
- (D) positive pressure.

37. What are the two different ways to obtain a patient's blood pressure?
- (A) Inspection and palpation
 - (B) Inspection and auscultation
 - (C) Auscultation and palpation
 - (D) Auscultation and percussion
38. All of the following are symptoms EXCEPT
- (A) headache.
 - (B) nausea.
 - (C) vomiting.
 - (D) chest pain.
39. Which of the following is NOT a sign?
- (A) Obvious deformity of an extremity
 - (B) Vomiting
 - (C) Dilated pupils
 - (D) Abdominal pain
40. All of the following are components of the SAMPLE history EXCEPT
- (A) medication.
 - (B) allergies.
 - (C) signs and symptoms.
 - (D) pulse rate.
41. Lifting and moving a patient using your body properly is defined as
- (A) body mechanics.
 - (B) physical mechanics.
 - (C) body lift technique.
 - (D) efficient lifting.
42. All of the following are elements of an effective lift EXCEPT
- (A) keeping the back straight.
 - (B) lifting with the legs.
 - (C) shifting weight on the lift to compensate for balance.
 - (D) keeping the weight near your body.
43. You need to transport a stable patient with chest pain down several flights of stairs. Which of the following devices is best suited for this carry?
- (A) Scoop stretcher
 - (B) Long backboard
 - (C) Stair chair
 - (D) Wheeled stretcher
44. When carrying a patient using a stair chair, a third EMS provider should be used as a spotter. Where should the spotter be positioned?
- (A) The top of the stairs above the carry, looking down and advising the crew of obstacles
 - (B) The bottom of the stairs below the carry, looking up and advising the crew of obstacles
 - (C) Directly behind the person at the lowest point of the carry, hand on his or her back, directing the carry
 - (D) On the side of the patient, between the carriers, steadying the chair
45. You and your partner must do a carry down two flights of stairs. Upon opening your stair chair, you notice that it is broken. You do not have time to wait for another unit. Your partner approaches the patient from the rear, places her arms under the patient's arms, and grabs his wrist. You grab the patient under the knees. This type of lift is known as a(n)
- (A) extremity lift.
 - (B) two-person patient drag.
 - (C) clothing drag.
 - (D) patient chair lift.
46. All of the following are examples of emergency moves EXCEPT
- (A) extremity lift.
 - (B) sheet drag.
 - (C) blanket drag.
 - (D) clothing drag.

47. The draw sheet method, direct ground lift, and direct carry are all examples of
- (A) emergency moves.
 - (B) non-emergency moves.
 - (C) long-range carrying techniques.
 - (D) trauma patient carries.
48. You are the first arriving unit on the scene of a house fire with a report of trapped occupants. Your partner runs into the house to try to get the people out. After several minutes, your partner appears in the doorway and falls backward unconscious. Which of the following methods would be the best way to extricate your partner from this situation?
- (A) The fireman's carry
 - (B) Extremity carry to a stair chair
 - (C) Scoop stretcher
 - (D) Long spine board
49. Your patient is a 46-year-old female who has been extricated from a motor vehicle and is unconscious. Her vital signs are BP 90/60, pulse 120, and respirations 22. The patient has gone through the windshield, and there is a high index of suspicion of spinal injury. What would be the most therapeutic position for transport of this patient?
- (A) On a scoop stretcher with head elevated
 - (B) On a long spine board with the legs elevated 12 inches
 - (C) On a long spine board with the foot end of the board elevated 12 inches
 - (D) On a soft wheeled stretcher in Trendelenburg position
50. You are transporting an unconscious patient who is extremely intoxicated. Which of the following positions would be the best position for transport of this patient?
- (A) Trendelenburg
 - (B) Semi fowler
 - (C) Fowler
 - (D) Recovery

AIRWAY

Directions: Each question has a maximum of four possible answers. Choose the letter that best answers the question and mark your answer on the answer sheet.

1. All of the following are structures of the respiratory system EXCEPT
 - (A) trachea.
 - (B) alveoli.
 - (C) esophagus.
 - (D) pharynx.
2. The exchange of oxygen and carbon dioxide takes place in the
 - (A) trachea.
 - (B) alveoli.
 - (C) bronchus.
 - (D) epiglottis.
3. Of the following, which is NOT a sign of adequate breathing?
 - (A) Abdominal movement
 - (B) Equal chest rise and fall
 - (C) Muscular retractions in the ribs
 - (D) Audible breath sounds
4. You respond to a patient in respiratory distress. On your arrival, you find a 67-year-old male who has a respiratory rate of 32, nasal flaring, and shallow, irregular respirations. All of these findings are indicative of
 - (A) normal respiratory patterns.
 - (B) inadequate breathing.
 - (C) choking.
 - (D) proper ventilation.
5. Which of the following is NOT a cause of inadequate breathing?
 - (A) Pulmonary edema
 - (B) Allergic reactions
 - (C) Airway obstruction
 - (D) All of the above are causes of inadequate breathing.
6. The head tilt–chin lift airway maneuver can be used in all of the following patients EXCEPT a patient
 - (A) who is choking.
 - (B) with chest pain.
 - (C) struck by an automobile.
 - (D) suffering an allergic reaction.
7. You are assigned to a motor vehicle accident on the interstate. On your arrival, you find a 22-year-old male who is unconscious after being ejected from the vehicle. The initial airway maneuver of choice for the patient would be the
 - (A) head tilt–chin lift.
 - (B) insertion of an oropharyngeal airway.
 - (C) jaw thrust maneuver.
 - (D) chin pull.
8. The EMT–Basic should never suction a patient for longer than _____ seconds.
 - (A) 5
 - (B) 10
 - (C) 15
 - (D) 20
9. While suctioning a patient, suction should be applied
 - (A) during insertion of the catheter.
 - (B) while advancing the catheter.
 - (C) after the catheter is in place.
 - (D) while removing the catheter.

10. All of the following adjuncts are used in artificial ventilation EXCEPT the
- (A) bag-valve-mask device.
 - (B) non-rebreather mask.
 - (C) pocket face mask.
 - (D) flow restricted oxygen powered ventilation device.
11. The pocket face mask with supplemental oxygen may deliver up to _____ percent oxygen to the non-breathing patient.
- (A) 35
 - (B) 50
 - (C) 85
 - (D) 100
12. The bag-valve-mask ventilation device with a reservoir may deliver up to _____ percent of oxygen to the non-breathing patient.
- (A) 35 to 45
 - (B) 50 to 60
 - (C) 75 to 85
 - (D) 95 to 100
13. In order to ensure proper ventilation, the rescuer must deliver more than _____ milliliters of air using a bag-valve-mask device.
- (A) 500
 - (B) 600
 - (C) 700
 - (D) 800
14. You are treating an unconscious patient using an oropharyngeal airway. Proper insertion of this device includes all of the following EXCEPT
- (A) measurement of the device from the corner of the mouth to the tip of the earlobe.
 - (B) opening of the mouth using crossed finger technique.
 - (C) inserting the airway along the curvature of the mouth.
 - (D) checking that the flange properly rests on the patient's lips after insertion.
15. Your seizure patient requires an airway device. Which of the following airway adjuncts would be appropriate, based on the fact that the patient's mouth is clamped shut due to the seizures?
- (A) Oropharyngeal airway
 - (B) Nasopharyngeal airway
 - (C) Endotracheal tube
 - (D) Bag-valve-mask device
16. To ensure proper size, the nasopharyngeal airway is measured from the
- (A) angle of the jaw to the corner of the mouth.
 - (B) corner of the mouth to the edge of the nostril.
 - (C) edge of the nostril to the angle of the jaw.
 - (D) nostril to the top of the ear.

FOR QUESTIONS 17–19, MATCH THE FOLLOWING OXYGEN CYLINDERS TO THEIR APPROPRIATE CAPACITY.

17. D cylinder
- (A) 625 liters
 - (B) 350 liters
 - (C) 6,500 liters
 - (D) 3,000 liters

diagnostic test

- 18.** E cylinder
- (A) 625 liters
 - (B) 350 liters
 - (C) 6,500 liters
 - (D) 3,000 liters
- 19.** M cylinder
- (A) 625 liters
 - (B) 350 liters
 - (C) 6,500 liters
 - (D) 3,000 liters
- 20.** The non-rebreather mask can deliver approximately what percent of oxygen when attached to a delivery system at 12 to 15 liters per minute?
- (A) 35 to 45
 - (B) 45 to 55
 - (C) 80 to 90
 - (D) 100
- 21.** The nasal cannula can provide varied oxygen concentrations. Which of the following liter flow/liter-per-minute combinations correctly describes the capabilities of the nasal cannula?
- (A) 1 to 6 liters, delivering 24 to 44 percent oxygen
 - (B) 2 to 10 liters, delivering 24 to 44 percent oxygen
 - (C) 10 to 12 liters, delivering 80 to 90 percent oxygen
 - (D) 15 liters, delivering 100 percent oxygen
- 22.** Your 82-year-old cardiac patient is complaining of difficulty breathing and chest pain. As you begin to administer oxygen through a non-rebreather mask, the patient fights the mask, saying it is too confining. You
- (A) tell the patient he must keep the mask on, regardless of his complaint.
 - (B) begin ventilations with a bag-valve-mask ventilator.
 - (C) remove the mask and apply a nasal cannula for comfort.
 - (D) remove the mask and disregard oxygen administration.
- 23.** The trachea divides into two branches. The bifurcation point at which the branches form is called the
- (A) larynx.
 - (B) carina.
 - (C) right mainstem bronchus.
 - (D) left mainstem bronchus.
- 24.** The leaf-shaped structure that protects the airway is called the
- (A) trachea.
 - (B) carina.
 - (C) epiglottis.
 - (D) vallecula.
- 25.** The vocal cords are a primary anatomic structure to identify during endotracheal intubation. The vocal cords are located in the
- (A) pharynx.
 - (B) carina.
 - (C) larynx.
 - (D) epiglottis.

26. The anatomical structure that is located posterior to the trachea and that is commonly the location of an improperly inserted endotracheal tube is known as the
- (A) carina.
 - (B) right mainstem bronchus.
 - (C) left mainstem bronchus.
 - (D) esophagus.
27. All of these are anatomical differences between the pediatric airway and the adult airway EXCEPT which of the following?
- (A) The pediatric airway is more supple than the adult airway.
 - (B) The tongue in the pediatric patient is larger.
 - (C) The cricoid cartilage is the widest part of the airway.
 - (D) Due to a smaller trachea, the pediatric patient is more prone to foreign body airway obstruction.
28. All of the following are benefits of endotracheal intubation EXCEPT it
- (A) prevents aspiration.
 - (B) allows direct ventilation without need of a mask seal.
 - (C) facilitates deep airway suctioning.
 - (D) does not elicit a gag reflex in the conscious patient.
29. Which of the following is NOT a complication of esophageal intubation?
- (A) Slowing of the heart rate
 - (B) Esophageal rupture
 - (C) Intubation of the right mainstem bronchus
 - (D) Prevention of aspiration
30. Laryngoscope blades come in several different styles. The straight blade is also known as the _____ blade, while the curved blade is known as the _____ blade.
- (A) macintosh .. miller
 - (B) miller .. macintosh
 - (C) fiber optic .. miller
 - (D) fiber optic .. macintosh
31. In order from smallest to largest, what is the correct size of a laryngoscope blade?
- (A) 0, 1, 2, 3, 4
 - (B) 4, 3, 2, 1, 0
 - (C) 8, 6, 4, 2
 - (D) 2, 4, 6, 8
32. All of these statements about the use of a stylet are true EXCEPT which of the following?
- (A) The stylet is used to increase the rigidity of the endotracheal tube.
 - (B) After insertion, the tube/stylet should be shaped with a slight anatomical bend.
 - (C) The tip of the stylet should protrude from the end of the endotracheal tube by approximately .5 inch.
 - (D) The stylet can be lubricated to ease removal after intubation.
33. The typical size endotracheal tube for the adult male patient is _____, while the typical size endotracheal tube for a newborn is _____.
- (A) 8.0 to 8.5 .. 3.0 to 3.5
 - (B) 6.0 to 6.5 .. 5.0 to 5.5
 - (C) 2.0 to 2.5 .. 9.0 to 9.5
 - (D) 3.5 to 4.5 .. 8.5 to 9.5

34. The commonly accepted formula for sizing an endotracheal tube in a child is

- (A) $(\text{Age} + 3) \times 6$.
- (B) $(\text{Age} + 16) \div 4$.
- (C) $(\text{Height} + \text{Age}) \times 4$.
- (D) $(\text{Weight} + \text{Height}) \times 6$.

35. Which of the following is NOT a step in the placement of the endotracheal tube in an adult patient?

- (A) Prepare all equipment before attempting the insertion.
- (B) Insert the laryngoscope into the patient's mouth.
- (C) Sweep the tongue from right to left, and hold the mouth open with the blade.
- (D) Blindly insert the endotracheal tube, watching the area of the cricoid cartilage for a bump.

QUESTIONS 36–39 ARE BASED ON THE FOLLOWING SCENARIO.

You and your partner are dispatched to a private residence for a patient with difficulty breathing. On your arrival, you find a 26-year-old male who has become unconscious. The family states that the patient is asthmatic and was having difficulty breathing before he passed out. Your assessment reveals that the patient has a pulse and is breathing at about 6 breaths per minute, has poor chest rise, and peripheral cyanosis.

36. Your first intervention would be to

- (A) open the airway, insert an OPA, and begin ventilations using a bag-valve-mask device.
- (B) immediately begin CPR.
- (C) immediately perform endotracheal intubation on the patient.
- (D) place a non-rebreather mask on the patient.

37. While ventilating the patient with a bag-valve-mask device, you notice that the ventilation is not producing adequate chest rise. Your next intervention would be to

- (A) hyperventilate as adequately as possible and perform endotracheal intubation.
- (B) remove the OPA, and insert an NPA.
- (C) increase your oxygen liter flow.
- (D) attach the patient to the AED for evaluation.

38. After you insert the endotracheal tube, you notice that you are not hearing lung sounds and that the patient is becoming centrally cyanotic. Your partner auscultates the abdomen and states that he hears air in the stomach during ventilations. What would be your next step in the management of this patient?

- (A) Continue ventilations, because asthmatics sometimes have silent chests.
- (B) Remove the endotracheal tube and immediately reinsert the endotracheal tube.
- (C) Remove the endotracheal tube, hyperventilate the patient using the bag-valve-mask device, then attempt endotracheal intubation again.
- (D) Remove the endotracheal tube and transport using only the bag-valve-mask device.

- 39.** You have inserted the endotracheal tube for a second time, and your partner confirms bilateral lung sounds. Your next priority would be to
- (A)** secure the endotracheal tube in a proper fashion.
 - (B)** begin immediate transport and secure the endotracheal tube en route.
 - (C)** reassess the patient status, and then secure the endotracheal tube.
 - (D)** ventilate the patient with 1 breath every 6 seconds.
- 40.** All of the following are indicators of proper endotracheal tube placement EXCEPT
- (A)** bilateral breath sounds on ventilation.
 - (B)** vomitus inside the endotracheal tube.
 - (C)** carbon dioxide detector indication.
 - (D)** visualization of the endotracheal tube passing through the vocal cords.

diagnostic test

ASSESSMENT

Directions: Each question has a maximum of four possible answers. Choose the letter that best answers the question and mark your answer on the answer sheet.

1. You are dispatched to an accident that involves a gasoline tanker and a car. On your arrival, you see several patients lying in the street. Your initial action is to
 - (A) approach the patients and begin triage.
 - (B) contact the dispatcher for additional resources.
 - (C) ensure that the scene is safe for you and your partner to operate.
 - (D) block access to the scene from civilian traffic.
2. All of the following are important aspects of pre-arrival dispatch information EXCEPT
 - (A) the status of the patient as described by the caller.
 - (B) any possibility of specialized equipment needs.
 - (C) possibilities of violent activity on the scene.
 - (D) name of the patient's private physician.
3. You are assigned to a multi-vehicle accident that involves a tour bus. You arrive at the scene to find approximately twenty patients with different types of injuries that range from minor to serious. You have determined the scene is safe. Your next action should be to
 - (A) begin immediate treatment of the seriously injured patients.
 - (B) contact dispatch for additional resources.
 - (C) begin triage of all patients.
 - (D) set up a treatment area.
4. All of the following are common injury or illness mechanisms encountered by the EMT-Basic EXCEPT
 - (A) anaphylactic shock.
 - (B) chest trauma secondary to blunt force.
 - (C) elderly head injury due to a fall.
 - (D) difficulty breathing due to myocardial infarction.
5. Which term best describes the EMT-Basic's assessment of the patient's living conditions, appearance, and complaints?
 - (A) The SAMPLE history
 - (B) Chief complaint
 - (C) General impression
 - (D) Initial assessment
6. You arrive at the scene to find that a 53-year-old patient was struck by a motor vehicle. Your assessment reveals that the patient does not readily answer questions; however, he responds to you shouting, "Are you okay?" What is this patient's classification on the AVPU scale?
 - (A) Alert
 - (B) Voice responsive
 - (C) Pain responsive
 - (D) Unresponsive
7. When assessing a patient, all of the following methods are used to assess a patient's airway EXCEPT
 - (A) jaw thrust maneuver.
 - (B) listening to the patient speak.
 - (C) listening to lung sounds.
 - (D) visual inspection of the upper airway.

8. Your assessment of a trauma patient finds that the patient suffered severe trauma to the lower jaw after a fall. Due to your findings, you begin to immobilize the patient's cervical spine. Your decision to do this is based on which of the following statements?
- (A) Cervical spine immobilization should be done on all trauma patients.
 - (B) Trauma to the lower jaw is immobilized with a cervical collar.
 - (C) Using a cervical collar assists in moving the patient to a soft stretcher.
 - (D) It is protocol.
9. All of the following are assessment methods for patient breathing EXCEPT
- (A) watching the chest for rise during inspiration.
 - (B) auscultating lung sounds.
 - (C) assessing the patient for accessory muscle use.
 - (D) suctioning the airway.
10. You are assessing a patient with asthma. During your assessment, the airway is clear and the lungs have equal expansion. Breath sounds are clear bilaterally due to the fact that the patient has self-treated with an aerosol medication prior to your arrival. Your treatment of the patient should include
- (A) self-assisting the patient with additional medication.
 - (B) administration of maintenance oxygen and transport.
 - (C) release of the patient on scene due to total relief.
 - (D) request for ALS assistance since there is nothing more you can do.
11. Wheezing, gasping, accessory muscle use, and stridor are all signs of
- (A) adequate breathing.
 - (B) inadequate breathing.
 - (C) asthma.
 - (D) airway obstruction.
12. Your patient is unresponsive, with inadequate respirations at a rate of 32 breaths per minute. You should immediately
- (A) provide 100 percent oxygen using a non-rebreather mask.
 - (B) ventilate the patient with a bag-valve-mask device and supplemental oxygen.
 - (C) perform obstructed airway maneuvers.
 - (D) consider contacting ALS for advanced interventions.
13. In assessing the pulse in a conscious adult or child, the EMT-Basic would use which of the following pulse points?
- (A) Carotid
 - (B) Femoral
 - (C) Radial
 - (D) Brachial
14. In assessing the pulse in an infant, the EMT-Basic would use which of the following pulse points?
- (A) Carotid
 - (B) Femoral
 - (C) Radial
 - (D) Brachial
15. Capillary refill may be effectively assessed in which of the following patients?
- (A) Adults and children
 - (B) Adults and infants
 - (C) Infants and children
 - (D) Adults only

- 16.** During the initial assessment, the EMT–Basic will assess the patient for external bleeding. The primary reason this is done is
- (A) to detect and correct large volumes of blood loss.
 - (B) to evaluate the area of injury.
 - (C) to establish criteria for blood transfusions at the hospital.
 - (D) The EMT–Basic does not assess for blood loss.
- 17.** All of the following are abnormal findings in skin assessment EXCEPT
- (A) warm and pink.
 - (B) pallor.
 - (C) cyanotic.
 - (D) ashen.

QUESTIONS 18 AND 19 ARE BASED ON THE FOLLOWING PASSAGE.

You and your partner respond to an accident where a car has run into a tree. On your arrival, patient 1 is a 24-year-old male, unconscious and breathing at 36 times a minute. His airway is clear, and he has a pulse of 120. His skin appears pale and diaphoretic. Patient 2 is a 26-year-old female. She is complaining of pain in the neck and chest. Her pulse is 104, respirations are 20, and skin is warm and dry.

- 18.** Based on your general impression, how would you prioritize patient 1?
- (A) High
 - (B) Medium
 - (C) Low
- 19.** Based on your general impression, how would you prioritize patient 2?
- (A) High
 - (B) Medium
 - (C) Low

- 20.** Which of the following is NOT a component of the history of present illness?
- (A) Onset of illness
 - (B) Quality
 - (C) Severity
 - (D) Pertinent past history
- 21.** Place the following in the correct order in which you would assess a conscious patient.
1. SAMPLE history
 2. Vital signs
 3. Focused physical examination
 4. History of present illness
- (A) 1, 2, 3, 4
 - (B) 4, 1, 3, 2
 - (C) 3, 1, 2, 4
 - (D) 2, 4, 1, 3
- 22.** Place in correct order the steps in assessing the unconscious patient.
1. SAMPLE history
 2. Vital signs
 3. Rapid physical examination
 4. History of present illness
- (A) 3, 4, 1, 2
 - (B) 4, 1, 3, 2
 - (C) 3, 1, 2, 4
 - (D) 3, 2, 4, 1
- 23.** A patient with no known prior history is complaining of difficulty breathing. Your assessment reveals wheezing in all lung fields. The difference between this patient and a patient with a known history is the patient with
- (A) a known history does not require a physical examination.
 - (B) no known history will not have a prescribed medication that you could assist in its administration.
 - (C) a known history will not need ambulance transport.
 - (D) no known history will generally respond better to oxygen.

- 24.** Which of the following is NOT an indication for trauma center diversion?
- (A) Death of a passenger in the same vehicle
 - (B) Ejection from the vehicle
 - (C) Isolated extremity fracture
 - (D) Vehicle rollover
- 25.** In using the DCAP-BTLS assessment mnemonic, which of the following terms is NOT associated with this assessment?
- (A) Death
 - (B) Contusions
 - (C) Burns
 - (D) Lacerations
- 26.** Place in the correct order the steps in assessing the trauma patient with significant mechanism of injury.
1. SAMPLE history
 2. Rapid trauma assessment
 3. Reconsider mechanism of injury
 4. Vital signs
- (A) 3, 2, 4, 1
 - (B) 2, 4, 3, 1
 - (C) 1, 2, 3, 4
 - (D) 4, 1, 2, 3
- 27.** Place in the correct order the steps in assessing the trauma patient with no significant mechanism of injury.
1. Chief complaint
 2. Focused assessment of complaint area
 3. Vital signs
 4. SAMPLE history
- (A) 3, 2, 4, 1
 - (B) 2, 4, 3, 1
 - (C) 1, 2, 3, 4
 - (D) 4, 1, 2, 3
- 28.** Which of the following best describes the difference between the detailed physical examination of the trauma patient and the medical patient?
- (A) There is no difference between these examinations.
 - (B) The detailed physical examination of the medical patient always consists of a head to toe examination.
 - (C) The detailed physical examination of the trauma patient always consists of a head to toe examination.
 - (D) The detailed physical examination of the medical patient and the trauma patient differ in that the medical patient will require a much more intensive physical examination.
- 29.** As you assess a patient from a motorcycle collision, you would start at the head and look for which of the following signs of injury?
- (A) Tenderness
 - (B) Deformities
 - (C) Abrasions
 - (D) All of the above
- 30.** In a medical patient complaining of severe headache, which of the following detailed assessments would probably produce the most beneficial information?
- (A) Respiratory system evaluation
 - (B) Neurological evaluation
 - (C) Cardiopulmonary examination
 - (D) Abdominal examination

- 31.** Choose the statement below that best describes the detailed physical examination.
- (A) The detailed physical examination is done on all patients.
 - (B) The detailed physical examination is done only on critical patients with obvious life-threatening injuries.
 - (C) The detailed physical examination is done on patients who may have hidden signs of illness or injury that were not uncovered during the initial examination.
 - (D) The detailed physical examination is done at the discretion of the medical director in charge of the service.
- 32.** All of the following are components of the ongoing assessment EXCEPT
- (A) re-evaluation of airway, breathing, and circulation.
 - (B) re-evaluation of vital signs.
 - (C) evaluation of treatments and responses.
 - (D) initial information gathering on the patient's history.
- 33.** During the ongoing assessment of your patient, you notice that the patient's blood pressure has dropped from 110/70 to 90/58. Because of this pertinent finding, you should
- (A) continue your current mode of treatment.
 - (B) completely re-assess your interventions, as you may have omitted something.
 - (C) advise your partner to speed up the transport.
 - (D) administer oxygen to the patient.
- 34.** Which of the following is NOT a responsibility of the EMS dispatcher?
- (A) Prioritizing incoming emergency calls
 - (B) Selecting and assigning the appropriate EMS units to an emergency
 - (C) Selecting the appropriate receiving hospital
 - (D) Assisting callers with emergency medical instructions
- 35.** In using radio communications, which of the following would best describe the transmission of radio messages?
- (A) Radio transmission should be concise and directly to the point.
 - (B) Radio transmission should be comprehensive reports that outline all information about the call.
 - (C) Radio transmissions should include the patient's name and other personal information.
 - (D) Radio transmission should include "ten-codes" as well as the verbal definition of them after they are transmitted.
- 36.** Which of the following best details the proper order for delivering a verbal report over the air?
- (A) Unit ID, receiving hospital and ETA, age and sex of patient, chief complaint, history of present emergency, findings, treatments, responses
 - (B) Patient's name, complaint, ETA to hospital, patient past history, allergies, and medications
 - (C) Unit ID, patient's name, complaint, treatment and response, ETA to hospital
 - (D) Unit ID, receiving hospital, complaint, findings, treatment, and response

- 37.** While assigned to an emergency call, you must make several radio communications. Which of the following is NOT included in communicating with the dispatcher?
- (A) Acknowledgment of the assignment
 - (B) Arrival at the scene
 - (C) Information gathering techniques on scene
 - (D) Arrival at the hospital
- 38.** Your patient is an elderly male who has fallen in a park. On your arrival, you notice that the patient is wearing hearing aids in both ears and is speaking very loudly. In your communication with this patient, you should
- (A) speak normally, as the hearing aids should allow the patient to hear your questions.
 - (B) speak slowly and clearly while facing the patient.
 - (C) shout loudly into the patient's ear, to ensure that he will hear you.
 - (D) contact the dispatcher for a specialty responder who knows sign language.
- 39.** The most important aspects in communicating with pediatric patients include all of the following EXCEPT
- (A) allowing the child to remain with his parents.
 - (B) allowing the child to have his favorite toy close by.
 - (C) not telling a child if a procedure will cause pain or discomfort.
 - (D) remaining honest with the child throughout the duration of the call.
- 40.** You are assigned to a 75-year-old man with difficulty breathing. On your arrival, you find that the man's family is greatly concerned for his well-being. The patient is stable, with bilateral wheezing and a long history of emphysema. He states that his medications are not working and that he wants to go to the hospital. A family member approaches you during treatment and inquires as to his condition. An appropriate response would be to
- (A) tell the family member that you cannot divulge the patient's condition.
 - (B) have your partner or police remove the family member to another room, to avoid her interfering with care.
 - (C) advise the family member, in a concise fashion, the patient's condition and your plan of action.
 - (D) advise the family member that she will have to ask the doctor at the hospital for information.
- 41.** All of the following are components of the minimum data set EXCEPT
- (A) chief complaint.
 - (B) vital signs.
 - (C) perfusion status.
 - (D) therapeutic interventions.

- 42.** You respond to a 67-year-old male who states that he did not call the ambulance. His daughter is at the scene and states that she called because her father was up all night complaining of chest pain. When you question the patient, he states that he is not going to the hospital. All of the following are appropriate actions in the scenario EXCEPT
- (A) allow the patient to sign a refusal and leave.
 - (B) request to do a physical examination of the patient just to “be sure” that he is okay.
 - (C) after examining the patient, explain your findings and the need for further evaluation at the hospital.
 - (D) document all findings, discussions with the patient, and alternatives offered to the patient, and have the patient and a witness sign the document.
- 43.** You are reviewing the call report from the last run. You notice that your partner entered three sets of vital signs, and you are only aware that one set was taken. When you ask your partner about it, he states that although he only took one set of vital signs, he added additional sets to “make it look better.” As a patient care provider, you should
- (A) change the report personally.
 - (B) forget about the issue, as it makes no difference.
 - (C) discuss the issue with your partner, advise him that it is illegal to falsify documentation, and request that he revise the report.
 - (D) take your vehicle out of service, as you cannot work with this person anymore.
- 44.** During your proofreading of a patient-care report, you notice that you have made an error in documenting in the narrative section. You should
- (A) leave the error as is, as it is minor.
 - (B) start a new report, making sure that you write correctly this time.
 - (C) draw a line through the error, write in the correction, and initial the correction.
 - (D) completely cross out the error and write the correct line next to or above it.

MEDICAL

Directions: Each question has a maximum of four possible answers. Choose the letter that best answers the question and mark your answer on the answer sheet.

1. All of the following medications may be carried on a basic life support unit EXCEPT
 - (A) epinephrine.
 - (B) activated charcoal.
 - (C) oral glucose.
 - (D) oxygen.
2. The EMT-Basic may assist the patient in taking all of the following medications EXCEPT
 - (A) epinephrine.
 - (B) nitroglycerin.
 - (C) oxygen.
 - (D) metered dose inhalers.
3. Match the following routes of administration to their proper definition.
 - (a) Intravenous
 - (b) Sublingual
 - (c) Intramuscular
 - (d) Subcutaneous
 - (e) Intraosseous
 - (A) Into the muscle
 - (B) Into the bone
 - (C) Beneath the skin
 - (D) Into the vein
 - (E) Under the tongue
4. All of the following are necessary for the correct administration of a medication to a patient EXCEPT
 - (A) correct medication.
 - (B) correct dose.
 - (C) correct route.
 - (D) correct needle size.
5. List, in the proper order, the structures of the respiratory system.
 - (A) Nose, pharynx, larynx, trachea, bronchi, alveoli
 - (B) Nose, larynx, pharynx, bronchi, trachea, alveoli
 - (C) Nose, bronchi, larynx, pharynx, trachea, alveoli
 - (D) Nose, bronchi, alveoli, pharynx, larynx, trachea
6. Rapid respiratory rate, diminished breath sounds, unequal chest expansion, and tripod positioning are all signs of
 - (A) adequate breathing.
 - (B) inadequate respiration.
 - (C) heart attack.
 - (D) asthma attack.
7. Which of the following is the medication of choice to treat the patient with breathing difficulty?
 - (A) Epinephrine
 - (B) Metered dose inhalers
 - (C) Nitroglycerin
 - (D) Oxygen

diagnostic test

8. You respond to a call for a patient with difficulty breathing. On your arrival, you find a 27-year-old male who has a bluish coloration of the skin. Your assessment reveals an open airway and a respiratory rate of 6 breaths per minute. The proper device to deliver oxygen and ensure adequate breathing would be a
- (A) nasal cannula at 4 liters of oxygen per minute.
 - (B) non-rebreather mask at 8 liters of oxygen per minute.
 - (C) bag-valve-mask ventilator with oxygen reservoir and assisted ventilations.
 - (D) metered dose inhaler followed by 100 percent oxygen via non-rebreather.
9. Your conscious patient with adequate ventilations is complaining of difficulty breathing. In which position should this patient be transported?
- (A) Lying down with legs elevated
 - (B) In a position that is comfortable to the patient
 - (C) Sitting forward with knees flexed
 - (D) On her side, to facilitate airway management
10. All of the following are signs of adequate air exchange EXCEPT
- (A) unequal chest expansion.
 - (B) regular rhythm.
 - (C) rate between 12 and 20 breaths per minute.
 - (D) equal, clear breath sounds.
11. You are treating a pediatric patient who is in need of oxygen; however, the child is fighting the mask on her face. You should
- (A) immobilize the patient and continue administration of oxygen.
 - (B) deliver oxygen by holding the mask in front of the child's face.
 - (C) discontinue oxygen administration.
 - (D) have the parent hold the child's arms down to facilitate use of the mask.
12. An episodic disease that causes breathing difficulty and can range from mild to severe is
- (A) emphysema.
 - (B) chronic bronchitis.
 - (C) asthma.
 - (D) epiglottitis.
13. A progressive condition that causes poor blood flow to the heart by blocking coronary arteries with calcium and fat deposits is called
- (A) myocardial infarction.
 - (B) angina pectoris.
 - (C) atherosclerosis.
 - (D) ischemia.
14. The major difference between angina pectoris and myocardial infarction is the
- (A) pain in myocardial infarction is always brought on by exertion.
 - (B) duration of the pain in myocardial infarction is shorter than that of angina pectoris.
 - (C) duration of the pain in angina pectoris is shorter and self-correcting after rest.
 - (D) pain of myocardial infarction is usually relieved by administration of nitroglycerin.

15. Which of the following describes tachycardia?
- (A) Heart rate below 100 beats per minute
 - (B) Heart rate above 100 beats per minute
 - (C) Heart rate less than 60 beats per minute
 - (D) Heart rate between 60 and 100 beats per minute
16. Which of the following describes bradycardia?
- (A) Heart rate below 100 beats per minute
 - (B) Heart rate above 100 beats per minute
 - (C) Heart rate less than 60 beats per minute
 - (D) Heart rate between 60 and 100 beats per minute
17. Your patient is a 67-year-old female with chest pain that occurred at rest. The duration of the pain has been approximately 45 minutes, and she has had no relief with her medications. Chest pain of this type is indicative of
- (A) angina pectoris.
 - (B) myocardial infarction.
 - (C) upper respiratory infection.
 - (D) influenza.
18. Which of the following would be most effective in the first few minutes of treatment of the cardiac arrest patient?
- (A) CPR
 - (B) Attachment of an AED and rhythm analysis
 - (C) Ventilation
 - (D) Transport
19. Which of the following best describes the difference between a semi-automatic defibrillator and a fully automatic defibrillator?
- (A) The fully automatic defibrillator advises a shock and prompts the user to deliver it.
 - (B) The semi-automatic defibrillator will deliver a shock on its own after advising all clear.
 - (C) The fully automatic defibrillator will deliver a shock on its own after advising all clear.
 - (D) A semi-automatic defibrillator will not analyze ventricular fibrillation automatically.
20. Which of the following cardiac rhythms, when producing a pulse, would generate a shock-advised message from an AED?
- (A) Ventricular fibrillation
 - (B) Ventricular tachycardia
 - (C) Pulseless electrical activity
 - (D) Asystole
21. In treating a patient in cardiac arrest with an AED and CPR, when should you begin to consider transport?
- (A) After 6 shocks have been delivered
 - (B) After 3 shocks have been delivered
 - (C) Only after ALS care has arrived
 - (D) Only after the patient regains a pulse
22. During the analyze mode of AED use, CPR should be
- (A) interrupted, to allow the AED to analyze the rhythm.
 - (B) continued, as it will not interfere with the analyze phase.
 - (C) interrupted, but ventilations continued.
 - (D) continued, however at a slower rate.

- 23.** Based on standards of care using an AED, three shocks are initially delivered in rapid succession without a pulse check. Choose the appropriate rationale for this treatment.
- (A)** Rapid successive shocks are more effective in treating ventricular fibrillation; the AED will determine if the rhythm is still able to be defibrillated.
 - (B)** Regardless of return of pulses, three shocks should be delivered.
 - (C)** The AED will deliver three shocks regardless of rhythm, once it analyzes a shockable rhythm.
 - (D)** It is up to the EMT-Basic to continue after the first defibrillation.
- 24.** While transporting a patient complaining of chest pain, he becomes unconscious and has no pulse. Which of the following procedures should be followed?
- (A)** CPR and ventilations should begin immediately and transport continued.
 - (B)** The AED should be attached and set to analyze while transport continues.
 - (C)** The AED should be attached and set to analyze and the driver told to stop the vehicle.
 - (D)** CPR should be performed for one minute in a stopped vehicle, then the AED attached.
- 25.** After attaching the AED, it analyzes and delivers 3 successive shocks. A pulse is checked and found to be present; however, the patient is deeply unconscious. The EMT-Basic should
- (A)** place the AED back in analyze mode to be sure that the rhythm has returned.
 - (B)** remove the AED, support ventilations and obtain baseline vital signs, and continue transport.
 - (C)** contact the dispatcher and request ALS (since the patient now has a pulse) and await their arrival.
 - (D)** contact medical direction for nitroglycerin administration.
- 26.** All of the following patients are candidates for AED use, with the EXCEPTION of a(n)
- (A)** 75-year-old male with no pulse.
 - (B)** 87-year-old female who has just gone into cardiac arrest.
 - (C)** 6-year-old drowning patient with no pulse.
 - (D)** 52-year-old man with no cardiac history who is pulseless and not breathing.

- 27.** You are on the scene of an elderly cardiac patient in cardiac arrest and the ALS crew has just arrived. Your AED has just delivered one shock and is in the process of analyzing for a second shock. Since the ALS crew has arrived, what should you do with your AED?
- (A) Leave it alone and allow it to continue analyzing the patient.
 - (B) Disconnect it and allow the ALS crew to attach their manual defibrillator.
 - (C) Hand over its operation to the ALS crew.
 - (D) Ask the ALS crew what they would like you to do with your AED.
- 28.** Why is it necessary to inspect the AED prior to each shift?
- (A) Operational checks at the beginning of each shift ensure that the AED is fully charged and functional.
 - (B) The AED should not be checked unless it has been used during the previous shift.
 - (C) It is not necessary to check it before each shift, as long as the previous shift states that it is operational.
 - (D) None of the above
- 29.** You are manning a first-aid office at the town pool when you get notified of a cardiac arrest in the locker room. You respond to the locker room with the AED. All of the following initial assessment steps are pertinent to the single rescuer AED procedure EXCEPT
- (A) check for responsiveness.
 - (B) check for breathing.
 - (C) administer two breaths.
 - (D) activate EMS.
- 30.** You respond poolside to a cardiac arrest and attach your AED but notice that the patient is lying in a wet area. Treatment of this patient should include
- (A) analyzing and defibrillating the patient where he is lying, as the electricity will not be affected by the water.
 - (B) moving the patient to a dry area, then attaching the AED.
 - (C) drying the area with a towel to absorb excess water that may interfere with the delivered energy.
 - (D) You cannot attach the AED to this patient because he is wet.
- 31.** It is essential for the EMT-Basic to have medical direction when it applies to cardiac patients. Why?
- (A) There may be the need for medical control to assist medication administration.
 - (B) The medical director may order the EMT-Basic to administer medications, even though the patient does not take them.
 - (C) Cardiac disease requires medical direction by state law.
 - (D) Medical direction is not necessary in any EMT-Basic intervention.
- 32.** Common side effects seen after the administration of nitroglycerin include
- (A) general weakness, altered mental status, and bradycardia.
 - (B) nausea, dizziness, drop in blood pressure, and headache.
 - (C) chills, hypertension, and stupor.
 - (D) seizures, coma, and hypertension.

- 33.** Contraindications to administration of nitroglycerin include all of the following EXCEPT
- (A) hypotension.
 - (B) previous allergic reaction.
 - (C) nausea.
 - (D) field treatment of hypertension.
- 34.** All of the following are metabolic causes of altered mental status EXCEPT
- (A) overdose.
 - (B) hypothermia.
 - (C) CVA.
 - (D) diabetic emergencies.
- 35.** The diabetic condition in which there is a rapid onset of altered mental status, which can lead to unconsciousness, seizures, and sometimes even death, is known as
- (A) hypoglycemia.
 - (B) hyperglycemia.
 - (C) ketoacidosis.
 - (D) diabetic coma.
- 36.** All of the following are signs of hypoglycemia EXCEPT
- (A) hunger.
 - (B) agitation.
 - (C) weakness.
 - (D) excessive thirst.
- 37.** Oral glucose is administered to the patient with a diabetic emergency. All of the following are indications for its administration EXCEPT
- (A) diabetic history.
 - (B) altered mental status.
 - (C) unconsciousness.
 - (D) consciousness.
- 38.** Treatment of the unconscious patient who is suspected of having a diabetic emergency would include all of the following EXCEPT
- (A) administration of oral glucose.
 - (B) maintenance of airway and ventilation.
 - (C) placement in recovery position.
 - (D) requesting ALS assistance.
- 39.** Which of the following is the appropriate treatment for a patient with seizures?
- (A) Protect the patient from injury by moving furniture and other objects out of the way of the patient.
 - (B) Support ventilations and administer high-concentration oxygen.
 - (C) Do not apply restraints to the seizure patient.
 - (D) All of the above
- 40.** The condition in which multiple seizures occur one after another without a lucid interval is known as
- (A) prolonged seizure syndrome.
 - (B) status epilepticus.
 - (C) multiple seizure disorder.
 - (D) grand mal seizure.
- 41.** You are dispatched to a 75-year-old male who is disoriented. On your arrival, the family states that the patient was complaining of a headache and then became disoriented. Your assessment reveals that the patient is confused, has unequal pupils and slurred speech, and has lost the use of his right side. Your initial assessment reveals a diagnosis of
- (A) hypoglycemia.
 - (B) stroke.
 - (C) seizure.
 - (D) intoxication.

42. The major difference in determining between an allergic reaction and anaphylaxis is that the patient with anaphylaxis will have
- (A) itching and hives.
 - (B) had a previous reaction to a certain allergen.
 - (C) signs of respiratory distress and shock.
 - (D) fever and a rash.
43. You respond to an asthmatic patient who is complaining of difficulty breathing after a bee sting. On your arrival, you notice no other signs of an allergic reaction. In obtaining a patient history, which of the following questions would be the most appropriate to ask to assist you in your diagnosis between asthma and anaphylaxis in this patient?
- (A) Has the patient ever been stung by a bee before?
 - (B) Has the patient taken any of his medications?
 - (C) Is there a family history of allergies to bee stings?
 - (D) How long ago did the difficulty in breathing start?
44. In the patient with an anaphylactic reaction (shock), which of the following is the highest priority treatment?
- (A) Administration of the patient's auto-injector of epinephrine
 - (B) Airway maintenance, including adjuncts and assisted ventilations, if needed
 - (C) Monitoring of vital signs every 10 minutes
 - (D) Contact with medical direction for additional instructions
45. All of the following are signs and symptoms of anaphylaxis EXCEPT
- (A) itching.
 - (B) respiratory distress.
 - (C) fever.
 - (D) throat tightness.
46. One of the most common side effects of epinephrine auto injectors is
- (A) rapid heart rate.
 - (B) slow heart rate.
 - (C) decreased blood pressure.
 - (D) increased difficulty breathing.
47. All of the following are entry points into the body for poisons and toxins EXCEPT
- (A) ingestion.
 - (B) inhalation.
 - (C) absorption.
 - (D) close proximity.
48. All of the following are important questions in obtaining a history of a poisoning EXCEPT asking
- (A) if the patient has ever taken the substance before.
 - (B) when the substance was ingested.
 - (C) how much of the substance was ingested.
 - (D) what type of substance was taken.
49. In general, treatment of the patient with an ingested poison is directed at
- (A) preventing absorption.
 - (B) inducing vomiting.
 - (C) speeding up absorption.
 - (D) administering antitoxins.

50. You are off from work, and your neighbor comes running over, stating that her 5-year-old son has ingested a large amount of drain cleaner. On your arrival, you find an unconscious child with foamy blood in his airway. In order to manage the airway and provide ventilations, you should
- (A) open the airway and begin mouth-to-mouth ventilations.
 - (B) open the airway and begin mouth-to-mask ventilations.
 - (C) attempt to dilute the poison with water.
 - (D) attempt to induce vomiting by inserting your fingers into the patient's airway.
51. You have administered activated charcoal to a patient who has ingested a poison. After the administration, the patient vomits the charcoal. Your next intervention should be to
- (A) begin transport, as there is nothing more you can do.
 - (B) consider that the vomiting has cleared the poison.
 - (C) administer another dose of activated charcoal.
 - (D) administer syrup of ipecac.
52. All of the following are ways the body can lose heat EXCEPT
- (A) conduction.
 - (B) radiation.
 - (C) evaporation.
 - (D) absorption.
53. The first priority in treating a hypothermic patient is
- (A) management of airway and passive rewarming.
 - (B) administration of warm fluids.
 - (C) rapid rewarming by applying external heat.
 - (D) contacting medical direction for additional instructions.
54. You are called to the scene of an unconscious patient in a factory where the temperatures have been over 100 degrees all week. The foreman states that the patient, a 37-year-old male, was complaining of dizziness and then passed out. Your assessment reveals that he has hot and dry skin, a rapid pulse, and dilated pupils. This patient is suffering from
- (A) non-emergent hyperthermia.
 - (B) emergent hyperthermia.
 - (C) diabetic emergency.
 - (D) stroke.
55. Cold water-drowning patients should not be resuscitated if they have been submerged in water longer than 30 minutes.
- (A) True
 - (B) False
56. All of the following are complications of near-drowning patients EXCEPT
- (A) massive pulmonary edema.
 - (B) destruction of red blood cells.
 - (C) severe hypoxia.
 - (D) hyperthermia.
57. You are treating the patient with a snake bite from a pit viper. All of the following are proper treatment procedures EXCEPT
- (A) ensuring that the scene is safe and the snake is away from the area.
 - (B) providing airway support for the patient.
 - (C) keeping the patient comfortable and motionless.
 - (D) suctioning the venom from the bite area with your mouth.

58. Which of the following factors may cause alterations in a patient's behavior?
- (A) Drug or alcohol abuse
 - (B) Blood sugar disorders
 - (C) Hypoxia
 - (D) All of the above
59. The number one priority in responding to a behavioral emergency is
- (A) airway management of the patient.
 - (B) safety of the rescuers.
 - (C) obtaining a psychological history of the patient.
 - (D) determination of a suicide attempt.
60. All of the following are situations that may lead to suicidal attempts or ideations EXCEPT
- (A) recent divorce or loss of a loved one.
 - (B) high stress levels at home or work.
 - (C) drug or alcohol addiction.
 - (D) None of the above
61. You are called to the scene of a 35-year-old male who is extremely violent. On your arrival, the police have not yet arrived; however, the patient's family is stating that the patient is in the house and threatening to hurt himself or anyone who comes near him. Your first course of action should be to
- (A) enter the home carefully and attempt patient contact.
 - (B) request police to the scene and remain in a safe area.
 - (C) speak to the patient through a window, which will afford your safety.
 - (D) have a family member go in and tell the patient to come outside.
62. All of the following steps should be taken while restraining a patient EXCEPT
- (A) ensuring enough personnel to facilitate a rapid and safe restraint.
 - (B) informing the patient that she will be restrained and allow her a chance to come in the ambulance on her own.
 - (C) having an adequate plan before approaching the patient.
 - (D) allowing the patient one free arm to maintain balance.
63. While interviewing a patient during a behavioral emergency, the EMT-Basic should maintain which of the following attitudes?
- (A) A hard and in-charge approach
 - (B) A caring and understanding ear
 - (C) The EMT-Basic should ignore the patient's conversation, as the patient is not acting normally.
 - (D) None of the above
64. All of the following structures are important to childbirth EXCEPT the
- (A) uterus.
 - (B) umbilical cord.
 - (C) placenta.
 - (D) fallopian tube.
65. The first stage of labor consists of the
- (A) delivery of the placenta.
 - (B) infant entering the birth canal until birth.
 - (C) beginning of contractions until full cervical dilation.
 - (D) cutting of the umbilical cord.

66. The second stage of labor consists of the
- (A) delivery of the placenta.
 - (B) infant entering the birth canal until birth.
 - (C) beginning of contractions until full cervical dilation.
 - (D) cutting of the umbilical cord.
67. The third stage of labor consists of the
- (A) delivery of the placenta.
 - (B) infant entering the birth canal until birth.
 - (C) beginning of contractions until full cervical dilation.
 - (D) cutting of the umbilical cord.
68. The best indicator for imminent delivery of an infant in the field is
- (A) when the bag of waters ruptures.
 - (B) when visual inspection of the vagina is positive for crowning.
 - (C) when contractions are two minutes apart.
 - (D) There is no field indication for imminent birth.
69. The predelivery emergency characterized by severe abdominal pain, dark red bleeding, and a hard, rigid uterus is most likely
- (A) threatened abortion.
 - (B) placenta previa.
 - (C) abruptio placenta.
 - (D) eclampsia.
70. The predelivery emergency that develops as the cervix dilates and separates from a low-lying placenta is called
- (A) threatened abortion.
 - (B) placenta previa.
 - (C) abruptio placenta.
 - (D) eclampsia.
71. During an assisted delivery, you should suction the infant's airway
- (A) after the infant is fully delivered.
 - (B) after the infant's head is delivered.
 - (C) as soon as you can access the infant's mouth.
 - (D) Suctioning should only be done at the hospital.
72. During suctioning of a newborn's airway, what is the proper order in which suctioning should occur?
- (A) Nose and then mouth
 - (B) Mouth and then nose
 - (C) Mouth only
 - (D) Nose only
73. During your assisted delivery, you notice that the umbilical cord is twisted around the newborn's neck, and you cannot remove it. This situation is preventing the newborn from delivering. You should
- (A) begin rapid transport, as this is a true emergency.
 - (B) request advanced life support to provide advanced airway skills.
 - (C) clamp the cord and carefully cut it.
 - (D) None of the above

74. You are preparing to deliver a newborn in the field. Upon inspection of the vagina for crowning, you notice that the umbilical cord has delivered out of the vagina. It is pulsating, and you can see the newborn's head. What intervention is most appropriate?
- (A) Clamp and cut the cord immediately.
 - (B) Push the cord back past the newborn's head to facilitate delivery.
 - (C) Insert your gloved hand into the vaginal opening, creating an airway for the newborn.
 - (D) Administer high-concentration oxygen, touch nothing, and transport immediately.
75. When dealing with a limb presentation, which of the following is NOT acceptable treatment?
- (A) Push the limb back in to the birth canal and try to reposition the infant.
 - (B) Administer high-concentration oxygen.
 - (C) Begin rapid transport.
 - (D) Elevate the pelvis of the mother.
76. The diagnosis of eclampsia (in a previously diagnosed mother with pre-eclampsia) during pregnancy is predicated on the presentation of which of the following events?
- (A) Hypertension
 - (B) Vomiting
 - (C) Seizures
 - (D) Headache
77. The most dangerous complication of vaginal bleeding in a woman of any age is
- (A) development of hypovolemic shock.
 - (B) development of seizures.
 - (C) rapid heart rate.
 - (D) change in mental status.

TRAUMA

Directions: Each question has a maximum of four possible answers. Choose the letter that best answers the question and mark your answer on the answer sheet.

1. The type of bleeding characterized by a rapid pulsatile flow of bright red blood is known as
 - (A) arterial.
 - (B) venous.
 - (C) capillary.
 - (D) cellular.
2. The type of bleeding characterized by a steady flow of dark red blood is known as
 - (A) arterial.
 - (B) venous.
 - (C) capillary.
 - (D) cellular.
3. The type of bleeding characterized by a slow oozing of blood from an abrasion is known as
 - (A) arterial.
 - (B) venous.
 - (C) capillary.
 - (D) cellular.
4. All of the following are signs of shock due to bleeding EXCEPT
 - (A) increased pulse.
 - (B) decreased pulse.
 - (C) decreased blood pressure.
 - (D) altered mental status.
5. All of the following are steps in controlling bleeding in the field EXCEPT
 - (A) direct pressure.
 - (B) elevation.
 - (C) pressure point.
 - (D) wire tourniquet.
6. You respond to a multiple trauma patient at the scene of a motorcycle collision. On your arrival, you find a 26-year-old male with large bruises to his abdomen above the liver, a distended abdomen, bleeding from the mouth, deformity in the left lower extremity, and signs of shock. These types of findings are indicative of
 - (A) severe bleeding in the head.
 - (B) severe internal bleeding.
 - (C) severe external bleeding.
 - (D) minor internal and external bleeding.
7. The maximum time an EMT-Basic should remain on the scene with a critical trauma patient is
 - (A) 10 minutes.
 - (B) 20 minutes.
 - (C) 60 minutes.
 - (D) There is no time limit on patient care.
8. The most important intervention the EMT-Basic should make in the treatment of a patient in shock is
 - (A) controlling bleeding.
 - (B) maintaining an open and secure airway.
 - (C) transporting the patient.
 - (D) splinting any suspected fractures.
9. Which of the following is NOT a layer of the skin?
 - (A) Muscle
 - (B) Epidermis
 - (C) Dermis
 - (D) Subcutaneous

10. A contusion is best defined as a(n)
- (A) collection of blood under intact skin due to an injury.
 - (B) large area of heavy bleeding under the skin.
 - (C) open area of scraping with oozing blood.
 - (D) large open wound with arterial bleeding.
11. The difference between a contusion and a hematoma is that
- (A) a hematoma is a less severe injury.
 - (B) a hematoma involves a larger area of injury.
 - (C) a hematoma occurs only in the brain.
 - (D) There is no difference in these injuries.
12. Your patient has a long jagged cut on his right arm. Which of the following best describes this type of injury?
- (A) Abrasion
 - (B) Contusion
 - (C) Laceration
 - (D) Avulsion
13. After falling off his bicycle, a 6-year-old patient has multiple scrapes and scratches on his arms and legs. This type of injury is known as
- (A) abrasion.
 - (B) contusion.
 - (C) laceration.
 - (D) avulsion.
14. You are assigned to a motor vehicle collision. On your arrival, you find a 56-year-old male who was the driver of the automobile. Your findings include a flap of skin that is hanging from the man's head. This injury occurred when the man's head hit the windshield of the car during the collision. The definition of this type of injury is
- (A) abrasion.
 - (B) contusion.
 - (C) laceration.
 - (D) avulsion.
15. You are treating a patient who has a gunshot wound to the right upper chest. The patient is complaining of difficulty breathing. On your assessment, you find that the wound makes a characteristic sucking sound when the patient breathes. The treatment of this type of injury would include all of the following EXCEPT
- (A) administration of high-concentration oxygen.
 - (B) splinting of the chest using the patient's right arm.
 - (C) application of an occlusive dressing to the injury site.
 - (D) monitoring of breath sounds for diminished sounds on the injured side.
16. Which of the following best describes a hemopneumothorax?
- (A) Air trapped in the lungs
 - (B) Blood trapped in the lungs
 - (C) Air and blood trapped in the pleural space surrounding the lungs
 - (D) Chest pain associated with blood in the lungs

17. Which of the following is NOT part of the treatment for an abdominal evisceration?
- (A) Administration of high-concentration oxygen
 - (B) Application of an occlusive dressing
 - (C) Application of a dry sterile dressing
 - (D) Application of a moist sterile dressing
18. Which best describes a full thickness burn?
- (A) Skin reddening after exposure to the sun
 - (B) Blistering of the skin after touching an open flame
 - (C) Charring of the skin after contact with a bare electrical wire
 - (D) Reddening and blistering of the skin after contact with a caustic chemical
19. Which best describes a partial thickness burn?
- (A) Skin reddening after exposure to the sun
 - (B) Blistering of the skin after touching an open flame
 - (C) Charring of the skin after contact with a bare electrical wire
 - (D) Reddening and blistering of the skin after contact with a caustic chemical
20. Which of the following best describes a superficial burn?
- (A) Skin reddening after exposure to the sun
 - (B) Blistering of the skin after touching an open flame
 - (C) Charring of the skin after contact with a bare electrical wire
 - (D) Reddening and blistering of the skin after contact with a caustic chemical
21. You respond to a house on fire. On your arrival, you are led to a 27-year-old woman who was pulled from the fire by the fire department. Your assessment reveals partial thickness burns on her chest and arms. You also note that there are burns to the lips and soot around the nose. You suspect
- (A) possible full thickness burns to the lips.
 - (B) critical burns to the chest and arms.
 - (C) airway burns.
 - (D) possible fluid loss from the burns.
22. You are treating a burn patient who has full thickness burns to both arms as well as his anterior chest and abdomen. Using the rule of nines, the percent of burn area is
- (A) 27 percent.
 - (B) 32 percent.
 - (C) 36 percent.
 - (D) 42 percent.
23. Your patient is a 6-year-old child with burns to his anterior chest and back as well as his head. Using the rule of nines for a child, what percentage of his body is burned?
- (A) 36 percent
 - (B) 42 percent
 - (C) 54 percent
 - (D) 61 percent
24. Which of the following is classified as a critical burn?
- (A) A patient with superficial burns over 40 percent of her body
 - (B) A child with partial thickness burns over 15 percent of his body
 - (C) A patient with partial thickness burns to 18 percent of his legs
 - (D) A patient with full thickness burns to her feet

25. Treatment for burns includes all of the following EXCEPT
- (A) monitoring the patient's airway.
 - (B) application of moist sterile dressings.
 - (C) application of dry sterile dressings.
 - (D) maintenance of body temperature.
26. Your first priority in the treatment of the patient with an electrical burn who already has been safely removed from danger is
- (A) assessing the patient for entrance and exit wounds from the electrical source.
 - (B) assessment and management of the patient's airway.
 - (C) applying sterile dressings.
 - (D) applying ice to the affected area.
27. You respond to the scene of a fight in a local tavern. On your arrival, you find a 23-year-old female with a knife protruding from her upper right abdominal quadrant. Treatment for this patient includes all of the following EXCEPT
- (A) airway maintenance.
 - (B) application of a bulky dressing around the impaled object.
 - (C) removal of the impaled object and application of a bulky dressing over the wound.
 - (D) administration of high-concentration oxygen.
28. Which of the following is NOT an acceptable treatment of a patient with a partial amputation?
- (A) Wrapping the affected part in dry sterile dressings and bandages
 - (B) Removing the remaining intact skin and placing the amputated part in a plastic bag to prevent infection
 - (C) Controlling bleeding with pressure point, if necessary
 - (D) Transporting to an appropriate facility
29. Which of the following is NOT a part of the appendicular skeleton?
- (A) Cranium
 - (B) Humerus
 - (C) Femur
 - (D) Acetabulum
30. All of the following are bones of the upper extremities EXCEPT the
- (A) humerus.
 - (B) ulna.
 - (C) metacarpal.
 - (D) metatarsal.
31. A closed fracture to bones may result in major internal blood loss. Of the following bones, which one can result in the most severe blood loss?
- (A) Humerus
 - (B) Femur
 - (C) Pelvis
 - (D) Radius

- 32.** Effective immobilization of a bone includes which of the following?
- (A) Immobilizing the area above and below the fracture site
 - (B) Immobilizing the joint above and below the fracture site
 - (C) Maintaining manual stabilization throughout the transport
 - (D) Splinting the patient after he or she is placed in the ambulance to speed up transport
- 33.** After you apply a splint, the patient complains of a tingling sensation to the immobilized extremity. This is due to
- (A) nerve damage from the injury.
 - (B) applying the splint too loosely.
 - (C) applying the splint too tightly.
 - (D) This is a normal reaction to a splint application.
- 34.** All of the following are contraindications to the application of a traction splint EXCEPT a
- (A) pelvic fracture.
 - (B) knee injury.
 - (C) acetabular fracture.
 - (D) open femur fracture.
- 35.** Your patient is complaining of pain to her hands after falling on outstretched arms. Your assessment reveals a fork-type fracture to the patient's hands. This is known as a(n)
- (A) collets fracture.
 - (B) colles fracture.
 - (C) simple wrist deformity.
 - (D) acetabular fracture.
- 36.** There are _____ vertebrae in the cervical spine.
- (A) seven
 - (B) twelve
 - (C) five
 - (D) four
- 37.** The central nervous system consists of
- (A) all nerves and nerve pathways of the body.
 - (B) the parasympathetic nervous system.
 - (C) the brain and spinal cord.
 - (D) the twelve cranial nerves.
- 38.** A concussion is described as
- (A) severe head injury with moderate bleeding.
 - (B) mild head injury with a possible loss of consciousness.
 - (C) open head injury with deep unconsciousness.
 - (D) arterial bleeding of the brain.
- 39.** Which of the following best describes an epidural hematoma?
- (A) Venous bleeding below the dura mater in the brain
 - (B) Arterial bleeding below the dura mater in the brain
 - (C) Venous bleeding above the dura mater in the brain
 - (D) Arterial bleeding above the dura mater in the brain
- 40.** Which of the following best describes a subdural hematoma?
- (A) Venous bleeding below the dura mater in the brain
 - (B) Arterial bleeding below the dura mater in the brain
 - (C) Venous bleeding above the dura mater in the brain
 - (D) Arterial bleeding above the dura mater in the brain
- 41.** Which of the following best describes an intracerebral hematoma?
- (A) Bleeding above the dura mater
 - (B) Bleeding below the dura mater
 - (C) Bleeding within the brain tissue
 - (D) Bleeding above the brain tissue

42. The primary concern in the patient with severe facial injury is
- (A) severe blood loss.
 - (B) airway compromise.
 - (C) brain injury.
 - (D) cervical spinal injury.
43. You are on the scene of a patient who fell from a window. The patient fell approximately 25 feet and is conscious and complaining of numbness and tingling from his neck down. You suspect
- (A) thoracic spinal injury.
 - (B) cervical spinal injury.
 - (C) brain injury.
 - (D) concussion.
44. The Glasgow coma scale examines which of the following?
- (A) Extremity movement, mental status, sensation
 - (B) Verbal response, movement, sensation
 - (C) Eye opening, verbal response, motor response
 - (D) Motor response, verbal response, sensation
45. Which of the following is the required airway maneuver for a patient with suspected spinal injury?
- (A) Modified jaw thrust
 - (B) Head tilt–chin lift
 - (C) Jaw lift
 - (D) Tongue pull
46. On arrival at a motor vehicle accident, you find a patient seated in a vehicle that has severe damage to the front end. You notice that the patient has a laceration to the forehead and the windshield is cracked from where the patient hit his head. The immobilization device of choice is
- (A) rapid extrication on a long spine board.
 - (B) a log roll.
 - (C) a short spine board.
 - (D) a cervical collar and long spine board.
47. You arrive at the scene of a rollover vehicle collision. On your arrival, the patient is standing at the scene speaking with police officers. The patient is complaining of neck pain and right-sided tingling. The immobilization technique of choice for this patient would be
- (A) a short spine board or KED.
 - (B) rapid takedown.
 - (C) a cervical collar only; transport seated.
 - (D) There is no immobilization needed since the patient is already walking.
48. Helmet removal should be attempted in which of the following cases?
- (A) A football player who suffered a lower back injury, is conscious, and is talking with the EMT crew
 - (B) A motorcycle rider who is unconscious and wearing a full face shield
 - (C) A motorcycle rider who is conscious and wearing a half helmet
 - (D) A hockey player who went head first into the boards and is complaining of dizziness

49. Your patient is a 59-year-old male who is found on the street with an altered mental status. Bystanders state that the patient was walking and just sat down and started talking and making no sense. Which of the following would be the best possible explanation for this type of behavior?

- (A) Traumatic brain injury
- (B) Stroke
- (C) Seizure
- (D) Cervical spinal injury

QUESTIONS 50–55 ARE BASED ON THE FOLLOWING SCENARIO.

You are called to a private residence for a psychological emergency. On your arrival, you find a 28-year-old male who is acting violently. The family states that he woke up this morning and was not himself. They also state that the patient was in an accident two days ago in which he sustained a head injury but refused medical care. As you are speaking to the family, the patient collapses.

50. What should be your initial intervention?

- (A) Assess breathing.
- (B) Open the airway with the jaw thrust maneuver and assess the airway.
- (C) Assess circulation.
- (D) Administer glucose paste to the patient.

51. After your initial intervention, you should

- (A) assess breathing.
- (B) open the airway with the jaw thrust maneuver and assess the airway.
- (C) assess circulation.
- (D) administer glucose paste to the patient.

52. After your second intervention, you should

- (A) assess breathing.
- (B) open the airway with the jaw thrust maneuver and assess the airway.
- (C) assess circulation.
- (D) administer glucose paste to the patient.

53. Your findings show that the patient has a stable airway, is breathing, and has a good pulse rate. Your next intervention should be to

- (A) do a neurological assessment.
- (B) begin a secondary assessment.
- (C) immobilize the patient and begin transport.
- (D) examine the head for suspected injury.

54. Based on the history, you would suspect that this patient is suffering from which type of head injury?

- (A) A concussion
- (B) A cervical spine fracture
- (C) A subdural hematoma
- (D) An epidural hematoma

55. How should this patient be transported?

- (A) On a stretcher with head elevated
- (B) Immobilized to a long spine board with a cervical collar
- (C) Immobilized with a KED to ensure cervical spinal immobilization
- (D) On a short spine board, then transferred to the long spine board in the ambulance

INFANTS AND CHILDREN

Directions: Each question has a maximum of four possible answers. Choose the letter that best answers the question and mark your answer on the answer sheet.

1. The major cause of death in children over one year of age is
 - (A) respiratory disease.
 - (B) trauma.
 - (C) respiratory failure.
 - (D) cardiovascular diseases.
2. Which pediatric age group has a fear of permanent injury or death?
 - (A) Birth to 1 year
 - (B) 1 to 3 years
 - (C) 3 to 6 years
 - (D) 6 to 12 years
3. Which pediatric age group may not cooperate with the EMT-Basic during a physical examination?
 - (A) 12 to 18 years
 - (B) Birth to 1 year
 - (C) 6 to 12 years
 - (D) 1 to 3 years
4. In a child, the proper insertion of an oropharyngeal airway is
 - (A) with the tip facing the nose, then twisted, as in an adult.
 - (B) with the tip facing sideways, then twisted down into the oropharynx.
 - (C) with the tip facing the chin and inserted along the anatomy.
 - (D) Oropharyngeal airways are not used in children.
5. The major cause of cardiac arrest in the pediatric patient is
 - (A) respiratory insufficiency.
 - (B) congenital disorders.
 - (C) sleep apnea.
 - (D) heart disease.
6. The child in respiratory distress should be treated with
 - (A) positive pressure ventilation.
 - (B) high-concentration oxygen by mask.
 - (C) blow by oxygen.
 - (D) low-concentration oxygen.
7. The child in respiratory failure should be treated with
 - (A) positive pressure ventilation.
 - (B) high-concentration oxygen by mask.
 - (C) blow by oxygen.
 - (D) low-concentration oxygen.
8. Signs of compensated shock in the pediatric patient include all of the following EXCEPT
 - (A) rapid pulse.
 - (B) dry mucous membranes.
 - (C) decreased output of urine.
 - (D) decreased blood pressure.
9. The pediatric patient with an altered mental status, rapid respiratory rate, and delayed capillary refill is probably suffering from
 - (A) compensated shock.
 - (B) decompensated shock.
 - (C) decreased blood sugar.
 - (D) head injury.
10. The most common cause of seizures in an otherwise healthy child is
 - (A) epilepsy.
 - (B) trauma.
 - (C) fever.
 - (D) hypoxia.

- 11.** Which of the following is NOT an appropriate treatment for a child in shock?
- (A) Elevating the legs
 - (B) Maintaining body temperature
 - (C) Administering fluids by mouth
 - (D) Administering high-concentration oxygen
- 12.** You respond to a private residence for an unconscious child. On your arrival, you find a child lying on the bedroom floor bleeding from the head. You complete your assessment and notice that the child has bruises in various stages of healing. You suspect
- (A) child abuse.
 - (B) that bruising is normal for children.
 - (C) that the child fell and has a head injury.
 - (D) that the child has a medical condition that causes bruising.
- 13.** Children with a history of child abuse will usually be outspoken and friendly.
- (A) True
 - (B) False
- 14.** In dealing with the death of a child, it is important for the EMT-Basic to
- (A) accept it as part of the job and move on.
 - (B) discuss her feelings about the situation with her partner or co-worker.
 - (C) spend the night out with friends at the local tavern.
 - (D) go home after work, take a sleep aid, and go to bed.

OPERATIONS

Directions: Each question has a maximum of four possible answers. Choose the letter that best answers the question and mark your answer on the answer sheet.

1. Choose the following true statement about the use of excessive speed when responding to an emergency call.
 - (A) Excessive speed increases the chance of an accident.
 - (B) Excessive speed is indicated in true emergencies.
 - (C) Excessive speed cuts down response time.
 - (D) Excessive speed is permitted, if using due regard.
2. You are responding to an emergency call down a one-way street with a passing lane, when you come upon a school bus that is loading children. Which of the following would be the correct action to take?
 - (A) Make sure your sirens are on, and pass the school bus with caution.
 - (B) Announce over the ambulance address system that nobody should move, then pass.
 - (C) Stop your vehicle, and wait to be waved on by the bus driver.
 - (D) There is no requirement on stopping for a school bus.
3. All of the following factors will affect response to an emergency call EXCEPT
 - (A) construction zones.
 - (B) clear, dry roads.
 - (C) rain and wind.
 - (D) icy conditions.
4. Which of the following pieces of information is NOT part of essential dispatch information given to the EMT-Basic?
 - (A) Address of the call
 - (B) Type of emergency
 - (C) Patient's medical history
 - (D) Telephone number of the caller
5. When is it appropriate to notify the receiving hospital of the patient's condition?
 - (A) During the response phase
 - (B) During the treatment phase
 - (C) During the transport phase
 - (D) During the delivery phase
6. Which of the following describes high-level disinfection?
 - (A) The killing of pathogens by using a potent means of disinfection
 - (B) The killing of pathogens by application of heat
 - (C) The killing of pathogens by the application of a pathogenic aerosol or spray
 - (D) Washing and showering after a call where the EMT-Basic was spattered with blood

7. Which of the following describes sterilization
- (A) The killing of pathogens by using a potent means of disinfection
 - (B) The killing of pathogens by application of heat
 - (C) The killing of pathogens by the application of a pathogenic aerosol or spray
 - (D) Washing and showering after a call where the EMT-Basic was splattered with blood
8. The written run report is prepared during which phase of response?
- (A) The transport phase
 - (B) The post-run phase
 - (C) The delivery phase
 - (D) The treatment phase
9. When operating at the scene of a helicopter evacuation, the EMT-Basic should always approach the helicopter from the
- (A) rear.
 - (B) side.
 - (C) front.
 - (D) The EMT-Basic should not approach a helicopter.
10. Which of the following is NOT a part of the post-run phase?
- (A) Cleaning the vehicle
 - (B) Notification of availability for the next run
 - (C) Equipment restocking
 - (D) Patient documentation
11. During extrication of a patient from a motor vehicle, what is the first priority for the EMT-Basic?
- (A) Stabilizing the vehicle
 - (B) Establishing if vehicle entry is safe for the rescue crew
 - (C) Blocking traffic
 - (D) Establishing a command sector at the incident
12. Which of the following is NOT a component of vehicle rescue?
- (A) Hazard management
 - (B) Vehicle stabilization
 - (C) Patient removal
 - (D) Traffic control
13. The initial phase of vehicle extrication begins with
- (A) gaining access.
 - (B) size-up.
 - (C) stabilizing the vehicle.
 - (D) patient packaging.
14. Which of the following best describes a complex access scene?
- (A) A motor vehicle collision in which the patient's foot is pinned
 - (B) A building collapse in which a large piece of cement has a man pinned by the legs
 - (C) A woman with her hand trapped in a machine
 - (D) A man whose car has fallen on his arm
15. You respond to a call for a man pinned by a tractor. On your arrival, you find that the tractor has flipped over and the man's leg has been pinned under the front of the tractor. His vital signs are stable, and he is complaining of only moderate pain. This scene is known as a
- (A) simple access scene.
 - (B) complex access scene.
 - (C) medium access scene.
 - (D) This scene is not rated.

16. Which of the following statements best describes a disaster?
- (A) A disaster is an incident that produces more than 100 patients.
 - (B) A disaster affects multiple geographic regions or damages the infrastructure of one region.
 - (C) A disaster is any incident that produces multiple patients.
 - (D) A disaster is only naturally occurring.
17. A mass casualty incident is best defined as
- (A) any incident that taxes the resources of a given area.
 - (B) any incident that produces more than ten patients.
 - (C) an incident that involves mass transportation.
 - (D) a terrorist event.
18. All of the following are responsibilities of the EMT-Basic at the scene of a hazardous materials incident EXCEPT
- (A) recognizing the incident.
 - (B) establishing scene control.
 - (C) mitigating the hazardous material.
 - (D) establishing a treatment sector.
19. On the NFPA hazardous materials classification chart, the color blue stands for
- (A) health hazard.
 - (B) fire hazard.
 - (C) specific hazard.
 - (D) reactivity.
20. On the NFPA hazardous materials classification chart, the color red stands for
- (A) health hazard.
 - (B) fire hazard.
 - (C) specific hazard.
 - (D) reactivity.
21. At a mass casualty incident, the incident commander is responsible for
- (A) command and control of the entire incident.
 - (B) command of communications only.
 - (C) command of transport only.
 - (D) command of patient care only.
22. You are assigned to the treatment area at a mass casualty incident. You report directly to the
- (A) incident commander.
 - (B) triage officer.
 - (C) treatment officer.
 - (D) transportation officer.
23. Under the triage tag system, the color black refers to a
- (A) dead or unsalvageable patient.
 - (B) high-priority patient.
 - (C) low-priority patient.
 - (D) patient requiring no intervention.
24. Under the triage tag system, the color red refers to a
- (A) dead or unsalvageable patient.
 - (B) high-priority patient.
 - (C) low-priority patient.
 - (D) patient requiring no intervention.
25. At a hazardous materials incident, the hot zone refers to the
- (A) treatment area.
 - (B) decontamination area.
 - (C) area of the spill or event.
 - (D) staging area.

ANSWER KEY AND EXPLANATIONS

Basics of Emergency Medical Care

1. D	11. A	21. A	31. D	41. A
2. C	12. B	22. B	32. C	42. C
3. D	13. B	23. B	33. A	43. C
4. A	14. C	24. C	34. D	44. C
5. B	15. B	25. A	35. B	45. A
6. B	16. D	26. B	36. A	46. A
7. A	17. B	27. A	37. C	47. B
8. B	18. D	28. C	38. C	48. A
9. B	19. C	29. D	39. D	49. C
10. D	20. A	30. A	40. D	50. D

1. The correct answer is (D). Since all three choices are components of the EMS system, the correct answer is (D), none of the above. The components of the EMS system consist of the following:

1. patients
2. public citizens who call 911 and/or provide initial care
3. 911 dispatcher
4. first responders (fire, police, or other EMS agency)
5. EMS personnel (EMT-B, EMT-I, EMT-P)
6. emergency department staff
7. allied health personnel

All of the above components have a direct interaction with the patient once the patient enters into an EMS system.

2. The correct answer is (C). The EMT-Basic may provide non-invasive procedures in patient care. There are circumstances in which the EMT-Basic may assist in medication administration. These circumstances include assistance with the patient's own prescribed medication in asthma, angina, and anaphylaxis. The EMT-Basic does not administer cardiac arrest medications.

3. The correct answer is (D). Although all of these answers are responsibilities of the EMT-Basic, his primary responsibility is to assure his own personal safety as well as the safety of his partner. If the EMT-Basic enters an unsafe situation, there is a possibility of injury or death.

4. The correct answer is (A). The true definition of quality improvement is a review of system aspects that need improvement based on an identified problem. Choice (B) refers to quality assurance. Choices (C) and (D) are components of the quality improvement process.

5. The correct answer is (B). The EMT-Basic works as an extension of the physician medical director. The medical director assumes responsibility for all patient treatments in the field that are initiated by the EMT-Basic within the system for which he has oversight. In the field, the highest level of provider is in charge of patient care; however, it is still the medical director who is ultimately responsible for patient care.

- 6. The correct answer is (B).** It is imperative that the EMT-Basic understand that illness and injury know no age boundaries. The circumstances outlined in question 6 reflect calls from the routine to the highly stressful incident. The serious injury of a child always carries a high stress factor for the EMT-Basic. The EMT-Basic should be aware of the signs of acute and cumulative stress reactions.
- 7. The correct answer is (A).** EMS personnel may suffer from a cumulative stress reaction at any time. Usually, these reactions are precipitated by a current event or serious call; however, they may just exacerbate as in this question, with a slow and steady onset. The EMT-Basic's responsibility is to his or her partner's well-being. He or she should discuss these signs and symptoms with his or her partner or supervisor to ensure that the partner may receive treatment for a cumulative stress disorder.
- 8. The correct answer is (B).** There are many ways for an EMT-Basic to reduce stress; however, constant alcohol consumption is not effective in stress reduction. In fact, alcohol consumption and abuse may worsen the condition. For stress relief, the EMT-Basic should set aside time for relaxation, exercise, and proper diet.
- 9. The correct answer is (B).** A key indicator that this patient has a communicable disease is the fact that there are others on the premises that suffer from the same symptoms. Most communicable diseases present with a low-grade fever and cough, and many of them present with some form of rash. It is in the best interest of the EMT-Basic to use respiratory protection on this type of call. This will reduce the incidence of disease spread to EMS providers.
- 10. The correct answer is (D).** The EMT-Basic should wear gloves on any call where there is a chance that he or she may come in contact with blood or body fluids. It is a good idea to get into the habit of wearing gloves on all calls. In situations where there is a large amount of bleeding, the EMT-Basic should wear protective gowns, which provide a blood protection barrier. This protective clothing will limit exposure to blood and body fluids.
- 11. The correct answer is (A).** The EMT-Basic should never put him- or herself in harm's way under any circumstances. A hazardous materials incident has the potential to produce numerous patients due to product contact in any of its chemical states. The EMT-Basic should immediately request assistance, identify and isolate contaminated patients without becoming contaminated, and set up a triage and treatment area to receive patients after they are decontaminated.
- 12. The correct answer is (B).** The aspect of scene safety falls into this situation. A patient inside a tavern where two groups of people are fighting. The EMT-Basic is not aware of the status of the patient—or if anyone in the crowd is armed with a weapon. In the interest of safety, entry should not be made. In this case, a request for bystander assistance is unavailable. One cannot request civilian protection, and one cannot request that someone else bring the patient out because the extent of his injuries is unknown. The EMT-Basic must immediately request police assistance to control this situation.
- 13. The correct answer is (B).** The EMT-Basic's scope of practice is a well-defined definition that encompasses response, treatment, and transport of all emergency patients within his or her response area. Treatment protocols outline specific treatments for a given condition. Liability on the part of the EMT-Basic results from failure to act within the scope of practice.

14. The correct answer is (C).

Expressed consent is the treatment of patients after they make an informed decision, sometimes called informed consent. These patients have had their assessment and treatment plans outlined to them and have agreed to be treated.

15. The correct answer is (B).

Implied consent occurs when the patient is unconscious. The EMT-Basic will treat under implied consent based on the theory that if the patient were conscious, he or she would agree to be treated.

16. The correct answer is (D).

All of the answers are appropriate in this case; thus, the answer is choice (D), none of the above. In the case of a refusal of treatment, the EMT-Basic should complete a full assessment and inform the patient of the potential risks of not pursuing additional care. In addition—and if the EMT-Basic decides that additional treatment is necessary—medical control should be contacted for assistance. If the patient still refuses, then the EMT-Basic must secure a signed refusal from both the patient and a witness. Finally, the patient should be given options to call back should he or she need assistance.

17. The correct answer is (B).

Touching any patient against his or her will may bring up a charge of battery. If a fully conscious and aware patient states that he or she does not want assistance, the EMT-Basic should try to convince him or her verbally to be treated. If the patient still refuses, then the EMT-Basic should refrain from any physical examinations and contact medical control for additional assistance.

18. The correct answer is (D).

Once an EMT-Basic makes contact with any patient and begins treatment, he or she is responsible for that patient until the emergency department staff takes over care. If an EMT-Basic

begins treatment and leaves before a provider of equal or higher training takes over, he or she is guilty of abandonment.

19. The correct answer is (C).

An EMT-Basic may be guilty of negligence if he or she fails to provide proper treatment to any patient already being treated. In this scenario, the EMT-Basic was negligent because these three rules were broken:

- The EMT-Basic had a duty to act because the patient had an injury and requested assistance.
- The standard of care was not provided because the patient was made to hop to a wheelchair rather than be transported on a stretcher.
- The actions of the EMT-Basic caused harm to the patient because the patient fell, sustaining additional injury.

20. The correct answer is (A).

Patient confidentiality is an important issue. EMT-Basic personnel should never release names and patient conditions to anyone other than emergency personnel or emergency department staff. Delivering information to the press is a breach of patient confidentiality.

21. The correct answer is (A).

The EMT-Basic has a primary responsibility to care for the patient. Although the EMT-Basic should take careful measures not to disturb possible evidence, the first priority is human life. There should be no questioning of bystanders about the crime unless it involves the kinematics of the patient's injury. The EMT-Basic may not remain on the scene for police arrival if the patient is critical. The EMT-Basic should be aware that he or she should not enter a crime scene until police have secured the scene. This is not always the case when an EMT-Basic is called to a private residence for an injury or assault patient.

- He or she may be unaware that a crime has been committed until after patient contact.
22. **The correct answer is (B).** Vital signs are defined in the field as blood pressure; pulse rate and quality; respiratory rate and quality; and skin color, temperature, and moisture. Although motor function is assessed, it is not considered a vital sign.
 23. **The correct answer is (B).** To assess respiratory rate, the EMT-Basic should count breaths for at least 30 seconds and multiply that number by two.
 24. **The correct answer is (C).** Nasal flaring, accessory muscle use, and positioning are all significant signs of labored breathing.
 25. **The correct answer is (A).** To assess pulse rate, the EMT-Basic should count impulses for at least 30 seconds and multiply that number by two.
 26. **The correct answer is (B).**
 27. **The correct answer is (A).**
 28. **The correct answer is (C).**
 29. **The correct answer is (D).**
 30. **The correct answer is (A).** The patient in shock will present with cool or cold, clammy skin; he or she may also have peripheral cyanosis. Patients with heat exposure (heat stroke) will present with hot and dry skin.
 31. **The correct answer is (D).** Capillary refill is an effective, rapid perfusion test in infants and children. It is easily performed by squeezing a fingernail and counting the seconds before blood returns to the nail bed. Any time over 2 seconds may indicate poor perfusion status.
 32. **The correct answer is (C).** The EMT-Basic should always suspect narcotic overdose in the unconscious patient with constricted pupils. This suspicion should be elevated when it is associated with shallow and slow breathing.
 33. **The correct answer is (A).** Due to the kinematics of brain injury, injury to the brain will cause bleeding on the injured side of the brain. This, in turn, will put pressure on the optic nerve on the injured side, causing unequal pupils.
 34. **The correct answer is (D).** Normal pupil response to light is constriction. In the normal patient, both pupils will respond, regardless of which eye the light is placed in front of. Any other response may be considered abnormal.
 35. **The correct answer is (B).** When the heart contracts, blood is forced out into the aorta and out to the rest of the body. When one assesses blood pressure, the systolic pressure, or top number, is a measurement of the pressure in the vessel during contraction.
 36. **The correct answer is (A).** The diastolic blood pressure measurement is taken during ventricular relaxation. This reading relates the pressure that remains in the arteries while the heart is at rest.
 37. **The correct answer is (C).** The EMT-Basic may obtain a blood pressure using two different methods. When using a stethoscope, the pulsations are counted from the moment one begins to hear them right up until they begin to disappear; this is known as auscultation. Palpation is done by placing the fingers on the pulse point in the wrist or the brachial artery.
 38. **The correct answer is (C).** A symptom is something that a patient feels, or a complaint. Headache, nausea, and chest pain are all common patient complaints.
 39. **The correct answer is (D).** A sign is something that the EMT-Basic will physically see. Extremity deformities, obvious injuries, pupil dilation, and vomiting are all visible signs. All signs should be documented on the patient call report.

- 40. The correct answer is (D).** Pulse rate is not a component of the SAMPLE history. Pulse rate is part of the physical examination and not a part of the patient's history.

SAMPLE stands for

S = Signs/Symptoms
A = Allergies
M = Medications
P = Past history
L = Last meal
E = Events leading up to current emergency

- 41. The correct answer is (A).** Proper use of one's body, including proper stance and determination of the weight of the patient, is called body mechanics. The EMT-Basic should survey any and all lifts prior to lifting the patient to determine the possibility of injury.
- 42. The correct answer is (C).** During a patient lift, the weight should never be shifted. Shifting weight during a lift may cause the EMT-Basic to become unbalanced and subsequently drop the patient or cause injury to oneself. The EMT-Basic should be sure of the lift, including balance, before attempting it.
- 43. The correct answer is (C).** When carrying patients down several flights of stairs, especially older buildings with narrow staircases, the stair chair is the carrying device of choice. The stair chair allows for tight turns and narrow hallways and staircases to be negotiated with relative ease.
- 44. The correct answer is (C).** The spotter should always be behind the person at the lowest point of the carry. This person almost always has his or her back toward the patient and turned away from the carry itself. The spotter will then become a pair of eyes for the person at the bottom of the carry. The spotter may also advise the entire carry crew of obstacles, turns, and narrow hallways in advance. This

will add to communication and smooth movement down the staircase.

- 45. The correct answer is (A).** The extremity lift is an excellent technique for moving a patient short distances and when there is no other transport device. This is a commonly used lift for moving a patient from the floor to the wheeled stretcher, stair chair, or other device in a non-traumatic situation.
- 46. The correct answer is (A).** The extremity lift is a non-emergent lift. Emergency moves are used in situations where the EMT-Basic may be in danger of personal injury, such as fires, unstable structures, and other hazardous situations. These moves are not indicated in non-dangerous situations, as they may cause additional injury to the patient.
- 47. The correct answer is (B).** All of the moves are non-emergency moves that are designed to facilitate a non-trauma patient's movement onto a stretcher. These moves should never be used on a patient with suspected spinal trauma, for fear of increasing the injury.
- 48. The correct answer is (A).** In this situation, the fireman's carry is the best method of extrication. The fireman's carry is a one-person operation, which takes only seconds to initiate. The extremity carry, scoop stretcher, and long spine board are all two-person operations, which are time consuming given the situation.
- 49. The correct answer is (C).** In any patient who has a suspected spinal injury and hypotension, the foot end of the long spine board should be elevated. This way, the patient is elevated as a unit. Elevation of only the legs could cause additional spinal movement and create additional damage. Soft-wheeled stretchers are not indicated, as they do not provide a stable spinal support.

- 50. The correct answer is (D).** The unconscious patient who has no traumatic injury should be transported in the recovery position. The recovery

position allows for management of the airway and prevents aspiration in the event that the patient vomits.

Airway

1. C	9. D	17. B	25. C	33. A
2. B	10. B	18. A	26. D	34. B
3. C	11. B	19. D	27. C	35. D
4. B	12. D	20. C	28. D	36. A
5. D	13. D	21. A	29. D	37. A
6. C	14. C	22. C	30. B	38. C
7. C	15. B	23. B	31. A	39. A
8. C	16. C	24. C	32. C	40. B

- The correct answer is (C).** The esophagus is a structure of the gastrointestinal system.
- The correct answer is (B).** Oxygen and carbon dioxide exchange, commonly referred to as gas exchange, takes place in the alveoli. The alveoli are sac-shaped structures that have a membrane that is one cell thick. These membranes are adjacent to capillaries, and the gas exchange occurs at this level.
- The correct answer is (C).** Muscle retractions, known as intercostal retractions, are signs of increased work of breathing. Patients most commonly seen with these retractions are those in severe respiratory distress.
- The correct answer is (B).** Increased respiratory rates, nasal flaring, pursed lip breathing, and shallow, irregular respirations are all signs of inadequate breathing.
- The correct answer is (D).** Inadequate breathing may be caused by a number of ailments, including pulmonary edema, chest pain, asthma, bronchitis, and head injuries.
- The correct answer is (C).** The head tilt-chin lift should never be used on any patient who may be suspected of having a cervical spinal injury.
- The correct answer is (C).** The jaw thrust maneuver is indicated for all unconscious patients who may have a cervical spinal injury. Although an oropharyngeal airway may eventually be indicated, it is not an initial airway maneuver.
- The correct answer is (C).** A patient should never be suctioned for longer than 15 seconds. Long periods of suctioning can cause the patient to become hypoxic. Patients who require suctioning will require high-flow oxygen and possible assisted ventilations after the procedure is completed. When possible, the patient should be hyperventilated prior to suctioning.
- The correct answer is (D).** Suction should be applied while removing the catheter. Long applications of suction may result in hypoxia.
- The correct answer is (B).** Artificial ventilation is the process of manually forcing air into the patient's lungs. The bag-valve-mask, pocket face mask, and flow-restricted oxygen-powered ventilation device are all designed to deliver pressures great enough to produce artificial ventilation. The non-rebreather mask will not develop high pressures to ensure adequate ventilation and should never be used.

11. **The correct answer is (B).** The pocket face mask, when attached to an oxygen supply, can deliver up to 50 percent oxygen to the patient. The pocket face mask alone relies on the expired oxygen of the rescuer, which is normally 16 percent.
12. **The correct answer is (D).** The bag-valve-mask with supplemental oxygen can deliver almost 100 percent oxygen; this is based on the device having an oxygen reservoir. If the device lacks a reservoir, the percent of oxygen delivery falls to nearly 50 percent.
13. **The correct answer is (D).** The American Heart Association recommends that the patient being ventilated with a bag-valve-mask device should receive at least 800 milliliters of air during each ventilation. Improper delivery will result in poor patient oxygenation.
14. **The correct answer is (C).** The oropharyngeal airway is inserted upside down along the palate until resistance is felt. After the EMT-Basic feels resistance, the airway is gently rotated 180 degrees to ensure proper placement. Insertion along the curvature of the mouth may result in obstruction of the airway by the tongue.
15. **The correct answer is (B).** The nasopharyngeal airway is the airway of choice in patients who have no access to the mouth. In cases of seizure and oral trauma, it may be impossible to insert an oral airway, including an endotracheal tube. The airway of choice would be a nasopharyngeal airway. The bag-valve-mask device is not an airway adjunct, but it is a ventilation device.
16. **The correct answer is (C).** The nasopharyngeal airway should be measured from the nostril to the angle of the jaw. An improperly sized airway may result in kinking from over insertion as well as improper ventilation.

17. **The correct answer is (B).**

18. **The correct answer is (A).**

19. **The correct answer is (D).**

EXPLANATION FOR QUESTIONS 17, 18, AND 19.

Oxygen tanks are produced in several capacities. The D and E cylinders are usually portable, with the D tank being the most popular. The M cylinder is used for a fixed onboard oxygen system.

20. **The correct answer is (C).** The non-rebreather mask can deliver oxygen concentrations as high as 80 to 90 percent when properly hooked up and at the proper liter flow.

21. **The correct answer is (A).** The nasal cannula will deliver a prescribed amount of oxygen based on the liter flow. At 1 liter, the cannula delivers 24 percent oxygen; at 6 liters, it delivers 44 percent oxygen.

22. **The correct answer is (C).** When a patient feels confined using a non-rebreather mask, the EMT-Basic should first attempt to calm the patient's fears about the mask and its confining qualities. If that approach fails, the EMT-Basic should remove the mask and apply a nasal cannula. In this instance, the patient is still receiving oxygen and is feeling less anxious about the mask.

23. **The correct answer is (B).** The bifurcation point of the trachea is the carina. The carina is where the right and left mainstem bronchi branch off into the right and left lungs.

24. **The correct answer is (C).** The epiglottis is a leaf-shaped structure above the laryngeal opening. The epiglottis acts like a flap during swallowing, closing off the trachea to foreign bodies such as foods and liquids. The vallecula is the space between the base of the tongue and the epiglottis; this space is important

during endotracheal intubation because when the macintosh blade is used, its proper placement is in the vallecula.

25. **The correct answer is (C).** The vocal cords are located in the trachea. During endotracheal intubation, the landmark that is used for endotracheal tube insertion is the vocal cords. The endotracheal tube is inserted between the vocal cords. Visualization of the tube passing through the vocal cords is the best indicator of proper intubation.
26. **The correct answer is (D).** The esophagus is an organ of the gastrointestinal system that lies directly posterior to the trachea. In improper intubations, the endotracheal tube is passed into the esophagus. The EMT-Basic can easily detect improper insertion by assessing the patient's lung sounds; if lung sounds are absent after insertion, the endotracheal tube has been improperly inserted into the esophagus. Esophageal intubation is a common error made during intubation; however, if the EMT-Basic can identify this error, he or she can remove the endotracheal tube and hyperventilate the patient prior to the next attempt.
27. **The correct answer is (C).** The cricoid cartilage is the narrowest part of the airway in the pediatric patient. Pediatric endotracheal tubes are uncuffed for this reason. Due to the narrow airway, the pediatric endotracheal tube uses the narrow cricoid cartilage to seal itself. The EMT-Basic should keep in mind that several different sized endotracheal tubes should be on hand prior to attempting the intubation.
28. **The correct answer is (D).** In a conscious patient, the endotracheal tube will elicit a gag reflex in the patient. The benefits of endotracheal intubation are great, due to the fact that the airway is completely isolated. The EMT-Basic may deliver ventilations

without a mask seal, allowing for better tidal volume and oxygenation.

29. **The correct answer is (D).** One of the main uses of the endotracheal tube is to prevent aspiration. During a prolonged intubation attempt, the patient may develop a slow heart rate due to vagus nerve stimulation. In addition, improper placement of the stylet may cause an esophageal or tracheal tear, resulting in subcutaneous emphysema. The most common complication of endotracheal intubation is right mainstem bronchus intubation. This occurs when the endotracheal tube is inserted too deeply and becomes placed too low in the trachea. The indicator of right mainstem bronchus intubation is absence of lung sounds on the left side of the chest. To correct this problem, the EMT-Basic should slowly back the endotracheal tube out of the trachea while assessing left-sided lung sounds.
30. **The correct answer is (B).** The straight laryngoscope blade is the miller blade, and the curved laryngoscope blade is the macintosh blade. Fiber-optic blades do exist, but they are supplied in both styles of laryngoscope blades.
31. **The correct answer is (A).** Laryngoscope blades, regardless of style, are sized from smallest (0) to largest (4).
32. **The correct answer is (C).** The stylet should never protrude from the end of the endotracheal tube; this will almost always result in tracheal tearing. When inserting the stylet, the EMT-Basic should ensure that the tip does not protrude past the end of the cuff area.
33. **The correct answer is (A).** The average adult male will accept an endotracheal tube that is sized at 8.0 to 8.5, while the newborn infant will usually accept a 3.0 to 3.5 endotracheal tube size. It is suggested that EMT-Basics have an assortment of endotracheal tubes on hand during an intubation.

- 34. The correct answer is (B).** The most common formula is $(\text{Age} + 16)$ divided by 4. There are other methods for sizing pediatric endotracheal tubes: one is by matching the size of the patient's little finger to the size of the endotracheal tube, and the other is to use the Broselow tape. The Broselow tape has become a commonly accepted tool for treatment of pediatric patients.
- 35. The correct answer is (D).** Endotracheal tubes are never blindly inserted. The laryngoscope is inserted, and the vocal cords are visualized the entire time during the attempt. The EMT-Basic should see the endotracheal tube pass the vocal cords to ensure proper placement.
- 36. The correct answer is (A).** Basic life support procedures always take precedence over the more time-consuming advanced management procedures. The EMT-Basic should always attempt resuscitation using basic procedures. In addition, part of the skill of endotracheal intubation requires that the patient be hyperventilated prior to the intubation attempt.
- 37. The correct answer is (A).** In many cases of asthma, the EMT-Basic will find ventilation difficult. That, combined with poor mask seal, can result in inadequate ventilation of an already hypoxic patient. The EMT-Basic should now perform endotracheal intubation for more precise airway control.
- 38. The correct answer is (C).** After an unsuccessful attempt at endotracheal intubation, the patient should always be hyperventilated to ensure adequate oxygenation. The EMT-Basic should never reinsert an endotracheal tube without prior oxygenation. Transport without another attempt can be detrimental to patient outcome in this case, due to the fact that ventilations with the bag-valve-mask device were not highly effective.
- 39. The correct answer is (A).** After proper insertion and confirmation of bilateral lung sounds, the highest priority is the securing of the endotracheal tube. The EMT-Basic should remember that maintenance of the airway is the highest priority in patient care. The securing of the endotracheal tube will ensure that this will not be displaced during movement and transport.
- 40. The correct answer is (B).** Vomitus inside of the endotracheal tube is an indicator of esophageal intubation. The endotracheal tube should isolate the trachea from gastric contents. If the EMT-Basic sees vomitus inside the endotracheal tube, he or she should immediately stop ventilations, remove the endotracheal tube, suction, and hyperventilate the patient. After this is done, another attempt at endotracheal intubation can be made.

Assessment

1. C	10. B	19. C	28. C	37. C
2. D	11. B	20. D	29. D	38. B
3. B	12. B	21. B	30. B	39. C
4. A	13. C	22. D	31. C	40. C
5. C	14. D	23. B	32. D	41. D
6. B	15. C	24. C	33. B	42. A
7. C	16. A	25. A	34. C	43. C
8. A	17. A	26. A	35. A	44. C
9. D	18. A	27. C	36. A	

- The correct answer is (C).** The initial action of the EMT-Basic in any situation is to ensure scene safety. The EMT-Basic should do a scene survey from inside the vehicle prior to taking any actions in a rescue attempt. This applies not only to accidents but to all incidents. After the scene is considered safe, the EMT-Basic should call for additional resources and, if necessary, block civilian traffic from entry.
- The correct answer is (D).** The EMT-Basic should utilize pre-arrival dispatch data as an integral part of scene size-up. Information gathered prior to arrival is extremely helpful in assisting the EMT-Basic in knowing what equipment may be needed, if police or firefighters are needed on scene, or if the scene would actually be safe to enter. The name of the patient's physician is important but will not have any impact on the acute phase of patient care.
- The correct answer is (B).** Upon arrival of a mass casualty incident, the first arriving crew should immediately request additional assistance. A mass casualty incident is defined as any incident that overwhelms the resources of a given system. If the EMT-Basic were to remain on the scene without assistance, he or she would become overwhelmed in a relatively short period of time. After scene safety, resource requests should follow immediately.
- The correct answer is (A).** Anaphylactic shock is a relatively uncommon occurrence. The EMT-Basic should be acutely aware that anaphylaxis is a true emergency—but a rare one. Some of the more common mechanisms are head injury due to trauma, chest and abdominal injuries, chest pain, and difficult breathing as well as multiple minor injuries.
- The correct answer is (C).** The EMT-Basic should complete a full physical examination on every patient; however, the general impression of a patient, or his or her condition, is usually formed within minutes of arrival. The EMT-Basic should evaluate the scene, including the patient's living conditions, as well as the patient's appearance (affect) and complaints.
- The correct answer is (B).** This patient, due to his response to your shouting, is classified as verbally responsive, or V on the AVPU scale. If a patient is awake and answering questions, he or she would be considered A on the scale. Pain-responsive patients are considered P. Finally, unresponsive patients are considered U on the AVPU scale.
- The correct answer is (C).** When assessing a patient's airway, the EMT-Basic should use a jaw thrust maneuver, visually inspect the airway, and look for anything that may endanger it. If the patient is awake,

the airway may be easily assessed by speaking to the patient. If the patient is speaking normally, it is a good sign that there is no airway compromise. Listening to lung sounds is an assessment tool; however, it is used to assess breathing, not airway.

8. **The correct answer is (A).** Any patient who has been designated a trauma patient during the initial assessment should be immobilized with a cervical collar. The cervical collar does not immobilize injury to the lower jaw; however, lower jaw injury is a good indicator that a large amount of energy was expended to the patient's head. This is indicative of cervical spinal injury. The cervical collar does not assist patient movement, especially of a trauma patient, to a soft stretcher.
9. **The correct answer is (D).** Suctioning of the airway is part of airway assessment, not breathing assessment. To assess a patient's breathing, the EMT-Basic should watch for equal chest rise, inspect the chest for any obvious injuries, and auscultate the lungs for injury indicators such as absent breath sound or wheezes, rales, and rhonchi.
10. **The correct answer is (B).** Many times, asthma patients call for ambulances before beginning self-treatment. The EMT-Basic, after completing a history and physical, should provide supplemental oxygen and transport the patient for further evaluation at a hospital.
11. **The correct answer is (B).** Any abnormal respiratory sounds may be signs of inadequate breathing. The EMT-Basic should be aware of respiratory deficiencies and intervene to correct the breathing difficulty.
12. **The correct answer is (B).** This patient is a prime candidate for bag-valve-mask ventilation. The EMT-Basic should begin immediate ventilations for the unconscious patient with inadequate breathing.
13. **The correct answer is (C).** In assessment of a pulse in a conscious and stable adult or child, the EMT-Basic would use the radial pulse. Located at the wrist of the patient, the radial pulse is the most easily accessible pulse point. In the adult patient, a radial pulse indicates a systolic blood pressure of more than 80 mmHg.
14. **The correct answer is (D).** In an infant, the brachial pulse is the most appropriate pulse point. The EMT-Basic may feel a radial pulse; however, infants' arms contain more fat than an adult's and may prevent the pulse from being felt. The brachial pulse is stronger and, therefore, easier to assess.
15. **The correct answer is (C).** Capillary refill is an effective way to assess patient perfusion in infants and children. In adults, there are factors other than hypovolemia that may alter capillary refill. In assessing capillary refill, the EMT-Basic will gently press on the top of the patient's nail bed, and blood flow should return to the area within 2 seconds. Any return after 2 seconds should be considered abnormal.
16. **The correct answer is (A).** Assessment of the patient for external blood loss is part of the initial assessment. The EMT-Basic should detect and correct any major blood loss before continuing to other parts of the assessment.
17. **The correct answer is (A).** Most patients will present with warm and pink skin. Pink skin is a sign of good perfusion, with warmth being generated to the skin by blood vessels. A patient with pallor, cyanosis, or ashen skin should alert the EMT-Basic to a problem.

18. The correct answer is (A). Patient 1 is a high-priority patient. This patient must receive immediate airway and ventilatory control as well as a complete initial assessment and immediate transport.

19. The correct answer is (C). Patient 2 is exhibiting no signs of hypoperfusion. She is conscious and stable and has no external signs of trauma. Based on the condition of patient 1, she should be transported rapidly but with a detailed physical examination performed.

20. The correct answer is (D). In gathering information for the history of present illness, the EMT-Basic can use the mnemonic OPQRST. This stands for:

Onset
Provocating factors
Quality
Radiation
Severity
Time

Pertinent past history is gathered after the history of present illness under the SAMPLE history.

21. The correct answer is (B). The correct order in assessment of a conscious patient starts with the history of present illness, the SAMPLE history, physical examination, and vital signs.

22. The correct answer is (D). The correct order in assessment of an unconscious patient is different from the conscious patient. It is important to do a rapid physical assessment first and then obtain a set of vital signs. After the vital signs are assessed, the family may be questioned as to the history of present illness and SAMPLE history.

23. The correct answer is (B). When the EMT-Basic is treating a patient with a known history, that patient will more than likely have a prescription medication. The EMT-Basic may assist that patient in taking his or her

medication, therefore beginning the treatment process. In a patient with no known history, there is no medication on hand to assist the patient, and the EMT-Basic should, in this case, administer oxygen and transport the patient to definitive care.

24. The correct answer is (C). An isolated extremity fracture is not a significant mechanism of injury. Significant mechanism of injury is any circumstance that may lead to a life-threatening condition. Patients with significant mechanism of injury should receive a thorough, detailed physical examination.

25. The correct answer is (A). The DCAP-BTLS mnemonic reminds the EMT-Basic what to assess during a rapid physical assessment. The terms are as follows: deformities, contusions, abrasions, punctures/penetrations, burns, lacerations, and swelling. The term *death* is not associated with the DCAP-BTLS assessment.

26. The correct answer is (A). The correct assessment priority in a patient with significant mechanism of injury is to reconsider the mechanism of injury, begin a rapid trauma assessment, and obtain vital signs and a SAMPLE history.

27. The correct answer is (C). In the patient with no significant mechanism of injury, the EMT-Basic should use a different approach to patient assessment. This approach begins by obtaining a chief complaint, doing a focused assessment of any area of complaint, proceeding to vital signs, and obtaining a SAMPLE history.

28. The correct answer is (C). The detailed physical examination of the trauma patient always requires that the patient be assessed from head to toe, due to the fact that the EMT-Basic would not be aware of hidden injury without a thorough assessment. Medical patients require a vectored physical that targets the patient's complaint. For example, a

patient complaining of chest pain would not require a thorough examination of the head and neck, but a complete cardiopulmonary assessment would be necessary.

29. The correct answer is (D). Assessment of the trauma patient would encompass all of the mentioned injury markers. In addition, the EMT-Basic should assess for deformities, lacerations, burns, punctures, penetrating trauma, and any other injury that may occur from that particular mechanism of injury.

30. The correct answer is (B). Patients complaining of severe headache will usually be suffering from a neurological impairment. Assessment of this patient would include a complete neurological examination, including blood pressure and pulse rate. Blood pressure and pulse rate findings may demonstrate an increase in intracranial pressure.

31. The correct answer is (C). The EMT-Basic should perform a detailed physical examination on all patients who may have hidden injuries or signs of illness. This examination can, and sometimes will, be omitted for several reasons, such as the following:

- The EMT-Basic has already diagnosed the patient's current problem and is treating it with positive results.
- The patient requires critical airway, breathing, or circulatory intervention that does not allow time for a detailed examination.

32. The correct answer is (D). The ongoing assessment is completed on a patient so that the EMT-Basic can evaluate the patient status after interventions. This examination also serves to allow the EMT-Basic to reassess all critical areas of his or her initial assessment and compare findings and vital signs to the initial baseline established during an initial examination. The initial patient

history is gathered during the initial examination process and is not a component of the ongoing assessment; however, the EMT-Basic is encouraged to talk to a conscious patient during the entire call. Frequent conversation may uncover and clarify pieces of the patient history that were previously left uncovered.

33. The correct answer is (B). If during the EMT-Basic's ongoing assessment the patient's condition worsens, the EMT-Basic should reassess the previous interventions and re-evaluate critical areas of the initial assessment. Obtaining baseline vital signs during the initial assessment creates a reference point for patient status evaluation after treatment. If the patient status is deteriorating, then additional interventions may be needed, including the request for ALS assistance.

34. The correct answer is (C). The EMS dispatcher is responsible for choices (A), (B), and (D), as well as other aspects of emergency medical dispatch; however, it is the responsibility of the EMT-Basic at the scene of the assignment to make the determination as to which hospital would best treat the patient's condition. The assessment of the EMT-Basic, as well as the response to treatment by the patient, will determine if the patient should be transported to a specialty center or the nearest receiving hospital. This responsibility cannot be handled by the EMS dispatcher.

35. The correct answer is (A). When communicating with the dispatcher, the EMT-Basic should use concise and direct radio messages. These messages should include only pertinent information that the dispatcher will need to document the call and assign additional emergency responders. Comprehensive radio reports are unnecessary and only serve to confuse all parties, as well as prevent other units from reporting to the dispatcher.

The patient's personal information should never be transmitted over the air. There are multiple agencies (news, personal, etc.) that can have access to the emergency frequencies by the use of scanners. The patient's right to privacy should be protected at all times. The use of ten-codes should be used only if all parties are well versed in their definitions. Defining the ten-code after its transmission only serves to extend the transmission.

- 36. The correct answer is (A).** The verbal report over the air should be a concise but detailed report that consists of the following information: Unit ID, receiving hospital and ETA, age and sex of patient, chief complaint, history of present emergency, findings, treatments, and responses. This information will be passed on to the receiving hospital in order to ensure that it is prepared to receive and treat the patient in an appropriate fashion.
- 37. The correct answer is (C).** While on assignment, the EMT-Basic should be informing the dispatcher of his or her status every time it changes. These status reports should be delivered when assigned, on arrival at the emergency, en route to the hospital (includes verbal report), on arrival at the hospital, and when the unit is available after the call is complete. The EMT-Basic is also responsible for informing the dispatcher if he or she will be out of service for any other reasons; these reasons may include restocking, cleaning, refueling, tour change, etc.
- 38. The correct answer is (B).** Patients who are hard of hearing will sometimes create a difficult situation when communicating. The EMT-Basic should speak slowly and clearly while facing the patient. Most patients with hearing problems can read lips and make out the words, as long as the EMT-Basic is looking at them.

Shouting in the patient's ear is inappropriate and may cause the patient to become apprehensive. Normally, hearing aids will allow the patient to hear well enough to understand the EMT-Basic; however, there are cases when these will be ineffective. The use of sign language is an effective tool, provided all parties are knowledgeable in its use.

- 39. The correct answer is (C).** It is of the utmost importance to inform pediatric patients of all procedures being conducted and whether or not they will cause pain or discomfort. In not remaining totally honest with the child, the EMT-Basic will lose the trust of the child and render her- or himself ineffective in the treatment of the patient. Children should be allowed to remain with a parent, and their favorite toy should accompany them, if requested. A demeanor of total honesty with pediatric patients will develop a trusting atmosphere in which the EMT-Basic may perform his or her duties with a cooperative patient.
- 40. The correct answer is (C).** Family members of elderly patients will show genuine concern for their beloved parent or grandparent. It is the responsibility of the EMT-Basic to inform them of the patient's condition as well as the treatment plan of the patient. In many cases, these family members will be the primary caretakers of the elderly patient. These caretakers will need to know the patient's information in order to contact the primary physician or other health-care workers. In addition, the family may provide a wealth of information concerning the patient's history.
- 41. The correct answer is (D).** The "minimum data set" includes all information that is collected during initial patient contact. This information should be well documented on the pre-hospital care report. The components

of the minimum data set include patient chief complaint, level of consciousness, blood pressure, perfusion status, skin condition (color, temperature, and moisture), heart rate, and respiratory rate. Therapeutic interventions are not part of the minimum data set; however, they should be documented on the pre-hospital care report.

- 42. The correct answer is (A).** The EMT-Basic should never allow a patient to sign a refusal of treatment and leave without first attempting to examine the patient and convince him or her that he or she needs medical care. The patient should receive a complete history and physical, with all necessary evaluations and assessments done based on the history of present illness. After this evaluation, all findings and outcomes should be discussed with the patient. If the patient still refuses, the EMT-Basic may elect to contact medical control for assistance or accept the refusal. All refusals should be well documented.

- 43. The correct answer is (C).** The primary responsibility of the EMT-Basic is to the patient. Inaccurate patient care reports, or those that have been falsified, will shed improper information in the on-going treatment of the patient. If it was documented that a medication was given that was actually not given, the patient may not receive that medication at the hospital. The EMT-Basic should advise his or her partner that the form should be changed to reflect the pertinent information correctly and follow through to ensure that the information is changed.

- 44. The correct answer is (C).** The EMT-Basic, upon finding an error in documentation, should draw a single line through the error and write the correction above the crossed-out error. In most cases, it is an error in word use that may be confusing to the hospital staff. The EMT-Basic should never leave an error in place, as it may confuse patient care. In addition, completely crossing out the error may raise suspicions that something was omitted purposely.

Medical

1. A	14. C	30. B	46. A	62. D
2. C	15. B	31. A	47. D	63. B
3. (a) D	16. C	32. B	48. A	64. D
(b) E	17. B	33. C	49. A	65. C
(c) A	18. B	34. C	50. B	66. B
(d) C	19. C	35. A	51. C	67. A
(e) B	20. B	36. D	52. D	68. B
4. D	21. A	37. C	53. A	69. C
5. A	22. A	38. A	54. B	70. B
6. B	23. A	39. D	55. B	71. B
7. D	24. C	40. B	56. D	72. B
8. C	25. B	41. B	57. D	73. C
9. B	26. C	42. C	58. D	74. C
10. A	27. A	43. A	59. B	75. A
11. B	28. A	44. B	60. D	76. C
12. C	29. D	45. C	61. B	77. A
13. C				

1. The correct answer is (A). The EMT-Basic may have activated charcoal, oral glucose, and oxygen, which are available on his ambulance. This availability will be based on local protocols. Regardless of local protocol, the EMT-Basic should be well aware of the indications and contraindications regarding their administration. Epinephrine is a prescription medication that is not administered by the EMT-Basic; however, the EMT-Basic may assist the patient in taking these medications if the patient has a prescribed medication and is in urgent need of it.

2. The correct answer is (C). Oxygen is a medication that is carried by all levels of EMS providers and may be administered to all patients who require it. The EMT-Basic can assist in the administration of epinephrine, nitroglycerin, and metered dose inhalers to patients who have a prescription for these medications. The

EMT-Basic should refer to local protocols for a more comprehensive ruling as to assisted medications.

3. The correct answers are (D), (E), (A), (C), and (B).

(a) Intravenous (D) Into the vein

(b) Sublingual (E) Under the tongue

(c) Intramuscular (A) Into the muscle

(d) Subcutaneous (C) Beneath the skin

(e) Intraosseous (B) Into the bone

4. The correct answer is (D). When administering medications to a patient, the EMT-Basic should verify that he or she has the correct patient, medication, dose, and route of administration prior to administering any medication. The EMT-Basic should be familiar with any medications he or she may find herself assisting a patient in administering. The correct needle size is usually the correct answer in advanced EMS training; however, in the case of the EMT-Basic, all medications that are administered will either not be injectable or will be auto injectors, with the appropriate needle attached.

5. **The correct answer is (A).** The proper order of the structures of the respiratory system is as follows:

nose
pharynx
larynx
trachea
bronchi
alveoli

6. **The correct answer is (B).** All of the listed items are signs of inadequate breathing. The patient who is suffering from difficulty breathing for any reason will present with some signs of inadequate breathing. The EMT-Basic must be aware that all patients may not present with the same obvious signs but with subtle signs or maybe just one symptom of difficult breathing. The EMT-Basic must be aware of all the signs of breathing difficulties in order to properly treat the patient. In this case, an asthma attack will not usually present with unequal chest expansion.
7. **The correct answer is (D).** The medication of choice in the treatment of breathing difficulty is oxygen. The EMT-Basic should never withhold oxygen from any patient with breathing difficulty. Epinephrine, metered dose inhalers, and nitroglycerin may all help the patient who is complaining of breathing difficulty; however, they are specialized medications for the treatment of specific medical alterations in respiratory status. All patients with breathing difficulty, regardless of the cause, should receive oxygen.
8. **The correct answer is (C).** In all patients with respiratory insufficiency, the ventilations should be assisted by using a bag-valve-mask ventilator with an oxygen reservoir. This patient, in addition to having breathing difficulty, is also suffering from inadequate ventilation. Oxygenation and ventilation must be assisted by the EMT-Basic in order for this

patient to receive the proper amount of oxygenation. This artificial ventilation should continue until the patient regains the ability to support his own ventilations or until the patient is transferred to another provider for additional treatments.

9. **The correct answer is (B).** The conscious patient with adequate ventilation should be allowed to sit in a position that is most comfortable. This position (usually leaning forward in a tripod position) will ensure that the patient can maintain adequate ventilations without assistance. The EMT-Basic should administer supplemental oxygen to all patients complaining of difficulty breathing.
10. **The correct answer is (A).** The signs of adequate air exchange are equal chest expansion, clear breath sounds bilaterally, no use of the accessory muscles of breathing, unlabored efforts at ventilation, and signs of adequate oxygenation. Any patient who exhibits anything but normal signs should be carefully evaluated for conditions that may cause breathing difficulty and should be promptly treated.
11. **The correct answer is (B).** Many children will not tolerate an oxygen mask on their face—it may be too confining, and the child will naturally try to remove it. In the event that this occurs, the EMT-Basic can hold the mask a few inches from the child's face to deliver oxygen to the patient. Efforts in restraining the child are not effective, as they will agitate the child and cause an increase in oxygen consumption by the body, causing increased difficulty in breathing. The EMT-Basic should never discontinue the administration of oxygen to a patient who requires it.
12. **The correct answer is (C).** Asthma is a disease that occurs irregularly in patients who suffer from it; therefore, it is known as episodic. Asthma attacks may range from mild

breathing difficulty to patients with complete inability to exchange air. These severe patients will need the EMT-Basic to provide ventilatory assistance as well as supplemental oxygen. COPD (chronic bronchitis and emphysema) patients are usually short of breath and, in many cases, will not call for assistance unless their breathing difficulty worsens significantly for any reason (usually secondary infection). Epiglottitis is a life-threatening disease that is caused by a bacterial infection. Epiglottitis must be treated rapidly, as it may cause an airway obstruction and prevent breathing.

13. **The correct answer is (C).** Atherosclerosis is a major cause of many cases of chest pain. Although not the direct diagnosis, atherosclerosis is the causative factor in most cases of angina pectoris, myocardial infarction, and cardiac ischemia (angina). When calcium and fat particles begin to clog the coronary arteries, blood flow to the heart lessens and the heart muscle does not receive enough oxygen to its cells, causing ischemia. This condition will get progressively worse until the patient suffers from a myocardial infarction or the condition is corrected by a physician.
14. **The correct answer is (C).** Patients with angina pectoris will usually complain of an onset of pain after some type of exertion, and the pain usually subsides after rest or administration of oxygen or nitroglycerin. The pain of myocardial infarction may not be precipitated by any obvious causes, is usually not relieved by nitroglycerin or oxygen administration, and will not subside after a period of rest.
15. **The correct answer is (B).** Tachycardia is defined as a heart rate above 100 beats per minute. To be more specific, it is defined as a heart rate between 100 and 150 beats per minute, with higher heart rates being more specific in origin. A heart rate of

between 60 and 100 beats per minute is considered normal, while a heart rate under 60 beats per minute is considered bradycardia.

16. **The correct answer is (C).** Bradycardia is defined as a heart rate of fewer than 60 beats per minute. In the case of a patient with a rate slower than 60, the EMT-Basic should be aware that many athletic persons have normal resting heart rates of below 60. This rate is no cause for alarm except when it is accompanied by symptoms of poor blood flow to the body, typically low blood pressure.
17. **The correct answer is (B).** Onset and duration are of great importance in a differential diagnosis between angina pectoris and myocardial infarction. In this case, the patient stated that the pain came on at rest, has been present for 45 minutes, and was not relieved by nitroglycerin. This information would lead to a diagnosis of myocardial infarction, based on the onset and duration alone. The non-response to medication would only serve to confirm the diagnosis of myocardial infarction.
18. **The correct answer is (B).** Although CPR and proper ventilation will prolong the window of opportunity to convert a cardiac arrest patient, the definitive treatment of a cardiac arrest patient within the first few minutes of the event is defibrillation. Multiple studies have shown that in the first few minutes of cardiac arrest, the heart is in ventricular fibrillation that can be defibrillated, prompting a normal rhythm. The AED, if available, should be attached to any pulseless patient as early as possible.
19. **The correct answer is (C).** The fully automatic defibrillator will provide hands-free full functionality without any steps needed by the user. The fully automatic AED will analyze a cardiac arrest rhythm and, if indicated, will give an all clear, charge up,

and deliver the shock by itself. The semi-automatic AED will analyze and then advise the user to charge and deliver the shock. Both units will be equipped with hands-free pads that are applied to the chest.

20. The correct answer is (B). Different forms of ventricular tachycardia may look exactly the same on a cardiac monitor; however, one produces a pulse and one does not. The AED does not detect a pulse and, therefore, will recommend a shock for this rhythm. If this shock is delivered, it may cause great harm to the patient—to the extent of stopping the heart. To prevent this grave error, it is only advisable to attach an AED to a patient who has no pulse.

21. The correct answer is (A). Transport should be given high priority after a sixth shock is delivered. Current guidelines prove the need for medications after a patient has been defibrillated with no success. The EMT-Basic should consider transport as the highest priority after six unsuccessful defibrillation attempts. In regard to ALS care, if the ALS unit is en route and its ETA is longer than it would take to arrive at the nearest hospital, transport should begin to the hospital. If, for any reason, the ETA of the ALS unit should change, then arrangement can be made via the dispatcher to have the ALS unit intercept the BLS unit to provide care.

22. The correct answer is (A). During the analyze phase of AED use, there should be no unnecessary patient movement. Although modern AEDs will be able to decipher what is artifact and what is not, there is always a chance of a false reading and a shock indication where one is not warranted. The EMT-Basic must have a clear understanding that delivered shocks to a patient where shock is not indicated can have very serious results.

23. The correct answer is (A). The AED will perform a rhythm check after each shock. The treatment algorithm states that three shocks should be delivered in succession. These successive shocks may be of great benefit to the patient in cardiac arrest. If the AED does not detect a shockable rhythm, it will not deliver additional shocks.

24. The correct answer is (C). Whenever an AED is in analyze mode or set to shock in the back of the ambulance, the vehicle should be stopped. Movement of the vehicle may cause interference that could be incorrectly analyzed or could prevent proper analysis of the rhythm. Delivery of defibrillations in a moving vehicle can have dangerous effects, especially if the vehicle is turning during a shock and the EMT-Basic comes in contact with the patient or defibrillation pads. All AED treatments should be done while not in motion.

25. The correct answer is (B). After return of spontaneous circulation, the patient may need cardiorespiratory support until the heart returns to normal and perfusion status improves. The EMT-Basic should support the patient's ventilations and establish baseline vital signs. These vital signs should be reassessed frequently to monitor the condition of the patient.

26. The correct answer is (C). The 6-year-old drowning patient is not a candidate for AED use. Pediatric patients do not fall into the category for AED defibrillation. Since pediatric cardiac arrest is usually caused by respiratory insufficiency, it is highly unlikely that the AED will be beneficial. In addition, the AED cannot deliver a proper joule setting that is concurrent with pediatric standards.

27. The correct answer is (A). The defibrillator is attached and has delivered a shock, and this is a good indicator that another shock will be

delivered shortly. There is no reason to delay treatment while changing monitors to deliver this shock and successive ones. The ALS crew can use its extra hands to prepare for advanced interventions after these shocks are delivered. After the third shock is delivered and there is no shock indicated, the ALS crew may switch monitors in order to confirm a non-shockable rhythm and decide on a treatment for this type of rhythm.

28. **The correct answer is (A).** The AED should be inspected prior to the beginning of each shift to ensure that it is fully charged and operational. Failure to do a shift check may result in a charge of negligence on the part of the EMT-Basic if it fails to operate at the scene of a cardiac arrest. The EMT-Basic should not take the word of the previous shift that the unit is operational and should check the unit. In addition, regardless of when it was charged and used, it should be tested prior to every shift. Even if a battery shows a full charge at the beginning of the previous shift, temperature conditions and other environmental factors may take a charge from a battery. A defective battery may show a charge, then drop the charge in a few hours.
29. **The correct answer is (D).** Single rescuer AED procedures are similar to layperson CPR, with the exception of activating EMS. In this situation, the EMT-Basic does not leave to activate EMS but remains with the patient to begin definitive treatments. The CPR survey is done to ensure that the patient's airway is intact. After the airway is ensured, AED procedures should take precedence over any other intervention.
30. **The correct answer is (B).** When encountering a patient in a wet area, the EMT-Basic should immediately move the patient into a dry area before attaching the AED. This will ensure safety in operation of the unit. Electrical current follows the path of

least resistance and may be conducted through a puddle or wet surface, injuring rescuers and bystanders. If the patient is wet, he or she should be rapidly dried with a towel before proceeding to defibrillate.

31. **The correct answer is (A).** Medical direction is an essential aspect of emergency medical care. The EMT-Basic should call medical direction prior to the assisted delivery of a patient's medications. There is no substitute for the experience and knowledge base of the medical control physician. In some cases, a patient may be presenting with chest pains but have hypotension, which would make nitroglycerin a contraindication. The medical director will be there to assist the field crews in their patient care.
32. **The correct answer is (B).** Common side effects of nitroglycerin include nausea, vomiting, dizziness, hypotension, headache, and bitter taste in the mouth (from the pill). These are considered common side effects. The dizziness and/or lightheadedness come from nitroglycerin's effect on dilating blood vessels, which drop blood pressure.
33. **The correct answer is (C).** Previous episodes of nausea after the administration of nitroglycerin are not a contraindication to its administration. True contraindications to the use of nitroglycerin would include hypotension, previous allergic reactions, and using it to treat hypertension in the field.
34. **The correct answer is (C).** Metabolic causes of altered mental states are conditions that are caused by factors outside of the central nervous system. Many of these factors are from the outside environment. CVA (cerebrovascular accident, or stroke) is considered a structural cause of altered mental status because it occurs in the central nervous system.

- 35. The correct answer is (A).** Hypoglycemia is characterized by a rapid onset of alteration of mental status. Blood sugar may drop for multiple reasons, including the patient taking his or her insulin and then failing to eat. After insulin is taken, it converts free glucose to stored glucose, and the body cannot use it. Once glucose levels begin to drop, the patient will become disoriented. Hyperglycemia, ketoacidosis, and diabetic coma are all definitions of too much sugar in the blood.
- 36. The correct answer is (D).** Signs and symptoms of hypoglycemia include hunger, agitation, weakness, alteration of mental status (rapidly deteriorating), and salivation. The onset of hypoglycemia can take just a few minutes. A patient may go from a normal mental status and then start to experience drastic changes from the drop in blood sugar. Excessive thirst, excessive urination, and a delayed onset of altered mental status are indicative of hyperglycemia.
- 37. The correct answer is (C).** Unconscious patients should never be given anything by mouth. Unconscious patients may lose control of his or her ability to protect the airway and may aspirate the oral glucose, causing severe airway problems. The patient should have all three of the listed indications in order to receive oral glucose.
- 38. The correct answer is (A).** The unconscious patient who is having a diabetic emergency should be treated with airway and ventilatory maintenance, placed in the recovery position to guard against aspiration, and ALS assistance requested for administration of intravenous glucose and advance emergency management. As previously stated, unconscious patients should receive nothing by mouth, including glucose.
- 39. The correct answer is (D).** A patient suffering from a seizure needs

to be protected from injury. In addition, seizures may cause a prolonged period of apnea and can result in hypoxia. The EMT-Basic must be alert for signs of hypoxia and treat accordingly.

- 40. The correct answer is (B).** Status epilepticus is the condition where a patient suffers two or more seizures without a lucid interval. Status epilepticus is a dire emergency that requires ventilatory support as well as rapid transport or ALS intervention. The EMT-Basic should assess the patient for status epilepticus and make a decision as to rapid transport or ALS request. As always, if ALS is farther away than the closest hospital, the decision to transport should be made immediately.
- 41. The correct answer is (B).** This patient is showing classic signs of a stroke. Slurred speech, confusion, unequal pupils, and hemiplegia are all characteristics of a stroke. Treatment of this patient would include airway and ventilatory support, high concentration oxygen, and transportation in the recovery position to facilitate airway safety.
- 42. The correct answer is (C).** The patient suffering from anaphylaxis will have signs of respiratory distress and shock. Allergic reactions are a much more common occurrence than are true anaphylactic emergencies. Many people will develop allergies to outside allergens without ever developing anaphylaxis. It is important that you differentiate those who have developed anaphylaxis. These patients need definitive care above and beyond those with a general allergic reaction.
- 43. The correct answer is (A).** In this patient, there are two possible diagnoses. This patient is a known asthmatic and was also stung by a bee. The determining factor would be whether or not the patient has ever been stung by a bee before. Due to the

fact that a patient cannot develop an allergic reaction from the first encounter with an allergen (antigen), if the patient has never been stung before, this would rule out an allergic reaction. At that point, the focus would be on the asthma attack. Additional information on the development of this particular episode would include associated signs and symptoms. Anaphylaxis usually presents with itching, hives, and generalized swelling on the body. If these signs are not present, there is a good chance that a different diagnosis should be made.

44. **The correct answer is (B).** The patient with an anaphylactic reaction (shock) will require immediate airway management. This management may need to be aggressive. The physical response by the body to an allergen (antigen) will cause rapid airway swelling and could place the patient in danger of death from hypoxia. Airway maintenance is always the highest priority in this type of patient.
45. **The correct answer is (C).** Patients with anaphylaxis generally do not develop fevers. The EMT-Basic must, however, remain aware that a patient with a fever who is also having an anaphylactic reaction may be on antibiotic medications. Antibiotic medications, especially penicillin derivatives, are major causes of allergic reactions and anaphylaxis.
46. **The correct answer is (A).** Epinephrine commonly increases heart rate. After the injection of epinephrine, the patient may have an increase in pulse rate. Epinephrine will also open airway passages and constrict blood vessels. This will result in increased blood pressure as well as a decrease in breathing difficulty.
47. **The correct answer is (D).** The four common entry routes of poison and toxins are injection, ingestion, inhalation, and absorption. Being in close proximity to a poisonous agent or

toxin may not necessarily cause a reaction; however, the EMT-Basic should be aware that certain poisons and toxins (e.g., radiation) may cause a reaction in patients who were near the object but never actually came in physical contact with it.

48. **The correct answer is (A).** When eliciting a history in a poisoning, it is not important to treatment to determine if the patient has ever taken the poison before. The EMT-Basic should focus on what type of substance was taken, when it was taken, how it was taken, and how much was taken. This information is essential when contacting poison control or medical direction. In determining the amount and route of ingestion, the medical team can develop a rapid treatment plan to prevent absorption of the substance.
49. **The correct answer is (A).** The treatment of a poisoning patient is aimed at prevention of the absorption of the poison. It is not in the patient's best interest to speed up absorption, as this will increase the severity of the physical effects of the poison. The EMT-Basic will not always induce vomiting in the poisoning patient. Induced vomiting may be hazardous with certain substances. Administration of antitoxins may be indicated in special situations, but it is beyond the scope of the EMT-Basic. Airway management and prevention of absorption are the highest priority for the EMT-Basic.
50. **The correct answer is (B).** The goal of patient management in a poisoning is to support the airway. The off-duty EMT will probably not have all the essential equipment to deal with this emergency; however, the EMT-Basic should always have a pocket mask in case of an emergency. Mouth-to-mouth ventilations should never be attempted on a poisoning patient, as the poison may be absorbed into the rescuer. Dilution of poisons and

induced vomiting may be indicated; however, this is an unconscious patient, and neither intervention is indicated.

- 51. The correct answer is (C).** If a patient vomits up the first dose of activated charcoal, it is acceptable to administer an additional dose. Activated charcoal works in the gastrointestinal system by absorbing poisons and binding them, preventing their absorption into the body. If the patient vomits up the charcoal, it will be ineffective. Vomiting up the charcoal will usually not clear the poison from the body, and administration of ipecac in this case is not necessary since the patient is already vomiting.
- 52. The correct answer is (D).** The body can lose heat by conduction, convection, radiation, evaporation, and respiration. It is essential that the EMT-Basic is aware of what factors may be affecting the patient's ability to maintain heat and correct them immediately. Absorption is not a process by which the body loses heat.
- 53. The correct answer is (A).** Airway maintenance and passive rewarming is the highest priority in the treatment of this patient. The EMT-Basic should not administer warm fluids or rapidly re-warm a hypothermic patient. These actions could ultimately result in a poor patient outcome due to physiological changes that occur during rapid rewarming.
- 54. The correct answer is (B).** Patients who have been exposed to high heat without proper ventilation and hydration will develop increased internal temperatures, resulting in hyperthermia. In this case, the patient has hot and dry skin. Hot and dry skin is an ominous sign, and the patient should be moved to a cool area and rapidly cooled if possible. This form of heat emergency is a true emergency that requires rapid transport to the hospital.

- 55. The correct answer is (B).** Attempts at resuscitation of the cold water-drowning patient should be initiated immediately, regardless of submersion time (with the exception of obvious death). There are documented cases of patients surviving after long periods of submersion in cold water. The EMT-Basic should begin resuscitation efforts immediately at the scene, including drying off the patient and passive rewarming.
- 56. The correct answer is (D).** It is highly unusual for a drowning or near-drowning patient to be suffering from hyperthermia, as water acts to pull heat from the body. Near-drowning patients may suffer from pulmonary edema (salt water drowning), red blood cell destruction (fresh water drowning), and severe hypoxia from long submersion times.
- 57. The correct answer is (D).** Snake-bite patients, especially those bitten by highly venomous snakes, should be afforded airway and cardiovascular support as a high priority. In addition, the patient should be kept as still as possible to avoid rapid movement of the venom through the body. It is extremely important that the EMT-Basic understand that in no case should poison be sucked through the bite using the mouth. These are extremely harmful poisons and may cause injury to the rescuer should this be done. If suction is necessary, a proper snake bite kit should be used to remove venom from the bite area.
- 58. The correct answer is (D).** There are many medical causes of behavioral changes. The EMT-Basic should be aware that the behavioral emergency he or she is responding to may actually have a medical cause. It is not acceptable to just assume that a behavioral emergency is psychological in nature until the physical causes have been investigated.
- 59. The correct answer is (B).** As with any response, the safety of rescuers is

the highest priority. In behavioral emergencies, this is even more important. The EMT-Basic should assure that any scene that is entered affords protection for him- or herself and his or her partner. Behavioral emergencies can become rapidly violent situations, and the EMT-Basic should be alert to the environment and proceed with caution.

60. **The correct answer is (D).** All three situations may lead to suicidal attempts or thoughts. Suicide, or thoughts of suicide, may be brought on by many factors: high stress, depression, drug or alcohol addiction, recent breakups, or deaths of close relatives and friends. It may also be brought on by severe depression. Most attempts at suicide are a cry for help. The patient may attempt to hurt him- or herself to signal that something is wrong. The EMT-Basic should openly accept these signs and treat the patient physically as well as emotionally.
61. **The correct answer is (B).** Scene safety is the number one concern in any emergency. The EMT-Basic should not, under any circumstances, enter a home where a patient is threatening violence. Approaching a window is just as dangerous—if a patient breaks the window, the EMT-Basic may become injured and then need treatment. This will only add to the confusion on the scene. At no time should a family member be asked to retrieve a patient, especially during a violent outbreak.
62. **The correct answer is (D).** When restraining a patient is necessary, the EMS providers should work with the police in developing a restraint plan before moving in on the patient. The patient should always be given the option of being transported on his or her own accord; however, if this approach fails, then the restraint procedure should go into effect. One rescuer should be there to talk to the patient while the restraints are being

applied. The violent patient should never be allowed a free arm or limb. This could result in injury to the rescuers.

63. **The correct answer is (B).** In any patient interaction, the EMT-Basic should maintain a caring and understanding ear. Many behavioral patients are only looking for somebody to talk to. The EMT-Basic can be a major asset to the treatment of the patient if he or she shows compassion. This does not mean that the EMT-Basic should feed into any delusions. In addition, the EMT-Basic may find many clues as to the patient's condition during the conversation.
64. **The correct answer is (D).** The EMT-Basic must be familiar with all of the anatomical structures of the female reproductive system in order to assist in the delivery of an infant. These structures include the uterus, vagina, placenta, umbilical cord, amniotic sac, and fetus. A good understanding of all of the functions of these structures is imperative to assist in the delivery of the infant. The fallopian tubes, although a structure in the female reproductive system, serve no purpose in the actual birth of the child.
65. **The correct answer is (C).** Labor can be defined in three stages. The first stage of labor is from the beginning of contractions until the cervix is fully dilated. The second stage of labor is from the time the infant enters the birth canal until the time of birth. The third stage of labor begins after delivery of the infant and ends with the delivery of the placenta.
66. **The correct answer is (B).** See explanation for question 65.
67. **The correct answer is (A).** See explanation for question 65.
68. **The correct answer is (B).** When dealing with the pregnant patient, the EMT-Basic should assess the mother for signs of imminent birth. Some of

the indicators are breaking of the bag of water, contractions that are less than 2 minutes apart, and the mother's urge to push. However, the best field indicator is direct vaginal visualization for crowning. Crowning is when the head of the infant is showing at the vaginal opening. This is a sure sign of imminent delivery.

69. The correct answer is (C). An abruptio placenta is defined as premature separation of the placenta from the uterus. This separation may be partial or complete. The signs of abruption are severe abdominal or back and flank pain, a rigid uterus, and dark red bleeding.

70. The correct answer is (B). Placenta previa is characterized by bright red (arterial) and painless bleeding that usually occurs during the last trimester of pregnancy. The placenta is attached to the uterine wall at a lower point than normal; when the cervix begins to dilate, the placenta begins to detach from the uterine wall, causing arterial bright red bleeding.

71. The correct answer is (B). The EMT–Basic who is assisting delivery of a newborn should suction the infant's airway after the head is fully delivered. Usually, the head delivers facing down and rotates as it becomes fully delivered. The EMT–Basic can assist in this rotation; however, care must be taken to avoid injury to the infant. Suctioning should commence after delivery of the head to prevent aspiration should the infant breathe spontaneously.

72. The correct answer is (B). The proper procedures for suctioning a newborn's airway is to suction the mouth first and then suction the nose.

73. The correct answer is (C). If during an assisted delivery you notice the umbilical cord is wrapped around the infant's neck, you should initially try and lift it over the head, freeing up

the head and continuing delivery. If it is impossible to slip the cord over the infant's head, the EMT–Basic should clamp the umbilical cord and then cut between the clamps to facilitate delivery.

74. The correct answer is (C). A prolapsed cord can be a major emergency if it interferes with blood supply to the infant. If the cord gets pinched and blood flow is restricted, the infant will become hypoxic and go into distress. It is imperative that the EMT–Basic provide an open airway for the newborn. This is accomplished by inserting two gloved fingers into the vagina on either side of the newborn's nose. This way, an open airway is provided in case the infant's breathing stimulus is activated due to cord compression.

75. The correct answer is (A). A limb presentation must be transported to a hospital immediately. There is no field treatment for this presentation, and the EMT–Basic should never try to insert his or her hand into the birth canal to reposition the infant. The mother should be transported immediately with her pelvis elevated and on high-concentration oxygen.

76. The correct answer is (C). Pre-eclampsia is a condition characterized by hypertension, headache, and sensitivity to light during pregnancy. If the hypertension continues to worsen, seizures may develop. The diagnosis of eclampsia is based on seizure activity.

77. The correct answer is (A). Cardiac arrest secondary to hypovolemic shock is the most serious complication of vaginal bleeding. The EMT–Basic should use sound judgment and rapid transport for any patient who has uncontrollable bleeding. When treating these patients, it is essential to remember that the EMT–Basic should never pack the vagina with dressings to prevent bleeding.

Trauma

1. A	12. C	23. C	34. D	45. A
2. B	13. A	24. D	35. B	46. C
3. C	14. D	25. B	36. A	47. B
4. B	15. B	26. B	37. C	48. B
5. D	16. C	27. C	38. B	49. B
6. B	17. C	28. B	39. D	50. B
7. A	18. C	29. A	40. A	51. A
8. B	19. D	30. D	41. C	52. C
9. A	20. A	31. C	42. B	53. A
10. A	21. C	32. B	43. B	54. C
11. B	22. C	33. C	44. C	55. B

- The correct answer is (A).** Arterial bleeding is characterized by a rapid, spurting, pulsatile flow of oxygenated blood. Arterial bleeding should be considered serious, as patients can lose a large volume of blood from an arterial bleed in a very short period of time. The EMT-Basic should apply direct pressure to stop arterial bleeding initially.
- The correct answer is (B).** Venous bleeding is characterized by a steady flow of dark, deoxygenated blood. This type of bleeding is common in most soft-tissue injuries. Although not as serious and life threatening as arterial bleeding, venous bleeding should be controlled immediately to prevent large amounts of blood loss.
- The correct answer is (C).** Capillary bleeding is a slow and oozing type of bleeding. Since blood flow in the capillaries is under low pressure, and the capillaries are very small, capillary bleeding does not pose a life threat. Applying direct pressure to the injury site easily controls capillary bleeding.
- The correct answer is (B).** Decreased pulse is not a sign of shock. Initial response to hypoperfusion (shock) is that the body will increase pulse rate. As bleeding continues and shock progresses, the patient will

develop an altered mental status and his skin color will take on a pallor (paleness). The skin will also become cold and clammy. Decreased blood pressure is a late sign of shock. The EMT-Basic must be aware of the signs of shock. Bleeding control is the definitive treatment of patients with shock.

- The correct answer is (D).** Bleeding control is accomplished by first applying direct pressure; if that is unsuccessful, elevation of the injured area is applied. If bleeding control is still unsuccessful, a pressure point would be used to slow bleeding to the area. Although a tourniquet may be considered as a last resort, wire should never be used as a tourniquet, as tightening it would cause additional injury to the patient.
- The correct answer is (B).** This patient has classic signs of severe internal bleeding. After a major traumatic event, abdominal bruising, especially over the site of a major organ, is a definite sign of internal bleeding. A distended abdomen is another sign of internal injuries. Management of this type of injury includes rapid transport to a hospital for definitive care.
- The correct answer is (A).** In the case of a critical trauma patient, the

patient should be transported rapidly to a trauma center for surgical intervention. It is commonly known that the patient must be delivered to a surgical facility within the first hour of his or her injury. This term, known as the golden hour, is an EMS golden rule. The EMT-Basic should rapidly transport all critical trauma patients at the earliest possible opportunity.

- 8. The correct answer is (B).** Maintenance of the airway is the highest priority in any aspect of patient care. The EMT-Basic should always make airway management and patient oxygenation the highest priority in trauma care. Following the basics, airway, breathing, and circulation (ABC) will always be helpful to the trauma patient.
- 9. The correct answer is (A).** The skin consists of three layers: epidermis, dermis, and subcutaneous. The muscle lies below the subcutaneous layer. Muscle is not considered part of the skin, as it has a different classification of tissue. The subcutaneous tissue is a fatty layer of skin that assists in the protection of underlying tissue, such as muscle.
- 10. The correct answer is (A).** A contusion is usually a small isolated area of bleeding under the skin. Contusions are considered a closed wound. Closed wounds are defined as an injury where the skin remains intact. Contusions are usually self-limiting; however, they may require some pre-hospital treatment. Application of cold compresses is usually indicated in the treatment of a contusion.
- 11. The correct answer is (B).** A hematoma is similar to a contusion. A hematoma always involves a larger area of injury with additional tissue damage. As in a contusion, the skin remains intact; however, the area of internal injury is more widespread.
- 12. The correct answer is (C).** A laceration is a cut that may have jagged

edges or a fine, smooth edge. A laceration is a common injury that the EMT-Basic may encounter. Treatment of the patient with an isolated laceration would include direct pressure and elevation of the lacerated extremity. Lacerations are usually superficial and result in venous bleeding; however, they may also be deep, resulting in arterial bleeding.

- 13. The correct answer is (A).** Abrasions are defined as scrapes and scratches that affect the skin superficially. Due to the superficial nature of an abrasion, the bleeding is usually slow and oozing from capillaries. These injuries usually contain small stones and dirt. The EMT-Basic should attempt to keep all injuries from becoming contaminated with foreign substances.
- 14. The correct answer is (D).** An avulsion is defined as any soft-tissue injury that involves the removal of skin, or a flap of skin. Treatment of an avulsion includes folding the flap of skin back to its original position and covering it with a clean dressing.
- 15. The correct answer is (B).** A sucking chest wound should be treated immediately with high-concentration oxygen, an occlusive dressing, and breath sound monitoring. The EMT-Basic should monitor the occlusive dressing and the patient's response to the treatment. In some cases, the occlusive dressing may cause increased difficulty in breathing. This is due to a developing tension pneumothorax. If increased difficult breathing develops, the EMT-Basic should release the dressing occasionally to release trapped air. Splinting of the chest using the patient's right arm is not part of the treatment.
- 16. The correct answer is (C).** A hemothorax is defined as air and blood trapped in the lungs. Blood in the lungs is especially dangerous, as the lungs are considered a "potential space." This means that excessive bleeding in that area can result in

hypoperfusion and shock. This type of bleeding may be difficult to assess from the outside; however, detailed assessment of breath sounds will tip off the EMT-Basic that a hemothorax has developed. Breath sounds in hemothorax are usually absent, and gurgling may be heard on the affected side.

17. **The correct answer is (C).** The treatment of an abdominal evisceration includes administration of high-concentration oxygen, an occlusive dressing, and moist sterile dressings. In addition, the EMT-Basic should assess frequently for shock and transport immediately. Application of a dry sterile dressing is not part of the treatment.
18. **The correct answer is (C).** Burns are classified as superficial, partial thickness, and full thickness. Superficial burns cause reddening to the affected area, while partial thickness burns cause reddening and blistering. Full thickness burns are characterized by redness, blistering, and charring of the affected area.
19. **The correct answer is (D).** See explanation for question 18.
20. **The correct answer is (A).** See explanation for question 18.
21. **The correct answer is (C).** Whenever a patient is involved in a fire and has associated burn injury, the EMT-Basic should immediately assess the status of the patient's airway. This assessment should include a visual inspection of the area of the mouth and nose for burns and black soot. Included in this assessment should be a visual inspection of the mouth and monitoring of breath sounds for developing wheezes.
22. **The correct answer is (C).** In this patient, the rule of nines includes both arms and the anterior chest and abdomen. Each arm is 9 percent of the burn area, the chest is another 9

percent, and the abdomen is 9 percent. The total is 36 percent.

23. **The correct answer is (C).** The rule of nines for a child is different from that of an adult. This child has burns on his anterior chest and back as well as the head. The chest accounts for 18 percent, the back is another 18 percent, and the head is 18 percent. This makes the total burn area of this child 54 percent. In the child, the head accounts for a larger surface area due to the fact that a child's head is bigger.
24. **The correct answer is (D).** Burns to the hands, feet, genitalia, and airway are always considered critical. Although they may only account for a small percentage of total body surface areas burned, they need immediate treatment.
25. **The correct answer is (B).** Application of moist sterile dressings is not recommended for the treatment of burns. The EMT-Basic should keep the area clean and apply dry sterile dressing, monitor the airway, and maintain the body temperature of the burn patient.
26. **The correct answer is (B).** Airway management is always the first priority in the care of any patient. The EMT-Basic should be aware that in an electrical burn, the patient might develop cardiac arrhythmias from the electrical current. The EMT-Basic should be alert for a patient in cardiac arrest from electrical burns. The use of the AED is indicated in the treatment of these patients.
27. **The correct answer is (C).** The EMT-Basic should never attempt to remove an impaled object from any part of the body except the cheek. Removal of an impaled object could result in massive bleeding that may have been prevented by the object. As we cannot know the angle of the object in most cases, removal of the object can also cause additional injury.

- 28. The correct answer is (B).** The EMT-Basic should never remove a partially amputated part. The treatment of a partial amputation is to wrap the limb in dry sterile dressings and transport the patient to an appropriate treatment facility.
- 29. The correct answer is (A).** The appendicular skeleton consists of all the skeletal parts of the extremities, while the axial skeleton consists of the bones of the skull, spinal column, and ribs.
- 30. The correct answer is (D).** The following bones are all included in the upper extremities: humerus, radius, ulna, carpals, metacarpals, and phalanges (fingers). Metatarsals are the bones of the foot.
- 31. The correct answer is (C).** While any closed fracture may result in blood loss, a fracture to the pelvis can result in a large amount of blood loss. It is not uncommon to lose one to two liters (20 to 33 percent) of blood volume due to this type of injury. Any time the EMT-Basic suspects a fracture to the pelvic area, a consideration should be made as to how much associated blood loss may be endured. The EMT-Basic should assess the patient for signs of shock and treat accordingly.
- 32. The correct answer is (B).** To properly immobilize a bone, the EMT-Basic should immobilize the joints above and below the fracture site. This will ensure that no movement of the bone will be possible. Unless the patient has other critical injuries, there should be no attempt to move the patient until painful and swollen limbs have been properly immobilized.
- 33. The correct answer is (C).** If, after a splint is applied, the patient suffers from any type of numbness or tingling in that extremity, the EMT-Basic should reapply the splint a second time with less pressure. Applying a splint too tightly can cause nerve and blood vessel damage.
- 34. The correct answer is (D).** The traction splint is indicated for long bone fractures of the lower extremity. This includes open fractures. Injuries to the pelvis, acetabulum, and knee are not treated with traction splint application.
- 35. The correct answer is (B).** Fractures due to falling on an outstretched arm are known as colles fractures. A colles fracture takes on what is called a dinner fork shape and has a classic and unique presentation. This fracture should be splinted on a position of function and the patient transported for additional medical care.
- 36. The correct answer is (A).** The cervical spine consists of seven vertebrae. Injury to higher vertebrae of the cervical spine can cause an immediate threat to the patient's life. It is of the utmost importance that the EMT-Basic identify potential cervical spinal fractures and immobilizes them accordingly.
- 37. The correct answer is (C).** The brain and spinal cord make up the central nervous system. The nerves and nerve pathways in the body are collectively known as the nervous system. The twelve cranial nerves are part of the central nervous system; however, they are not independently known as the central nervous system.
- 38. The correct answer is (B).** A concussion is a mild head injury that may occur after a patient strikes his or her head on another object. Signs and symptoms of a concussion are headache and lethargy as well as possible loss of consciousness. Concussions may range from mild to severe based on symptoms.
- 39. The correct answer is (D).** Epidural hematoma is bleeding above the dura mater in the brain. This bleeding is almost always arterial in nature and can result in severe brain damage in a

very short period of time. Based on the fact that the bleeding is arterial in nature, the bleeding is at high pressure and develops a rapidly expanding hematoma that may cause irreversible damage.

- 40. The correct answer is (A).** Subdural hematomas always occur below the dura mater ("sub" dural) and are almost always venous in nature. A subdural hematoma can take longer to become symptomatic than an epidural hematoma. In some cases, it may take several days for a patient to develop symptoms from a subdural hematoma. Development of symptoms is directly related to the amount of internal bleeding.
- 41. The correct answer is (C).** Intracerebral hematomas are defined as bleeding that occurs within the brain itself. While subdural and epidural hematomas actually occur in the protective tissues that are above the brain, the intracerebral hematoma is bleeding within the brain tissue itself.
- 42. The correct answer is (B).** Any patient who suffers from a severe facial injury should be monitored for airway compromise. Broken bones, blood, and teeth may endanger an open airway. The EMT-Basic must prepare to maintain the airway of a patient with a facial injury using any means possible. This may include airway adjuncts and suctioning of the patient's airway at regular intervals during treatment.
- 43. The correct answer is (B).** Whenever a patient complains of any loss of sensation, the EMT-Basic should suspect spinal injury above the level of the sensation loss. In this case, the patient is complaining of sensation loss from the neck down. This is a good indication that the injury to the spinal cord is in the cervical area. Treatment of this patient would include aggressive airway management and full spinal immobilization.

44. The correct answer is (C). The Glasgow coma scale uses a chart and numbering system to assess a patient's status. The scale uses the patient's ability to respond to commands. It measures eye opening, verbal response, and motor response.

45. The correct answer is (A). In all cases of suspected cervical spine injury and cases in which a patient is unconscious from an unknown cause, the EMT-Basic should open the patient's airway using the jaw thrust maneuver (modified jaw thrust). This maneuver allows opening of the airway while maintaining cervical spinal stabilization.

46. The correct answer is (C). Any patient with a suspected cervical spinal injury should be immobilized with a short board or a KED prior to removal from a seated position in a vehicle. The EMT-Basic should take precautions not to endanger the cervical spine by omitting the use of these devices. Rapid extrication to a long board is indicated only in cases of severe trauma where the patient is critical.

47. The correct answer is (B). All patients involved in motor vehicle accidents where there is a rollover should be immobilized, regardless of complaint. The fact that this patient is already standing does not make a difference. The rapid takedown procedure should be used to immobilize any patient who is standing at the scene of a collision with any hint of major mechanism of injury.

48. The correct answer is (B). The EMT-Basic should attempt to remove a helmet only if it interferes with airway management. Most helmets today, except full-face guard helmets, allow the EMT-Basic to maintain an airway while securing the patient to a long board with the helmet on. Any patient who has a manageable airway and can be immobilized with a helmet on should be immobilized as such.

Removal of a helmet may worsen a previously unidentified spinal injury.

49. **The correct answer is (B).** The key to diagnosis of this patient is the history of present illness. Bystanders stated that the patient was walking and just sat down. There was no report or sign of any trauma. This patient is probably suffering from a medical cause of brain injury, which can be field diagnosed as a cerebrovascular accident.
50. **The correct answer is (B).**
51. **The correct answer is (A).**
52. **The correct answer is (C).**
53. **The correct answer is (A).**
54. **The correct answer is (C).**
55. **The correct answer is (B).**

EXPLANATION FOR QUESTIONS 50–55.

This patient is exhibiting inappropriate behavior several days after a head injury. The patient never received medical attention and went home. After the patient loses consciousness, the EMT–Basic should assist him by doing a

complete primary assessment. This consists of the A, B, Cs and then a neurological assessment. After the neurological assessment, the patient should be immobilized to a long spine board with a cervical collar applied. Based on the patient's delayed response to injury, the EMT–Basic should be able to effectively rule out an epidural hematoma, as they are rapid arterial bleeds. A concussion will not present with severe symptoms several days later. A cervical spinal injury will not cause inappropriate behavior if it is isolated to the cervical spine. However, a subdural hematoma, which is bleeding slowly from a venous source, can surely cause this type of behavior. A subdural hematoma may take hours or even days to develop, with neurological symptoms being delayed. Treatment for this patient includes high-concentration oxygen, airway management, and rapid transport to the hospital.

Infants and Children

1. B

4. C

7. A

10. C

13. B

2. D

5. A

8. D

11. C

14. B

3. D

6. B

9. B

12. A

1. **The correct answer is (B).** Traumatic injury is the leading cause of death in children of all age groups. Trauma kills more children every year than all other causes of childhood death combined. The EMT-Basic should become active in his or her community in injury prevention programs in order to reduce the number of pediatric trauma deaths.
2. **The correct answer is (D).** Children 6 to 12 years have the greatest fear of disfigurement and death. The child in this age group is impressionable and does not fully understand what is going on when he or she is sick or injured. She may have seen a similar injury on television or on a friend, or he or she may associate another type of injury with his or her injury. The EMT-Basic should approach children with honesty and alleviate fears that they may be expressing.
3. **The correct answer is (D).** Pediatric patients in the 1- to 3-year categories are not comfortable with being touched by strangers. The EMT-Basic should approach these patients with a calming demeanor and attempt to do an examination from toe to head. It is a good idea to have the parent hold a child in this age group to facilitate a calming atmosphere. At no time should the EMT-Basic separate the child from the parent; this will only worsen the situation.
4. **The correct answer is (C).** The oropharyngeal airway should be inserted with the tip facing the chin and then inserted along the anatomy. This is the opposite of the adult procedure in which the airway is inserted upside down and then twisted into the airway.

5. **The correct answer is (A).** The major cause of cardiac arrest in pediatric patients is due to some form of respiratory insufficiency. This can be due to respiratory infections, asthma attacks, or any other pathophysiological or structural defect causing respiratory distress. The EMT-Basic should ensure that the pediatric patient has an open airway at all times and is well oxygenated.
6. **The correct answer is (B).** Any child in respiratory distress should be treated with high-concentration oxygen. In respiratory distress, the child is still breathing sufficiently on his or her own. The EMT-Basic can deliver supplemental oxygen by mask. High-concentration oxygen is indicated in all cases of respiratory distress. There is no contraindication to oxygen administration in these patients.
7. **The correct answer is (A).** Children in respiratory failure should be treated with positive pressure ventilation by way of a bag-valve-mask ventilator. In respiratory failure, the child has already lost the ability to support his or her own ventilations. Ominous signs are grunting and head bobbing. Positive pressure ventilation with high-concentration oxygen will support the ventilations of the child until definitive care can be initiated.
8. **The correct answer is (D).** Decreased blood pressure is a late sign of shock in children and adults. The EMT-Basic should be aware of subtle signs of compensated shock in a child. Signs of dehydration are early signs of shock. The child with a history of diarrhea or vomiting should be suspect of compensated shock.

Sunken fontanels in infants are also a sign of dehydration as well as compensated shock.

9. **The correct answer is (B).** The child in decompensated shock will present with alterations of mental states and increased respiratory rates. The EMT-Basic must be aware that falling blood pressure is an ominous late sign and should be avoided at all costs. Interventions should be attempted to prevent blood pressure drop and circulatory collapse. Pediatric patients compensate for volume loss longer than an adult, but decompensation is rapid and usually irreversible.
10. **The correct answer is (C).** Pediatric patients who suffer from a seizure and have no history of seizures are usually having a response to fever. The seizure is not related to the actual temperature, but the rate at which the temperature rises. Rapid temperature increase will cause patients to seize. This seizure will present as a tonic clonic seizure, otherwise known as a grand mal seizure. Care for this patient is airway management, cooling, and transport to the hospital. The EMT-Basic must not lose sight of the fact that the seizure may be associated with meningitis, which can also cause fever.
11. **The correct answer is (C).** The EMT-Basic should never attempt to administer fluids by mouth to any patient in shock. This can cause vomiting and airway compromise. The goal in treating the child in shock is to maintain airway, blood pressure, and body temperature. Prevention of hypothermia, even on a warm day, is essential to survival of the child. Airway and oxygenation are of greatest importance in the treatment of pediatric shock patients.
12. **The correct answer is (A).** A child who has bruises in various stages of healing, especially when the child is unconscious from a head injury, is a definite suspect for an abused child. The EMT-Basic should treat the child and withhold personal feelings toward the parents. The priority is to assist the child and get him or her definitive care, not to confront the parents.
13. **The correct answer is (B).** The child with a history of abuse will usually be quiet, not cry from painful injuries, and generally be withdrawn from the situation. The EMT-Basic should treat any life-threatening injuries and transport the patient to definitive care. On arrival at the emergency department, the EMT-Basic should report all findings to the emergency department staff for investigation by the proper authorities.
14. **The correct answer is (B).** The death of a child is one of the most difficult aspects of a career in EMS. The EMT-Basic will be facing a variety of feelings after the death of a child. The best way to deal with this type of situation is to discuss it with your partner or loved ones. Alcohol and drug use will only compound the problem and add to the grief that the EMT-Basic will be feeling. At no time should he or she accept this or any other traumatic event as part of the job. The EMT-Basic must realize that he or she is human and will respond emotionally to emotional situations. Discussion or participation in critical incident stress debriefing is essential to healthy living in the world of EMS.

Operations

1. A
2. C
3. B
4. C
5. C

6. A
7. B
8. C
9. C
10. D

11. B
12. D
13. B
14. B
15. A

16. B
17. A
18. C
19. A
20. B

21. A
22. C
23. A
24. B
25. C

1. **The correct answer is (A).** The use of excessive speed in response to any emergency increases the chances of an accident with another vehicle. Driving an ambulance requires sharp driving skills, and using excessive speed reduces reaction time. There is no indication for the use of excessive speed while responding to or from any emergency call.
2. **The correct answer is (C).** When responding to an emergency call, the driver of the ambulance must drive with due regard for the safety of others. Law requires that an ambulance pause for a stopped school bus and wait until waved on by the bus driver.
3. **The correct answer is (B).** The EMT-Basic will be expected to respond to calls in adverse weather conditions. Adverse weather, as well as construction and road closing, will all affect response and safety. It is a good idea to find out about planned road closings and adjust your response accordingly. Bad weather conditions call for a slower and safer response. EMT-Basics must remember that wet roads increase stopping distances. Careful driving is the key to safety.
4. **The correct answer is (C).** Dispatch information given to the EMT-Basic varies by region. The EMT-Basic should receive the following information for every call:

Type of call
Name and location of caller
Telephone number of caller
Number of patients

Patient condition

In some cases, the dispatcher may advise the responding ambulance of construction closings and weather advisories during the assignment. The EMT-Basic should be aware that he or she might request additional information from the dispatcher by way of a call back to the address of the emergency.

5. **The correct answer is (C).** The EMT-Basic should radio the hospital with patient conditions while transporting. Earlier notice may be given in the event of a special operation, such as a mass casualty incident; however, in a single patient emergency, the notification should be transmitted while en route to the hospital. En route, the EMT-Basic has already collected vital information and can easily deliver it to the receiving hospital.
6. **The correct answer is (A).** High-level disinfection is the killing of pathogens by using a potent means of disinfection. Application of heat to kill pathogens is known as sterilization, and using a spray or aerosol to kill pathogens is defined as disinfection. The EMT-Basic should have an awareness of when each level of disinfection is appropriate and should initiate the proper levels at all times.
7. **The correct answer is (B).** Sterilization is defined as application of heat to kill pathogens. Many surfaces and contaminated equipment can be cleaned using high-level disinfection or regular disinfection. There are certain pieces of equipment that must

be cleaned by sterilization. EMT-Basics should have full knowledge of which equipment must be sterilized and which equipment may be safely disinfected.

8. **The correct answer is (C).** After patient delivery to the hospital, and before the post-run phase begins, the EMT-Basic is required to complete a run sheet to document patient care. This run sheet should not be completed during the transport phase due to the fact that the EMT-Basic should be tending to the patient and not to paperwork. All documentation should be accurate and comprehensive regarding all aspects of the emergency call.
9. **The correct answer is (C).** While operating during a MEDEVAC (helicopter evacuation), the EMT-Basic should always approach the helicopter from the front, and only when waved on by the pilot. Helicopter blades have a great degree of tilt and may cause serious injury or even death to the unknowing EMS provider. It is always a good rule to wait for the pilot to give the all-clear signal before approaching.
10. **The correct answer is (D).** Patient documentation should always be done during the delivery phase. After delivery to the hospital and after all paperwork is complete, the EMT-Basic must clean and restock the vehicle for the next emergency call. As soon as the vehicle is ready, the dispatcher should be notified so that the unit may be assigned to another call.
11. **The correct answer is (B).** In all cases of emergency response, safety of the rescuers is the highest priority. EMT-Basics should ensure that the vehicle is properly stabilized, there are no hazardous materials or scene hazards that may cause injury, and the proper protective equipment is worn. In many regions, specialized units perform vehicle rescues and other extrications. If the EMT-Basic is not trained in extrication, then he or she should remain clear of the extrication and await patient delivery.
12. **The correct answer is (D).** The EMT-Basic should not be involved in traffic control unless there are no police agencies on the scene and only if traffic poses a potential risk to the operation.
13. **The correct answer is (B).** Size-up of all calls should begin as soon as the assignment is given. The EMT-Basic should perform a scene size-up immediately after arrival at an incident. Size-up includes determination of the number of patients, patient condition, additional resources needed, and scene hazards. A complete size-up should be done at all scenes, and the scene should be re-assessed several times during any operation.
14. **The correct answer is (B).** In cases where heavy chunks of debris or heavy machinery are involved, and the rescue will take more than the typical rescue equipment, the scene is labeled a complex access scene. A building collapse poses special hazards as well as complex access patients. Building stability and the possibility of falling debris is always a factor in the safety of the scene.
15. **The correct answer is (A).** This is a simple access scene due to the fact that the patient is pinned by his leg, and basic extrication equipment should be sufficient to safely extricate him. Treatment involves stabilization and extrication from the site.
16. **The correct answer is (B).** A disaster may be a naturally occurring event or an event caused by man-made means. A disaster may not always produce multiple patients. In fact, it may not produce any patients. A disaster will, however, damage the area's infrastructure. Basic communications and even emergency services systems may be incapacitated by the results of a disaster.

- 17. The correct answer is (A).** The definition of a mass casualty incident varies from region to region. In some regions, it is any incident that produces more than a given number of patients. The national definition of a mass casualty incident is an incident that produces more patients than can be handled by the initial response agency or any incident that taxes the resources of a given area.
- 18. The correct answer is (C).** The job of the EMT-Basic is to provide patient care. Any and all responsibilities in regard to caring for the patient fall within that realm. Mitigation is not the job of the EMT-Basic. Hazardous materials specialists are specially trained teams of individuals that will deal with the hazard and secure it safely. The EMT-Basic in an emergency vehicle does not have the necessary equipment to handle a situation such as a hazardous materials incident.
- 19. The correct answer is (A).** The NFPA (National Fire Protection Association) has developed the Hazardous Materials Classification chart to assist emergency responders in determining the hazard of a given material. Although this chart does not identify a specific substance, it can afford a rescuer the information needed to assess the severity of an incident. The color blue is for health hazards, red for fire hazards, yellow for reactivity of the agent (example: reacts violently with water), and white is a specific hazard (example: acid, alkali, etc.). Finding this placard on any material should tip off the EMT-Basic of a hazardous materials incident.
- 20. The correct answer is (B).** See explanation for question 19.
- 21. The correct answer is (A).** The incident commander is in command of the entire incident. Under the incident command system, sectors are set up to coordinate different activities. These

sectors are triage, treatment, staging, transportation, and support. Each of these sectors reports directly to the incident commander.

- 22. The correct answer is (C).** When assigned to a sector at a mass casualty incident, the EMT-Basic would report directly to the officer of that sector. The only person who reports directly to the incident commander is the officer from each sector. This system cuts down on radio traffic by allowing face-to-face communications between sector members and radio communication to the incident commander by sector officers.
- 23. The correct answer is (A).** The triage tag system (MET-TAG or other) is designed to identify patients of the highest priority. The color system is universal and is as follows:

Black—Dead or unsalvageable
 Red—High priority
 Yellow—Low priority
 Green—Walking wounded, requires no transport

This system is accepted nationally and should be initiated when a mass casualty incident is identified.

- 24. The correct answer is (B).** See explanation for question 23.
- 25. The correct answer is (C).** There are three zones identified in a hazardous materials incident:
- The Hot Zone—area of the incident, spill, or dissemination of the hazardous material
- The Warm Zone—area outside, but surrounding the hot zone
- The Cold Zone—area that is deemed safe to operate
- Decontamination is usually done in the warm zone on the border of the cold zone. The EMT-Basic should be aware of the designated sectors and remain in his or her assigned sector. Without protective clothing (level A or B), the EMT-Basic should never be in the hot or warm zone.

PART III

EMT-BASIC REVIEW

CHAPTER 2 Anatomy and Physiology Review

CHAPTER 3 EMT-Basic Practical Skills Evaluation

Anatomy and Physiology Review

Chapter 2

OVERVIEW

- Medical terminology
- Topographic anatomy
- Anatomy and physiology by body system
- Continue to educate yourself
- Summing it up

In order to understand the pathophysiological processes you will encounter in the field, you first must understand the basics of anatomy and physiology.

In general terms, anatomy is the study of structure of the human body, and physiology is the study of function of the human body. This section will serve as a review of basic anatomical structure and physiological function. You should realize that knowledge of anatomy and physiology is the foundation for understanding the function of your patients' disease processes and will help them develop a rational approach to treatment. The three areas of anatomy and physiology are: *Medical Terminology*, *Topographic Anatomy*, and *Anatomy and Physiology by Body System*.

MEDICAL TERMINOLOGY

This section will contain a list of medical terms, in glossary form, that you, as an EMT-Basic student, should know. These terms are the foundation for understanding human structure and function.

Common Prefixes and Suffixes Used in Medical Terminology

The following charts contain a list of common prefixes and suffixes you can expect to encounter in your work. You should practice combining these prefixes and suffixes in order to develop a comprehensive knowledge of basic terminology. These terms are commonly used in the field of emergency medicine and should be used while communicating with other EMS professionals as well as with emergency department personnel.

Prefix	Meaning	Example	Explanation
a-	absence of	aseptic	absence of contamination
ab-	away from	abduction	movement away from
ad-	toward	adduction	movement toward
an-	without	anuria	without urine output
ante-	prior to	antepartum	prior to childbirth
bi-	two	bilateral	on both sides
brady-	slowed	bradycardia	slow heart beat
contra-	opposite	contralateral	on the opposite side
cyan-	blue	cyanosis	bluish appearance of skin
diplo-	double	diplopia	double vision
dys-	difficult	dyspnea	difficulty breathing
endo-	inside	endotracheal	inside the trachea
epi-	above	epidural	above the dura mater
erythro-	red	erythrocyte	red blood cell
exo-	outside	exocrine	the external secretion of a gland
hemi-	one side	hemiplegia	one-sided paralysis
hyper-	over	hyperextension	extreme extension of the neck
hypo-	under	hypoglycemia	low blood sugar
inter-	in between	intercostal	between the costal space
intra-	inside of	intravascular	in the vascular space
peri-	surrounding	pericardium	sac surrounding the heart
poly-	multiple	polyuria	frequent urination
post-	after	postpartum	after childbirth
quad-	four-sided	quadriplegia	paralysis of all four limbs
retro-	behind	retroperitoneal	behind the peritoneal cavity
supra-	above	supraventricular	above the ventricles
tachy-	rapid	tachypnea	rapid breathing
trans-	through	transected	went completely through

Suffix	Meaning	Example	Explanation
-algia	pain	neuralgia	pain along a nerve tract
-cide	caused death	suicide	killed self
-emesis	vomit	hematemesis	vomit blood
-emia	in blood	hypoglycemia	low sugar in blood
-genic	formed by	neurogenic	caused by nervous system
-ism	condition of	embolism	pulmonary embolism
-itis	swelling	hepatitis	swelling of the liver
-lysis	clearing/reduction	dialysis	clearing of toxins
-megaly	enlarged	cardiomegaly	enlarged heart
-ostomy	an outlet	colostomy	outlet on colon
-otomy	cutting of	appendectomy	removal of the appendix
-plegia	paralysis of	hemiplegia	one-sided paralysis

Common Medical Terminology

The following list is required vocabulary. Developing a comprehensive knowledge of these terms will assist you in understanding some of the disease processes described by the term. Sample sentences are provided for some terms.

A

Abdomen: The area between the anatomical line of the rib margin and the pelvis.

Abnormal: Not a normal finding, as in abnormal blood pressure.

Absorbed: To pass through or set in. Some poisons are absorbed through the skin.

Abuse: To treat improperly, as in child abuse.

Accessory: Assist, an adjunct to. The patient was breathing with her accessory muscles.

Accident: Not on purpose, a motor vehicle collision, or other trauma causing event.

Airborne: Circulating in the air. Influenza is an airborne virus.

Airway: Path of air as it enters the body. The trachea is part of the airway.

Alert: Aware, awake, familiar with surroundings. The patient was alert on arrival.

Aligned: In line, correctly matched up. The physician then aligned the bone.

Alveoli: Sacs in the lung where gas exchange takes place.

Amniotic: Fluid within the sac protecting a fetus. The fetus is suspended in amniotic fluid.

Amphetamine: A stimulant. The patient was experiencing a rapid pulse after taking an amphetamine.

Amputation: Removal of a limb or other body structure. The patient rolled over in his vehicle, causing an amputation of the right leg.

Analgesic: A pain reliever. The patient was given an analgesic to ease the pain of his fracture.

Anaphylaxis: Severe allergic reaction. The patient was having airway problems due to anaphylaxis.

Aneurysm: A ballooning of a blood vessel, usually an artery. The patient was diagnosed with an aortic aneurysm.

Angina: Pain in the chest. The angina attack lasted five minutes.

- **Angulated:** On an angle. The fracture was angulated.
- **Anti-Shock:** To prevent shock. The anti-shock trousers were applied.
- **Anxiety:** Fear, apprehension. He suffered from an anxiety attack.
- **Aorta:** Largest blood vessel in the body. The aorta branches into several smaller arteries.
- **Appendicitis:** Inflammation of the appendix.
- **Arrest:** To stop. The patient was in cardiac arrest.
- **Artery:** A blood vessel that carries oxygenated blood.
- **Asphyxia:** To suffocate. The patient died from asphyxia due to a hanging.
- **Aspirin:** An analgesic. The patient stated he took one aspirin prior to our arrival.
- **Assessment:** An examination. I did a complete patient assessment.
- **Associated:** Affiliated, related to. The associated signs and symptoms included pain and an inability to move the extremity.
- **Asthma:** A reactive airway disease. The patient had an asthma attack.
- **Atrium:** An upper chamber in the heart. The right atrium receives blood from the superior and inferior vena cava.
- **Audible:** Able to be heard. The man had audible wheezing on our arrival.
- **Authorization:** Permission. We had authorization from medical control.
- **Avulsion:** Tearing away of. The accident caused an avulsion of the patient's facial skin.
- **Axillary:** The imaginary line that runs from the armpit to the hip. The gunshot was located in the axillary region.

• B

- **BVM:** Bag-Valve-Mask. An adjunct for ventilation. The patient was ventilated using a BVM.
- **Bladder:** Collection area. Urine is collected in the urinary bladder prior to excretion.
- **Bleeding:** To bleed. The laceration had minimal bleeding.
- **Blisters:** Bubbles in the skin. The second-degree burn caused the injury site to develop blisters.
- **Bloodborne:** Circulating in the blood. HIV is a bloodborne virus.
- **Bone:** The tissue that makes up the skeletal system. Red blood cells are developed in the bone tissue.
- **Bowel:** Term used for lower intestine. The patient has a history of bowel obstruction.
- **Brain:** The control center of the central nervous system. The brain controls most of the functions of the body.
- **Breathing:** The act of ventilation. On arrival, the patient was breathing and had a pulse.
- **Bruise:** A swollen and discolored area resulting from injury. The area where the patient was struck developed a large bruise.
- **Burn:** Tissue damage resulting from heat energy transfer. The patient had a third-degree burn.

• C

- **Cannula:** A device used to deliver oxygen. We placed a nasal cannula on the patient.
- **Cardiac:** Pertaining to the heart. We treated the patient under cardiac arrest protocols.
- **Cardiogenic:** Pertaining to the cardiovascular system. He was in cardiogenic shock.
- **Carotid:** An artery that branches off the aorta, supplying blood to the brain. We checked for a carotid artery.
- **Caustic:** Burning, irritating. The substance was caustic to the skin.

Cavity: Anatomic space. The heart is located in the thoracic cavity.

Cells: Basic unit of structure in the body. The heart is composed of specialized cells called cardiac cells.

Cerebellum: A structure of the brain. The cerebellum is responsible for balance.

Cerebrum: A structure of the brain. The cerebrum has multiple functions; one of these functions is control of sensory input.

Cervical: A division of the spinal column. There are seven cervical vertebrae.

Chamber: An anatomic space. The ventricle is a chamber in the heart.

Chronic: Longstanding. Emphysema is a chronic problem brought on by years of smoking.

Circulation: Movement from one place to another. The red blood cells deliver oxygen by way of circulation in the vascular system.

Clavicle: Bone structure. The clavicle is sometimes known as the breastbone.

Clotting: To cake up, coagulate. The blood contains clotting factors.

Colon: The large intestine. The colon is divided into three sections: the ascending, transverse, and descending colon.

Column: Line or division. The spinal column contains thirty-three vertebrae.

Combustion: The ignition of flammable materials. Smoke inhalation is a direct result of poisoning from the products of combustion.

Congestive: Causing congestion. The patient suffered from congestive heart failure.

Consciousness: Level of awareness. I determined the patient's level of consciousness.

Consent: Form of permission. There are several forms of consent. Actual, implied, and informed are just a few.

Constriction: Tightening of. The patient was wheezing due to constriction of his airway.

Contusion: Bruise. The patient had a contusion over his left eye.

Convulsions: Seizures. The patient was in convulsions upon our arrival.

Coronary: Pertaining to the heart. The heart is supplied with blood by the coronary arteries.

Cranial: Pertaining to the skull. The cranial nerves are located at the base of the skull.

Crepitus: Broken bone ends rubbing together. Crepitus makes a scratchy rubbing sound when the EMT-Basic is securing a fracture.

Croup: A viral infection. Croup is characterized by a seal bark type of cough.

Crushing: To crush, compressing. The injury caused crushing to the left arm.

Cyanosis: Bluish appearance of the skin. The patient's appearance included central cyanosis.

D

Depressant: A medication that slows down the body systems. Barbiturates are depressant drugs.

Deviation: To change from normal. During a tension pneumothorax, the patient will develop tracheal deviation.

Diabetes: A pancreatic disorder. Diabetes is a condition where the body does not produce insulin.

Diaphoresis: Sweating. The patient was having chest pain and diaphoresis.

Diffuse: Spread out over a large area. While assessing the patient's lungs, I noticed that he had diffuse wheezing.

Dilation: To make larger, to expand. Certain medications cause pupil dilation.

Dislocated: Not in its correct location. His left shoulder was dislocated.

- **Dislodged:** Shaken loose, removed. The food bolus became dislodged after we performed the Heimlich maneuver.
- **Dispatched:** Sent to, assigned. We were dispatched to the call at 1:30 p.m.
- **Distal:** Farthest from, distant. The wrist is distal to the shoulder.
- **Distention:** Swollen, extended. Due to poor BVM ventilations, the patient suffered gastric distention.
- **Dizziness:** Vertigo, spinning sensation. Patients who suffer from high blood pressure may complain of dizziness.
- **Dosage:** Amount of or rate of administration. The patient was taking the correct dosage of medication.
- **Dressing:** Cover, barrier. Burns should always be covered with a sterile dressing.
- **Drooling:** Excessive salivation. One of the major signs of epiglottitis in pediatrics is excessive drooling.
- **Dyspnea:** Difficulty breathing. The patient having an MI may complain of dyspnea.

E

- **Ectopic:** Irregular, abnormal. An ectopic pregnancy occurs outside of the uterus.
- **Edema:** Fluid collection, swelling. Pedal edema is a collection of fluid at the ankles.
- **Elbow:** Joint at the middle of the arm. The elbow is made up of the distal humerus and the proximal radius.
- **Elevated:** Lifted higher than. Patients in shock should be transported with their legs elevated.
- **Embolism:** Particle, a piece of fat, bone. An embolism may break free from the lower extremities and cause a stroke or pulmonary artery blockage.
- **Emergency:** Acute situation, life threatening. Anaphylaxis is a true emergency.
- **Emphysema:** Obstructive pulmonary disease. Emphysema is characterized by decreased lung compliance.
- **Epilepsy:** Seizure condition. Many patients with epilepsy are treated with Tegretol and Phenobarbital.
- **Exchange:** To switch. Air exchange takes place in the alveoli.
- **Exertion:** To stress, increase demand. Angina is exacerbated by exertion.
- **Exhalation:** Releasing air from the lungs. Exhalation is a passive mechanism.
- **Exposed:** Left open, cleared away from. All severe trauma injuries should be exposed by the EMT–Basic.
- **Extremities:** Limbs, arms, legs. Most injuries to the extremities are not life threatening.

F

- **Facial:** Relating to the facial skin or bone structure. Patients with facial injuries may also have airway complications.
- **Febrile:** To have a fever. Rapid rise in temperature in small children may cause febrile seizures.
- **Femur:** Long bone, located in the upper thigh. Fractures of the femur may cause excessive blood loss.
- **Fetus:** Embryo. The fetus develops in the uterus.
- **Fibrillation:** Chaotic, unorganized cardiac rhythm. Ventricular fibrillation is the most common cardiac rhythm in the first few minutes of cardiac arrest.

Flail: Free floating. A flail segment consists of three or more ribs broken in two or more places.

Fluid: Solutions made of liquid or plasma. Dehydration causes loss of large amounts of body fluids.

Foreign: Unrelated to, not part of. The patient had a foreign body in his eye.

Fracture: To break. A skull fracture may be indicative of brain injury.

Frostbite: Superficial cold injury. Limbs with frostbite should only be rewarmed after the danger of refreezing is gone.

Frothy: Foamy, bubbly. Patients in pulmonary edema may present with frothy, blood-tinged sputum.

G

Gallbladder: Digestive organ. The gallbladder stores digestive enzymes.

Gamma: Radiation type. Gamma radiation has an extreme rate of penetration.

Gastric: Relating to the stomach. The patient was ventilated improperly and developed gastric distention.

Gastrointestinal: Relating to the digestive system. Abdominal pain commonly is a symptom of a gastrointestinal disorder.

Geriatric: Aged, elderly. Geriatric patients may have no pain during a cardiac event.

Glucose: Form of sugar. Unconscious diabetics are given glucose to increase blood sugar levels.

H

Hazardous: Dangerous. The EMT–Basic must assess every scene for hazardous conditions.

Headache: Pain in the head. The patient with a severe headache and altered mental status should be transported to the hospital rapidly.

Heart: Pertaining to the heart, blood pump. The heart pumps blood to the cells through the cardiovascular system.

Hemoglobin: Iron compound that transports oxygen. Hemoglobin is attached to red blood cells.

Hemorrhage: Bleeding. Blunt abdominal trauma may cause serious internal hemorrhage, usually from the liver and spleen.

Hepatitis: Inflammation of the liver caused by a virus. All EMS personnel should be vaccinated against Hepatitis-B.

History: Past events. Prior events related to a patient's medical event. The patient's history is one of the most important factors in diagnosis.

Humerus: Long bone of the upper arm. Mid-shaft humerus fractures should be splinted to the body.

Hypertension: Increased blood pressure. Hypertension may be caused by cardiovascular disease or head trauma.

Hyperventilate: Rapid ventilation. Fast breathing. The EMT–Basic should hyperventilate the hypoxic patient.

Hypoglycemia: Low blood sugar. The unconscious patient with a diabetic history should be suspected of being hypoglycemic until proven otherwise.

Hypoperfusion: Lack of perfusion to the tissues. Shock causes hypoperfusion.

Hypothermic: Low body temperature. The hypothermic patient should be handled gently to avoid cardiac arrest.

Hypovolemia: Low blood volume. Blood loss, burns, or dehydration may cause hypovolemia.

Hypoxic: Lacking oxygen. Patients with carbon monoxide poisoning present as severely hypoxic.

I

Illness: Form of disease, acute or chronic. The EMT–Basic responds to the patient suffering from illness or injury.

Immobilize: To maintain, strengthen. EMS personnel must immobilize cervical spine injuries to prevent additional damage.

Impaired: Incorrect, not considered normal. Pulmonary contusions cause impaired gas exchange in the lungs.

Implied: Suggested. The patient was treated under implied consent, meaning that if the patient were conscious, he would agree to treatment.

Inadequate: Lacking, not enough. Hypovolemia causes inadequate tissue perfusion.

Indication: Sign of, suggestion. Uneven pupils are an indication of brain injury.

Induced: Made happen. The EMT–Basic induced vomiting in the poisoned patient.

Infarction: Tissue death. Myocardial infarction is defined as death of heart muscle.

Inflammation: Swelling. Peripheral edema causes inflammation around the ankles.

Ingestion: Taken internally. Ingestion is one of the four forms of poisoning.

Injury: To get hurt by an outside force. Determination of the mechanism of injury will assist the EMT–Basic in identifying potential problems.

Inspiration: To take in. Inspiration is part of the process of ventilation.

Insulin: A hormone. Insulin assists in the process of cellular sugar breakdown.

Internal: Within the body. Many internal injuries will show no external signs of injury.

Intestines: The gastrointestinal tract. Nutrients are absorbed in the intestines.

Ipecac: Medication. Ipecac is used to induce vomiting.

Irrigate: To wash, rinse. The EMT–Basic should thoroughly irrigate the eyes of a patient with chemical burns.

Isolated: Alone, apart. Patients with infectious disease should be isolated from the general population.

J

Joint: Area permitting movement. Most bone attachments form a joint, which allows movement.

K

Kidney: Organ. The kidney is part of the urinary system. Urine is produced in the kidney.

L

Labor: Process of childbirth. The EMT–Basic should be aware of the three stages of labor.

Ligament: Connective tissue. The ligament connects bone to bone.

Lining: Covering. The pleura is a lining of the lung.

Liter: A unit of measure. The patient lost a liter of fluid.

Liver: Organ. The liver is an organ in the digestive system.

Lobe: Part of, appendage. The left lung has three lobes.

Lucid: Aware, awake, and alert. Two or more seizures without a lucid interval is called status epilepticus.

Lumbar: Division of the spine. There are five lumbar vertebrae.

Lung: Organ. The lung is responsible for air exchange.

M

Medical: Pertaining to medicine. Asthma is a medical emergency.

Membrane: Tissue, coating. The mucous membrane covers the inside of the mouth.

Meningitis: Inflammation of the meninges. Meningitis may be viral or bacterial.

Metabolic: Pertaining to metabolism. Metabolic acidosis is caused by improper cellular respiration.

Moistened: Made wet. Burns should be covered with a moistened dressing.

Mucous: Body fluid. The oral cavity is covered by a mucous membrane.

Muscle: Body tissue. Movement in the body is a direct result of muscular contraction and expansion.

Myocardial: Referring to the heart muscle. A myocardial infarction is the death of cardiac muscle.

N

Narcotic: Analgesic, pain medication. An opioid medication is considered a narcotic.

Nasal: Nose, nares. Air is filtered in the nasal cavity.

Nausea: Symptom, precursor to vomiting. Nausea is a major side effect of most medications.

Negligence: To neglect. An EMT-Basic is guilty of negligence when he fails to care for a patient in an appropriate manner.

Nerve: Pathway in the nervous system. A nerve delivers and sends messages to and from the brain and spinal cord.

Neurogenic: Pertaining to the nervous system. Neurogenic shock causes blood vessel dilation.

Nitrogen: A gas. The normal atmosphere is made up of 79 percent nitrogen.

Non-Rebreather: Oxygen mask. A non-rebreather, powered by 10 to 15 liters of oxygen, can deliver almost 100 percent oxygen.

Nostril: Structure of the nose. A nostril is also called a nare.

Noxious: Dangerous, poisonous. The by-products of fire include noxious fumes.

Numbness: Loss of feeling, parasthesia. A sign of spinal cord injury is numbness below the level of the injury.

O

Obstructed: Blocked. A myocardial infarction is caused by a blocked coronary artery.

Obvious: Plain, clear. The patient was in obvious pain.

Onset: Beginning, start. The patient stated that his onset of chest pain was related to doing heavy work.

Operation: Surgical procedure. Aortic aneurysms are repaired in a surgical operation.

Order: Physician directive. Medical control may order you to transport immediately.

Organ: Part of the body systems. The heart is an organ.

Oriented: Aware. The patient should be oriented to place and time.

Overdose: Taking too much medication. An overdose of opioids may cause respiratory arrest.

Oxygen: Gas. Oxygen is a first-line medication in the treatment of many illnesses and injuries.

P

Pacemaker: Heart-rate controller. A pacemaker may be artificial or natural (SA node in the heart).

Palpate: To feel. During a physical examination, the EMT–Basic should palpate as well as auscultate.

Pancreas: Organ. The pancreas is an organ of many functions, one of which is to produce insulin.

Paralyze: Stop or prevent movement. Injury to the spinal cord will paralyze a patient.

Partial: Part of, a percentage. The patient suffered from partial paralysis.

Pectoris: Chest. A patient with chest pain can be described with angina pectoris.

Pedal: Pertaining to the foot and/or ankle. Right heart failure causes pedal edema.

Pediatric: Child, infant. Pediatric patients should be assessed toe to head in non-emergent situations.

Pelvis: Boney structure of the hip. The pelvis is actually a collection of bones that form the hip.

Penetrate: To enter. A bullet that penetrates the body is commonly known as penetrating trauma.

Penicillin: Medication. Penicillin is used as an internal antibacterial agent.

Pericardial: Covering the heart. Blood collecting in the sac outside the heart is known as a pericardial tamponade.

Peripheral: On the edges, outside. During trauma, the patient's peripheral pulse is a good indicator of perfusion.

Peritonitis: Inflammation of the peritoneum. The patient with a penetrating wound in the abdomen may develop peritonitis.

Physician: Doctor. The EMT–Basic works under the license of a physician.

Placenta: Organ. The placenta develops during pregnancy to supply the fetus with blood and nutrients.

Pleura: Covering. The coverings of the lungs are known as the pleura.

Pleuritis: Inflammation of the pleura. A rubbing sound on auscultation of the lungs indicates pleuritis.

Pneumothorax: Air in the chest cavity. The chest trauma patient may develop a tension pneumothorax.

Poisoning: Toxicological illness. Poisoning occurs when a foreign substance enters the body, causing cellular reaction.

Position: Placement. The patient with dyspnea should be transported in a sitting position.

Preceding: Before, prior. Part of a patient assessment is to obtain information on the events preceding the illness or injury.

Pregnancy: Condition. Pregnancy is a normal condition in which a woman is carrying a fetus.

Premature: Before its time, early. Premature ventricular beats can be treated with oxygen administration.

Pressure: Stress, weight. To stop bleeding, pressure should be applied to an open wound.

Previous: Past, prior to. The patient may have a previous episode of an illness exacerbation.

Primary: First, most important. The primary survey is always the most important aspect of trauma care.

Prolonged: Delayed, extended. The patient's transport may be prolonged due to road conditions, weather, or other reasons.

Prone: Position. The prone position is lying face down.

Psychogenic: Pertaining to psychological factors. Some forms of shock are psychogenic. These forms of shock are self-correcting.

Pulmonary: Lungs and airway. Chest injury may result in pulmonary contusion.

Pulsating: Beating, pulsation of a body part. Abdominal aortic aneurysms present with a pulsating mass in the abdomen.

Pulse: Heartbeat, distal. The pulse is a wave formed by the movement of blood through an artery.

Pumping: Beating. Cardiogenic shock is caused by ineffective pumping of blood by the heart.

Pupillary: Pertaining to eyes. The shock patient will have delayed pupillary reaction.

Q

Quadrant: Abdominal section. The liver is located in the upper right abdominal quadrant.

R

Radiating: Moving to. A patient with coronary disease may have chest pain radiating to the arm or jaw.

Radius: Bone. The radius is the distal bone of the arm along the thumb side of the arm.

Rapid: Fast, quick. Shock may cause a rapid pulse.

Rate: Speed. Taking a pulse determines the heart rate.

Reaction: Response to. A person may have a serious reaction to a bee sting. This is known as anaphylaxis.

Record: Document. All findings become a part of a patient's permanent record.

Redness: Discoloration. An area of redness and swelling may indicate a fracture.

Reduce: Make less. Applying pressure to an injury will reduce bleeding.

Referred: Radiation to another area. Injuries to the liver and spleen may cause referred pain in the shoulders.

Refill: Restock. A patient may need to refill a prescription.

Reflex: Response. Touching a hot item will cause the person to pull away from it. This is due to the reflex arc.

Relieved: Taken away, eliminated. Administration of oxygen relieved the patient's chest pain.

Remove: Taken out, extracted. The EMT-Basic should not remove an impaled object.

Resistance: Force, pressure against. The EMT-Basic may meet resistance when applying a splint.

Respiratory: Pulmonary. Asthma, emphysema, and bronchitis are all respiratory diseases.

Respond: React. A patient may or may not respond to treatment.

Restlessness: Agitation, anxiety. Restlessness is an early sign of hypoperfusion.

Results: Effects. The results of treatment should be well documented.

- **Resuscitate:** Revive, intervene. The patient who wishes no medical intervention will have a “Do Not Resuscitate” order.
- **Retina:** Anatomical structure of the eye. The rods and cones of the retina aid in vision.
- **Retractions:** Muscle activity. The patient with difficulty breathing will usually have intercostal retractions.
- **Return:** Regain, come back. The goal of CPR is to gain a return of pulses and respirations.
- **Rewarm:** Bring to normal body temperature. A frostbitten limb should be rewarmed as soon as possible.
- **Ruptured:** Broken. Abdominal trauma may result in a ruptured spleen, causing massive internal bleeding.

S

- **Sacral:** Spinal column division. The sacral bones consist of five fused vertebrae.
- **Safety:** Protection. The EMT–Basic has a high priority to ensure personal safety.
- **Scalp:** Tissue of the head. Scalp lacerations tend to bleed profusely.
- **Scapula:** Bone structure. The scapula is the bony protrusion on the superior, posterior part of the thoracic cavity.
- **Scene:** Location. Scene safety is the highest priority in response to a call.
- **Sealed:** Closed. Open chest wounds are sealed with an occlusive dressing.
- **Secondary:** As a result of. A patient may develop pulmonary edema secondary to an MI.
- **Section:** Part of. An MRI will show a cross-section of the body in a transverse cut.
- **Sedentary:** Slow, non-active. A sedentary lifestyle is a precursor to cardiac disease.
- **Seizure:** Acute medical condition. A seizure is caused by a chaotic firing of neurons in the brain.
- **Sensation:** Feeling, sense. Part of the patient assessment is to assess movement and sensation in all four extremities.
- **Septic:** Toxic, poisoned. A major infection in the body can lead to septic shock.
- **Severe:** Critical, major. Anaphylaxis is a severe, life-threatening emergency.
- **Shallow:** Superficial. A patient with a major chest injury may develop shallow respirations.
- **Shellfish:** Food. Allergies to shellfish are a major cause of anaphylaxis.
- **Shivering:** Shaking, tremors. Shivering is an early sign of hypothermia.
- **Shock:** Hypoperfusion. Shock is defined as inadequate tissue perfusion, or hypoperfusion.
- **Shortness:** Lack of, less. Dyspnea is another term for shortness of breath.
- **Significant:** Major, pertinent. Unequal pupils are a significant finding in a patient with head injuries.
- **Signs:** Effects, findings. The patient should be evaluated for associated signs and symptoms.
- **Site:** Area, location. The EMT–Basic should adequately describe the injury site in his transmission to the receiving hospital.
- **Skull:** Cranium. The skull is the collective term used for the bones of the head.
- **Social:** Personal, habit. A patient’s social history is a pertinent part of the medical history.
- **Solid:** Consisting of matter, not hollow. The liver and spleen are considered solid organs.
- **Spleen:** Organ. The spleen assists in immune system development.
- **Splint:** Support. The EMT–Basic should always check for a distal pulse after the application of a splint.
- **Spontaneous:** At once, immediate. Automatic defibrillation may precipitate spontaneous circulation.

Spread: Move, grow larger. The rash from chicken pox will begin on the trunk and spread to the extremities.

Stabilized: Equaled, perfused. The patient who maintains homeostasis after treatment is considered stabilized.

Stages: Parts, sections. A grand mal seizure has three stages: aura, tonic clonic, and postictal.

Sterile: Clean. Sterile gloves should be used for invasive procedures.

Sternum: Breastbone. The sternum is the anterior attachment for the ribs.

Stiff: Hard, uneasily moved. Sprains and strains will result in stiff joints.

Stimulant: Substance that increases metabolism. Cocaine is a stimulant.

Stomach: Organ. The stomach is responsible for extraction of some nutrients in the digestive process.

Stool: Solid waste. Stool production is the final phase of digestion.

Stress: Anxiety, pressure. The EMT–Basic should be aware of stress reactions after particularly emotional calls.

Stroke: CVA. A stroke may have three different causes: hemorrhagic, embolic, and thrombotic.

Struck: Hit. The EMT–Basic should be aware of the mechanism of injury in a patient struck by a vehicle.

Subcutaneous: Below the cutaneous layer of the skin. A patient with significant chest trauma may develop subcutaneous emphysema.

Substance: Chemical, medication. Morphine is a controlled substance.

Substernal: Below the sternum. Patients with cardiac conditions usually complain of substernal chest pain.

Suction: Remove, apply vacuum to. The EMT–Basic should suction blood or vomitus from a patient's airway during the primary survey.

Sudden: At once, acute. An aortic aneurysm is characterized by a sudden onset of tearing pain between the shoulders.

Suffering: In pain. The job of the EMT–Basic is to ease suffering.

Surface: On top. A first-degree burn is isolated to the surface layer of the skin, causing redness.

Survey: Inspection. The primary survey is designed to detect and correct life-threatening conditions as they are exposed.

Suspect: Think, evidence points to. When a patient has severe facial trauma, one may suspect cervical spine trauma as well.

Sustained: Continued, prolonged. During resuscitation, the patient may remain in sustained ventricular fibrillation.

Swallowing: Taking internally. Swallowing gasoline may cause respiratory complications.

Swelling: Inflammation. Swelling is associated with soft tissue injury.

Symptoms: Complaints. Symptoms are what patients state they are feeling—headache, chest pain, or nausea.

Syndrome: Disease process, a collection of signs. Cushing's syndrome is an indicator of increasing intracranial pressure.

Syrup: Medication type. Certain medications are supplied in a syrup form; syrup of ipecac is an example.

Systolic: Contraction of the heart. The systolic blood pressure is relative to ventricular output.

T

- **Tablets:** Medication type. Patients with angina may need to be assisted in taking nitroglycerine tablets.
- **Tachycardia:** Rapid pulse. The patient in shock will present with decreased blood pressure and tachycardia.
- **Tachypnea:** Rapid breathing. Anxiety and fear will produce tachypnea.
- **Tamponade:** To apply pressure. To control external bleeding, the EMT–Basic should apply direct pressure to the wound—this will tamponade the bleeding.
- **Temperature:** Measurement of heat. Hypothermia is caused by a decrease in body temperature.
- **Tendons:** Connective tissue. Tendons connect muscle to bone.
- **Tension:** Pressure, stress. Air trapped in the chest cavity will cause pressure on the heart and lungs. This is known as a tension pneumothorax.
- **Thickness:** Degree of penetration. A third-degree burn is considered a full-thickness burn.
- **Thoracic:** Pertaining to the chest cavity. The heart and lungs lie within the thoracic cavity.
- **Tibia:** Bone of the lower leg. The tibia forms the knee joint proximally and runs medial down the leg to form the ankle joint distally.
- **Tingling:** Numbness, loss of sensation. Patients with hyperventilation syndrome may complain of tingling in the extremities.
- **Tissues:** Foundation of body structure. All organs in the body are made up of specialized tissue.
- **Tracheal:** Regarding the trachea. Insertion of a breathing tube into the lungs is called endotracheal intubation.
- **Traction:** Opposite force, stretch. The EMT–Basic must apply traction to a fractured femur.
- **Transverse:** Through at a horizontal angle. A transverse fracture is a fracture that runs horizontally through a bone.
- **Trauma:** Injury to the body. The patient who has injuries to more than one organ system is referred to as a multi-system trauma patient.

U

- **Umbilical:** Lifeline. The developing fetus is fed and oxygenated through the umbilical cord.
- **Unconscious:** Not awake, loss of consciousness. The unconscious trauma patient must be assessed for severe head injury.
- **Unequal:** Different sized. Patients with severe head trauma may present with unequal pupils.
- **Unseal:** Remove a seal. If, after an occlusive dressing is applied the patient develops dyspnea, the EMT–Basic should unseal the occlusive dressing.
- **Unstable:** Critical, not homeostatic. The decompensated shock patient is considered unstable.
- **Uterus:** Reproductive organ. The fertilized egg attaches to the uterus to develop.

V

- **Vacuum:** Suction, opposite pressure. The EMT–Basic should be sure that there is proper vacuum in the suction unit.

Vagina: Female birth structure, canal. During childbirth, the baby travels through the vagina and is delivered.

Vapor: Mist, off-gassing. Certain medications are delivered in vapor form.

Vascular: With veins and arteries. The liver is an extremely vascular organ; therefore, it will cause a large amount of blood loss when injured.

Vehicle: Means of transportation. May be an automobile, ambulance, or a method of administration.

Vein: Structure of the vascular system. Deoxygenated blood is returned to the heart in a vein.

Ventilate: Mechanical movement of air in and out of the lungs. It is good to hyperventilate the hypoxic patient.

Ventricular: From the ventricles. Ventricular tachycardia may have a pulse or be pulseless.

Verbal: Spoken, communicated. EMS personnel may receive verbal orders from their base station physician.

Vertebrae: Spinal bone. There are twelve thoracic vertebrae.

Vessels: Transport structures for blood. Arteries and veins are called blood vessels.

Vicinity: In the area, nearby. The patient with penetrating injuries in the vicinity of the heart should be monitored for pericardial tamponade.

Virus: Illness, may be airborne (influenza) or bloodborne (HIV, Hepatitis); not responsive to antibiotics.

Vital: Essential. Normal blood pressure is vital to the sustenance of life; therefore, it is a vital sign.

Vomit: Vomit, stomach contents. The head injury patient may present with projectile vomitus.

W

Wound: Injury. Any external injury that causes bleeding or swelling is referred to as a wound.

TOPOGRAPHIC ANATOMY

This section will cover widely accepted terminology for body locations. The knowledge of this section is imperative for several reasons. First, EMT–Basics need to understand these terms in order to communicate with other providers. Second, documentation is an important part of the patient chart. Once delivered to the hospital, it should have clearly defined information. Finally, the legal aspect of pre-hospital care requires that EMT–Basics are able to explain a patient's injury and illness based on accepted terminology of topographic anatomy.

EMT–Basics should remember that most of the terminology of topographic anatomy is based on the anatomic position. The anatomic position refers to a patient who is standing upright, facing the EMT–Basic with palms facing forward.

However, there are other positions in which a patient may be described as either being “found in,” or “transported in.” The following chart describes each of these positions:

Position	Description
Supine	Patient lying on back, face up
Prone	Patient lying on chest, face down
Fowlers	Patient seated with knees bent
Semi-Fowlers	Patient seated with knees straight
Trendelenburg	Patient in a lying position with head lower than feet
Shock Position	Patient in a lying position with legs elevated

The following chart describes descriptions of anatomical locations or references:

Position	Description
Anterior	Toward the front of the body
Posterior	Toward the rear of the body
Medial	Toward the midline
Lateral	Away from the midline
Proximal	A term used to describe two points of reference in relationship to the heart in terms of that which is closer to the heart. Example: The elbow is proximal to the wrist.
Distal	A term used to describe two points of reference in relationship to the heart in terms of that which is farther from the heart. Example: The wrist is distal to the elbow.
Flexion	The act of bending an extremity
Extension	The act of straightening an extremity
Abduction	To move away from the body
Adduction	To move toward the body
Midline	An imaginary vertical line that is drawn through the body that separates it into right and left halves.
Auxiliary Line	An imaginary vertical line that runs on the lateral side of the body that separates the body into front and back halves.

Superior	A reference term used to describe position as it refers to the body in terms of that which is closer to the head. Example: The heart is superior to the liver.
Inferior	A reference term used to describe position as it refers to the body in terms of that which is closer to the feet. Example: The liver is inferior to the heart.
Unilateral	On one side of the body
Bilateral	On both sides of the body
Ipsilateral	On the same side of the body
Contralateral	On the opposite side of the body
Nipple Line	An imaginary horizontal line that is drawn across the nipple line of the chest. This can be an important landmark in chest injuries as well as spinal injuries.
Umbilicus	An imaginary horizontal line that is drawn across the level of the abdomen. This can be an important reference point regarding abdominal and spinal injuries.

ANATOMY AND PHYSIOLOGY BY BODY SYSTEM

As important as patient care itself is the knowledge of the working mechanisms of the human body. This section will cover anatomy and physiology based on body systems. In areas where an extremely relevant correlation exists between body systems, an explanation is given of the relationship between these systems.

NOTE

Each body system works as part of the total functioning unit of the human body.

The Skeletal System

The skeletal system consists of 206 bones. This system provides the body with several important functions.

- **Structure:** Provides a framework for the body
- **Protection:** Protects vital organs
- **Motion:** Provides motion (along with the muscular system)

The skeletal system is broken down into two divisions: the *axial skeleton*, which consists of the skull, spinal column, and ribs, and the *appendicular skeleton*, which consists of all other bones in the body.

THE AXIAL SKELETON

The Skull

The skull consists of several different structures, which, after several months of life, fuse together to form a protective shield for the brain. Sometimes known as the cranium, this term is inclusive of all of these structures. Although the brain is protected by these structures, it is not included as part of the structures of the cranial cavity.

There are four different parts of the skull, all of which the EMT–Basic should be familiar with. The first is the *occipital region*, which is located at the back of the head, just superior to the first cervical vertebrae. The *frontal region* (forehead) is located above the eyes. The *parietal region* is located at the top of the head between the frontal and occipital regions, and the *temporal region* is located on the sides of the head, just above the ears.

The anatomical position of these regions is important for the identification of injury sites in head trauma patients. If EMT–Basics have knowledge of these areas, they will be able to transmit comprehensive information to the hospital regarding the patient's condition. Injury to these areas will alert EMT–Basics to possible injury to underlying structures, such as the brain, which are contained within the cranial cavity.

The skull also consists of six major facial bones. The first major facial bone is the *mandible*, or lower jaw. The upper jaw, the *maxilla*, actually consists of two bones, one on the right and one on the left hemisphere of the body. This is also true of the *zygoma*, or cheekbones. The *nasal bone* gives structure and protection to the nose (nares). The eyes, or eye sockets, are called *orbits*. These circular structures support the eyeball. The orbit is comprised of the shared borders of the frontal bone as well as the upper margin of the maxilla and zygoma bones.

The skull consists of several internal structures that are important for EMT–Basics to understand. The *ethmoid bone* is in the frontal area and is positioned in the midline of the skull. This bone separates the right and left halves of the skull. The *sphenoid bone* is a butterfly-shaped structure located on the basilar skull above the maxilla. This bone has several bony protrusions that may cause brain injury in severe head trauma. The *foramen magnum* is a large opening in the base of the skull anterior to the occipital region. It is the foramen magnum that allows the spinal cord to pass through the skull and into the spinal column.

The Spinal Column

The main function of the spinal column is to provide structure and support to the body as well as protect the spinal cord. The spinal column, rib cage, and sternum form the *thoracic cavity*. The thoracic cavity is responsible for the shape of the chest and protection of the organs within the cavity. Running within the spinal column is an opening known as the *spinal foramen*. This structure, like the foramen magnum in the skull, allows the spinal cord to pass freely down the length of the spinal column. The bones of the spinal column are called *vertebrae*. Each vertebra is actually a separate bone that is joined together by ligaments and other tissue.

There are 33 spinal vertebrae in the spinal column. Each vertebra is further broken down into sections. The chart below shows the section and number of vertebrae in each section:

Section	Number of Vertebrae
Cervical	7
Thoracic	12
Lumbar	5
Sacral	5 (fused)
Coccygeal	5 (fused)

The spinal column consists of specially shaped bones that allow anterior, posterior, and lateral bending as well as rotation. Spinal bones (with the exception of the first two cervical vertebrae) all consist of the following structures:

Section	Description
Body	Thick and disc-shaped, weight-bearing portion of the vertebrae
Articular process	A point of attachment for muscle anterior to the spinous process; located on the right side
Spinous process	Posterior midline, bony prominence felt through the skin of the back
Transverse process	A point of attachment for muscle anterior to the spinous process; located on the left side
Vertebral foramen	In the center of the body, allows passage of the spinal cord

Located between each vertebra is a *fibrous disc*. These discs provide a strong joint as well as absorption of shocks on the spinal column. Between each vertebra there are structures called the *vertebral foramina*. These foramina allow for nerves to pass through each section of vertebrae to allow innervation of different parts of the body. It is important to make a connection as to which nerves pass through at what level of vertebrae. There is a direct connection between these nerve passages, spinal cord damage, and levels of paralysis due to cord injury.

The first two cervical vertebrae are called *atlas (C1)* and *axis (C2)*. Atlas and axis are shaped differently to allow the base of the skull to sit properly on the spinal column. The atlas supports the skull, and the axis connects the atlas and skull structure to the rest of the spinal cord. Injury at this level of the spinal column with accompanied cord damage will ultimately result in death.

The *thoracic spine*, which is larger and stronger than the cervical spine, articulates with the ribs to form the thoracic area.

The *lumbar spine*, which is the strongest section of the spinal column, is larger and thicker than the other sections of the spinal column. This is primarily due to the fact that the lumbar spine supports the largest portion of body weight. In a full-grown adult, it is in the lumbar region that the spinal cord ends in a structure called the *cauda equina*, which is a bundle of nerves that innervate the lower part of the body. This will be discussed later on in this section. The *sacrum* and *coccygeal spine* are fused sections of the spine. The sacrum is the posterior support for the pelvis and assists in forming the pelvic girdle. The coccygeal spine is the lowest portion of the spine which projects below the pelvis with a series of spinous processes.

The Sternum

The sternum is a flat bone located in the midline in the anterior thoracic cavity. Also known as the breastbone, the sternum is made up of three sections of bones: the upper section, called the *manubrium*; the middle section, called the *body*; and the lower section, called the *xyphoid process*.

The Ribs

There are twelve pairs of ribs that make up the *rib cage*. The first seven pairs of ribs are connected directly to the sternum by cartilage. The remaining five pairs of ribs are called *false ribs* because they are not directly connected to the sternum. The last two pairs of ribs are called *floating ribs* because they are not connected to the anterior portion of the rib cage. False ribs are attached posteriorly to the spine and anteriorly to cartilage, which then connects to the sternum. Floating ribs are connected posteriorly to the spine and float free anteriorly. Spaces between the ribs are called *intercostal spaces*. It is within these spaces that one witnesses *intercostal retractions*. Intercostal retractions are seen when a patient is having difficulty breathing, and the intercostal muscles (located in these spaces) are working to expand and contract the chest wall to help breathing.

THE APPENDICULAR SKELETON

To give you a better understanding of the appendicular skeleton, the bones in this section will be described as they are found in the body. The description will begin with the upper appendicular skeleton and move on to the lower appendicular skeleton.

The Scapula

The scapula is a flat, triangular bone that attaches posteriorly to the rib cage. The scapula forms the connecting point for the structures of the upper skeleton to the axial skeleton. Attaching to the scapula is the *clavicle*. This attachment point is called the acromioclavicular joint.

NOTE

During CPR, the hand is placed on the body of the sternum, avoiding the xyphoid process.

The Clavicle

The clavicle attaches to the scapula at the midaxillary line, then attaches to the sternum in the area of the manubrium, creating the sternoclavicular joint. This is also known as the *collarbone*.

Bones of the Upper Arm and Hand

The *humerus* is the largest bone of the upper skeleton and is attached to the scapula at its head. The humerus attaches distally with the radius and ulna bones of the lower arm, creating the elbow joint. The radius runs along the thumb side of the arm. Therefore, the term *radial pulse* is associated with the radial artery on that side of the lower arm.

The ulna runs along the “pinky” side of the lower arm, and both the radius and ulna attach to the bones of the hand distally, creating the wrist. The bones of the hand from proximal to distal are the *carpal bones*, *metacarpal bones*, and *phalanges* (fingers).

The Pelvis

The pelvis is made up of several bones, forming a support structure and connecting point between the lower extremity and the spinal column. The bones of the pelvis include left and right halves. Each half includes the *ilium*, or upper half (hip bone); the *ischium*, or lower half (forming part of the attachment point for the femur); and the *pubis bones*. These bones attach posteriorly to the coccygeal spine, forming the pelvic girdle. Anteriorly, they are connected at the pubic symphysis.

The Femur

The femur is the largest bone in the body. It attaches to the pelvis at its proximal end or head. The attachment between the head of the femur and the shaft is called the *greater trochanter*. This attachment area becomes important when treating elderly patients with hip fractures, as it is in this area where the fractures usually occur. The femur attaches distally to the bones of the lower leg—the *tibia* and *fibula*. Anteriorly at this connecting point sits the *patella*, or knee cap. This articulation point (connection point) is collectively called the knee.

The Tibia

The larger of the two bones of the lower leg, the tibia is known more commonly as the shinbone. This bone connects proximally to the knee joint and distally to the bones of the foot. The tibia supports body weight.

The Fibula

Like the tibia, the fibula connects proximally at the knee joint and distally to the bones of the foot. At its distal connection point, the anklebone is created.

NOTE

Collarbone fractures are very common in falls on the outstretched hand.

Bones of the Foot

The bones of the foot, similar to the bones of the hand, are the *tarsals*, which connect to the talus (the connection point of the distal tibia and fibula), the metatarsals, and phalanges (toes).

The Muscular System

The muscular system is a complex arrangement of tissue and chemical reactions beyond the scope of the EMT–Basic. This system will be covered briefly by touching the important points that will affect EMT–Basics in their field interactions.

Muscles, with bone, provide body movement. The muscles contract and relax, causing parts of the body to move up and down, rotate, and move laterally and medially. Muscle tissue accounts for approximately half of a person's total body weight. There are three types of muscle tissue: *skeletal muscle*, *cardiac muscle*, and *smooth muscle*.

SKELETAL MUSCLE

Skeletal muscle is muscle that is attached to the bones (skeleton). The primary function of skeletal muscle is to provide movement. Skeletal muscle is *voluntary muscle*, meaning it can be made to move at the person's need. In other words, a person moving his arm is using voluntary muscle to create movement.

CARDIAC MUSCLE

Cardiac muscle is *involuntary muscle*. As its name suggests, most of the heart is made up of involuntary, or *cardiac muscle*. Cardiac muscle has a unique feature in that it can produce and conduct electrical stimulation. A good example of this is the *cardiac conduction system*. The cardiac conduction system is a pacemaker for the heart that creates the heartbeat. The ability of cardiac muscle to create electrical impulses is called *automaticity*. Simply stated, any part of the cardiac muscle can take over as a cardiac pacemaker should the normal system fail.

SMOOTH MUSCLE

Smooth muscle is specially developed muscle that is usually found in the walls of blood vessels and organs. It is generally considered involuntary muscle because it is not consciously controlled. The body controls smooth muscle in that it can facilitate peristalsis (the digestive process of physically moving food through the digestive system), blood vessel constriction and dilation, and other expansions and contractions that regulate bodily function.

The Brain, Spinal Cord, and Nerves (Nervous System)

A complex system, the nervous system controls all functions of the body. The brain is constantly processing data from internal and external stimuli and reacting to it for the benefit of survival. Every day, the brain makes millions of unconscious decisions to maintain body temperature, increase or decrease breathing and heart rate, and react to outside threats.

Picture yourself withdrawing cash at an automated teller machine. A man in a mask brandishing a gun and demanding money approaches you from behind. Suddenly you turn around, your heart is racing, your breathing increases, you begin to sweat, and you become slightly nauseous. However, your vision is sharp and your mind is racing. All of these responses happened without your thinking. This is the brain and nervous system in action. The approach of the man with the gun and your initial response sets off a chain reaction of events within the nervous system.

The brain interprets the man with a gun as a threat. To respond to the threat, it signals the sympathetic nervous system to engage. Once the sympathetic nervous system is engaged, your heart rate increases, pupils dilate, breathing increases, and blood flow to the gastrointestinal tract decreases and shifts to areas of importance—the muscles and nervous system, the heart, and the pulmonary system. This entire chain of events is known as the fight or flight mechanism, and it's all due to the nervous system's response to an event.

THE BRAIN

The human brain is one of the largest organs in the body. The average adult brain weighs approximately 3 to 3½ pounds. For our purposes, we will divide the brain into four smaller parts. The EMT–Basic should realize that the brain consists of multiple sub-parts.

The following chart illustrates the four parts of the brain and their basic functions:

Structure	Function	Description
Brain stem	Controls involuntary function	Controls heart rate, respiratory rate, swallowing, and coughing
Diencephalon	Sensory processing and body function control	Process sensory information function control from the spinal cord; controls Autonomic Nervous System; regulates hunger and thirst; regulates body temperature; regulates emotional response
Cerebrum	Largest portion of the brain; fine sensory control	Controls the five senses: hearing, vision, taste, touch, and smell; controls speech; controls personality
Cerebellum	Coordination of balance	Interprets signals from the body and brain that correct imbalances in balance; coordinates skilled motor activities like painting or skating

The brain is located in the *cranial cavity*, an enclosed cavity that is a sealed structure in normal adults. In newborns, the cranial cavity is not yet sealed but remains loosely bound for several months, usually sealing within eighteen months. There are several coverings that offer protection to the brain. Collectively, these coverings are called the meninges, which consist of three layers. The outermost layer is called the *dura mater*; the middle layer is the *arachnoid layer*; and the inner layer is called the *pia mater*.

Within the cavity, and between the pia and arachnoid mater, the brain is protected by *cerebrospinal fluid*. This fluid circulates throughout the brain and spinal cord. Cerebrospinal fluid serves two functions. It provides nourishment and a protective barrier for the brain. For example, in a fall where a person hits his head, the cerebrospinal fluid cushions the shock, preventing injury. Without the cerebrospinal fluid, the brain would bounce off the hard interior surface of the skull and become damaged.

THE CRANIAL NERVES

There are twelve pairs of cranial nerves located at the base of the brain and control. These nerves do not attach to the spinal cord but pass through different openings in the skull and perform motor and sensory functions.

The chart on the following page describes the twelve cranial nerves and their functions.

Number	Name	Motor/Sensory	Function
I	Olfactory	Sensory	Controls sense of smell; loss of this sense could indicate injury to this nerve
II	Optic	Sensory	Controls vision; damage to structure of the eye, pathways in the brain, or orbital fractures may result in vision loss
III	Oculomotor	Motor	Controls movement of the eyeball and eyelid; damage to this nerve may cause double vision as well as other multiple defects
IV	Trochlear	Motor	Controls movement of the eyeball; damage to this nerve may cause double vision as well as other multiple defects
V	Trigeminal	Both	Controls movement of the lower jaw; controls facial muscles involved in the act of eating
VI	Abducens	Motor	Controls lateral eye movement; controls eye movement looking outward or peripherally
VII	Facial	Both	Controls facial expressions; controls salivation and tearing
VIII	Vestibulocochlear	Sensory	Controls hearing; controls equilibrium
IX	Glossopharyngeal	Both	Controls salivation; controls taste
X	Vagus	Both	Controls Parasympathetic Nervous System
XI	Accessory	Motor	Controls swallowing; controls head movement
XII	Hypoglossal	Motor	Controls tongue movement; controls sensory muscles of the mouth, which send signals through the sensory nerves to the brain—usually when eating, drinking, or engaging in other sensory activity

THE NERVOUS SYSTEMS

There are three complex systems of nerves in the body. The *central nervous system* consists of the brain and spinal cord, while the *peripheral nervous system* consists of all other nerves. The *autonomic nervous system* is comprised of two separate divisions, called the *sympathetic* and *parasympathetic branches*.

These branches of the autonomic nervous system control whether or not there is an increase or decrease of bodily function. Generally, the sympathetic nervous system controls the speeding up of the body functions. This includes increased heart rate, increased breathing, or the dilation of pupils. This is called the fight or flight response. The parasympathetic nervous

NOTE

The body contains specialized systems of nerves that control messages from the brain to the body.

system works in an opposite fashion, slowing down the body. The parasympathetic nervous system slows heart rate and breathing and increases the rate of peristalsis.

A good example of the parasympathetic nervous system at work is after a person eats a big meal. Suddenly, that person becomes sluggish and tired. This is due to a takeover of the parasympathetic nervous system coordinating digestion. It moves blood flow from the brain and other vital organs to absorb nutrients in the process of digestion. The decreased blood flow to other vital organs, although not dangerous, makes the person tired.

THE SPINAL CORD

The spinal cord passes through the foramen magnum in the skull and continues down through the spinal foramen. As the spinal cord passes down, nerves branch off through openings in the spinal column. These nerves control different motor and sensory activity. The nerves and their locations have a direct relation to paralysis after spinal cord injury; it is common to hear that a person who is paralyzed from the waist down had a spinal cord injury at the level of the twelfth thoracic vertebrae. Patients paralyzed from the nipple line down have injury at the level of the first thoracic vertebrae.

The *reflex arc* is located in the spinal cord. Some impulses in the body do not generate a response from the brain. Instead, it is controlled in the spinal cord. The reflex arc is a perfect example of the spinal cord creating a primitive motor response to an outside stimulation. An example of this is when a person is near a hot stove and accidentally places his hand on the flame. An impulse is sent through the nervous system to the spinal cord. This impulse is interpreted as a painful experience. The spinal cord, in response to this pain message, sends back a message to the arm, and in an involuntary motion, the response is for the hand to pull away from the source of the flame. This entire process happens instantaneously. The reflex arc decreases the size of the injury by interpreting the sensory signal and eliciting a motor response to avoid that pain source.

The Heart

The heart, blood vessels, and blood all work together to support the body in its maintenance of homeostasis. In order to maintain homeostasis, all three of these components of the cardiovascular system must be operating properly.

The heart is a four-chambered pump. The upper chambers are called *atria*, while the lower chambers are called the *ventricles*. The heart is composed of a specially designed muscle called *cardiac muscle*, which is designed to generate electrical impulses. The heart can pump more than 3,000 gallons of blood a day.

There are two different systems through which the heart pumps blood. Coming from the right side of the heart, blood is pumped into the *pulmonary circulation*. Coming from the left side of

the heart, blood is pumped into the *systemic circulation*. We will review these two systems separately.

The pulmonary circulation system begins when blood is pumped from the right ventricle into the pulmonary veins. The pulmonary veins carry deoxygenated blood from the heart and into the lungs, where it can be oxygenated. After the blood is oxygenated, it is returned to the heart by way of the pulmonary artery. The pulmonary artery returns blood to the left atria.

The systemic circulation begins in the left ventricle. Blood is pumped from the left ventricle and into the aorta. Once the blood leaves the left ventricle, it travels through the systemic circulation, supplying oxygen and nutrients to the body cells. Blood returns to the heart from the systemic circulation by way of the inferior and superior vena cava.

Within the heart, there are four separate chambers that are separated by valves. The valve between the right atria and the right ventricle is called the *tricuspid valve*. The valve between the left atria and left ventricle is called the *bicuspid valve*, or *mitral valve*. The valve between the right ventricle and the pulmonary circulation is called the *pulmonic valve*. The valve between the left ventricle and the systemic circulation is called the aortic valve. Blood returning to the heart fills the atria passively, and there are no valves returning from either the systemic or pulmonary circulation to the atria.

The heart is protected by a tough, non-elastic fibrous tissue called the *pericardium*. This layer of tissue serves several purposes. The first purpose is to provide protection to the heart muscle. The second purpose is to prevent the heart from overstretching. The third purpose is to anchor the heart to the mediastinum.

The Blood Vessels

There are several types of blood vessels in the body. Each vessel performs a different function in regulating blood supply to the body. As blood leaves the left ventricle and moves into the systemic circulation, it is carried by all arteries, which then break down into smaller vessels called *arterioles*. Arterioles branch off into the body tissues and further break down into vessels called *capillaries*, vessels that are only one cell thick. Within the capillaries, gas exchange takes place as oxygen is delivered to the cells and carbon dioxide is removed from the cells. Nutrients are also delivered to the cells by way of the capillaries.

Just past the capillary level begins the return of blood flow back to the heart. Vessels coming off the capillaries and back to the heart begin as *venoules*. As the vessels expand in size, they turn into *veins*. As the venous return continues back toward the heart, the vessels expand in size until they reach the *inferior* and *superior vena cava*. These vessels are responsible for all blood returned to the heart. Both of these vessels return blood into the right atrium.

ALERT!

In some cases of severe chest trauma, the EMT-Basic should be aware that the pericardium could fill with blood due to a ventricular rupture.

NOTE

The inferior and superior vena cava are the two largest veins in the body.

The EMT–Basic should be aware of the following physiological functions:

- **Arteries** carry oxygenated blood away from the heart.
- **Arterioles** are smaller arteries that enter the organs and tissues.
- **Capillaries** are vessels that are one cell thick where gas and nutrient exchange takes place.
- **Venoules** carry blood from the capillaries on its return trip to the heart.
- **Veins** are larger vessels that ultimately return all blood to the heart.

The EMT–Basic should also know the following terms as they relate to the cardiovascular system:

- **Cardiac output** is determined by the following formula:

$$\text{Cardiac output} = \text{Stroke volume} \times \text{Heart rate}$$

- **Stroke volume** is defined as the amount of blood pumped from the heart in one beat.
- **Blood pressure** is defined as stroke volume \times peripheral vascular resistance.

The Blood

The blood consists of multiple elements that are essential to maintaining functions that support life. The following chart outlines elements of the blood and their functions:

Element	Function
Red blood cell	Red blood cells contain hemoglobin, which transports oxygen and carbon dioxide in the blood.
White blood cell	White blood cells are specialized cells that attack foreign substances as they circulate in the blood. They fight things like diseases and infection.
Platelet	Platelets are responsible for blood clot formation and vasospasm after injury has occurred.
Plasma	Plasma is the liquid portion of the blood that carries all the elements of the blood through the vascular system.

The Endocrine System

The endocrine system coordinates functions of the body by releasing substances called *hormones*. These hormones are basically messengers delivered to the cells to create different reactions in the body to help support homeostasis. The *pituitary gland*, *pineal gland*, *parathyroid glands*, *thyroid gland*, and *adrenal glands* are all part of the endocrine system.

The body also contains endocrine tissue that is contained in the organ systems. The most widely known organ to contain endocrine tissue is the *pancreas*. The pancreas secretes both *insulin* and *glucagon*, two important hormones that are responsible for the regulation of blood sugar in the body.

Insulin helps the body convert sugar into a form that is usable by the cells, while glucagon is responsible for breaking down stored sugars for use by the body as energy.

EMT-Basics should be aware that the endocrine system is a very complex system that regulates multiple bodily functions. The functions listed above are those that will most commonly be encountered in dysfunction while in the field. Diabetic patients who have an insulin regulation problem will sometimes become unconscious from either *hypoglycemia* (low blood sugar) or *hyperglycemia* (high blood sugar), based on their levels of insulin.

Another important function of the endocrine system is the release of *epinephrine* and *norepinephrine* by the adrenal glands. Epinephrine and norepinephrine are the hormones responsible for an increase of heart rate and contraction, vasoconstriction, and pupil dilation. You may remember these as the responses of the sympathetic nervous system discussed earlier. During the fight or flight response, epinephrine and norepinephrine are secreted by the adrenal glands.

Finally, the endocrine system is also responsible for sexual development. The testicles produce testosterone, which help in male development, and the ovaries secrete estrogen and progesterone, which help in female development.

The Respiratory System

The respiratory system is responsible for bringing oxygen into the body and eliminating carbon dioxide. It is important to realize the definitions of the following terms to fully understand the function of gas exchange.

VENTILATION

Ventilation is the actual mechanical function of moving air into and out of the lungs. This process is affected by the diaphragm and the muscles of the chest wall. As a patient inhales, the diaphragm contracts and moves downward, and the chest muscles contract and move outward. This creates a larger area inside the chest wall, decreasing the pressure inside the lungs. As the pressure decreases, outside air is drawn into the lungs to stabilize it with the atmospheric pressure. Exhalation is produced by the diaphragm moving upward (expanding) and the chest muscles moving inward. This function increases the pressure inside the lungs, and the air is forced out.

RESPIRATION

Respiration is an internal function that is often broken down into two categories: *external respiration* and *internal respiration*.

External respiration occurs when air is exchanged between the alveoli and the capillaries (gas exchange at the alveolar level). Oxygen is taken into the capillaries by the red blood cells that

contain hemoglobin, and carbon dioxide is removed from the red blood cells and sent back into the lungs for expiration.

Internal respiration occurs at the tissue cellular level. Oxygen is delivered to the cells by the red blood cells. The red blood cells pick up the waste products of cellular respiration (carbon dioxide) and return them to the lungs during external respiration.

The respiratory system is broken down into two distinct sections: the *upper respiratory system* and the *lower respiratory system*. The upper respiratory system consists of the nose, pharynx, and their associated structures. The lower respiratory system consists of the larynx, trachea, bronchi, and lung tissue (including alveoli). The following chart refers to the structures of the respiratory system and their functions:

Structure	Function
Nose	Filters and moisturizes air; olfactory (smell) tissue in the nose allows the sense of smell
Pharynx	Passageway for air, assists in voice function; balances air pressures between the ears and the throat
Larynx	The “voice box,” a passageway between the laryngopharynx and the trachea
Vallecula	The depression between the epiglottis and the base of the tongue
Epiglottis	A leaf-shaped structure that provides protection to the airway during swallowing; prevents aspiration of foreign bodies and liquids into the airway
Trachea	Made up of rings of cartilage and forms the air passage into the smaller airways; divides into the right and left branches; point of division is called the carina
Bronchi	Two main bronchi that branch off from the trachea on the right and left side; travel deeper into the lungs, bringing inhaled air into the lower airways
Bronchioles	The smallest part of the airway; attach the hard structure of the airway to the alveoli, where air exchange takes place
Alveoli	Structures shaped like bunches of grapes; capillary membrane surrounds each alveolus, where the exchange of air and waste products takes place; the only place in the entire airway that air exchange can occur; alveoli collapse called atelectasis

NOTE

Each lung works independent of one another so that if one lung gets damaged, the other lung will remain functional.

THE LUNGS

Situated in the thoracic cavity, the lungs are separated in the center by the heart and other anatomical structures.

The lungs are divided into *lobes*; the right lung has three lobes and the left lung has two lobes. The heart, which sits predominantly on the left side, is located in a space created by the left lung, which has a sharper lower border at the midline to accommodate the heart. This is the reason that in the trachea, the left mainstem bronchus has a much more acute angle than the right mainstem.

Each lung is covered by a two-layered membrane called the *pleura*. These membranes serve to protect the lungs from injury and create a smooth expansion and contraction of lungs during inspiration and expiration. As a two-layered membrane, the pleura has two parts: the *visceral pleura*, attached to the lung, and the *parietal pleura*, attached to the chest wall. In between these layers is a serous fluid that lubricates the layers to create that smooth expansion and contraction mentioned above. It is important to know that between these layers lies a potential space. In lung injury, this space may fill with air or blood, causing a *pneumothorax* or a *hemothorax*. The EMT–Basic should be aware of this possibility while caring for the patient with a chest injury. Lung sounds should be monitored frequently.

Within the lungs are the *alveoli*. The alveoli are rounded sacs (see previous chart) that have a capillary membrane attached. Gas and waste product exchange takes place at the level of this membrane. This process, known as external respiration, is essential for the maintenance of homeostasis. If there is impaired gas exchange for any reason, hypoxia will develop, and the patient may suffer permanent damage to the brain or other organs. This condition may even result in death.

The lungs have the capacity to contain a large volume of air. Normal total lung capacity is 6,000 ml of air, although normal *tidal volume* (the amount of air taken in during one breath) is about 500 ml of air. These numbers are important for the EMT–Basic to understand during assisted ventilation. While normal tidal volume is 500 ml, only about two thirds of that volume ever reaches the alveoli. The other one third remains in the structural components of the airway, which is called “anatomic dead space.” During assisted ventilation, the adult bag-valve-mask device delivers 800 ml of air when properly used. Therefore, it is imperative that the EMT–Basic performs ventilatory assistance correctly and efficiently. This involves maintaining a proper mask seal, using proper ventilation techniques to achieve good ventilations, and attaching the device to an oxygen source.

The Gastrointestinal System

The gastrointestinal system, also known as the *digestive system*, provides essential nutrients to the body. These nutrients are converted into various sources of energy as well as other components that are usable by the body. The breakdown of food is a two-step process. The first step is *actual digestion*, which is the breakdown of food into molecules that may be used by the body. The second step is *absorption*, where these molecules are actually absorbed by the body for use.

The digestive system is broken down into two distinct parts: the *gastrointestinal tract* and the *alimentary canal*. The gastrointestinal tract includes all of the organs and structures of the digestive system. The alimentary canal is the continuous tube that begins in the mouth and ends at the anal opening. The alimentary canal is the path that food takes during the digestive process.

STRUCTURES OF THE DIGESTIVE SYSTEM AND THEIR CLASSIFICATIONS

Structure	Function	Classification
Mouth	Food is ingested into the mouth, beginning the digestive process.	Alimentary
Teeth	The teeth grind up food in a process known as mechanical digestion.	GI Tract
Tongue	The tongue moves food in the mouth to enable chewing, shapes the food, and forces it into the back of the mouth for swallowing.	GI Tract
Parotid Glands	Parotid glands produce saliva, which contains digestive enzymes and assists in mechanical digestion in the mouth by beginning to break down food.	GI Tract
Pharynx	The pharynx serves as a viaduct between the mouth and the esophagus.	Alimentary
Esophagus	A muscular tube that is mucous secreting and expands and contracts to move food down into the stomach. No digestive processes occur in the esophagus.	Alimentary
Stomach	The stomach serves as a holding area for digestion. Protein digestion takes place in the stomach. The stomach secretes digestive enzymes that further break down food. Once digestive enzymes are secreted, the stomach mixes them with the food and produces a substance called chyme, which is passed into the small intestine for further absorption.	Alimentary
Small Intestine	The small intestine is approximately 10 to 12 feet long and is responsible for most of the digestion and absorption of the body. It contains three parts: the duodenum, jejunum, and the ileum. The small intestine connects with the large intestine at the ileocecal valve.	Alimentary
Large Intestine	The final stages of digestion occur in the large intestine. Water absorption is finalized here, and the food now becomes more solid. Normal bacteria in the large intestine convert proteins into other substances for absorption and elimination.	Alimentary
Liver	The liver produces bile, which helps break down fats and metabolizes carbohydrates and proteins. It also removes toxins, stores glucose in the form of glycogen, and stores vitamins.	GI Tract
Gallbladder	The gallbladder stores bile produced by the liver. When needed, bile is excreted into the small intestine through the cystic duct.	GI Tract
Pancreas	The pancreas secretes digestive enzymes and hormones that regulate blood sugar.	GI Tract
Anus and Rectum	The anus and rectum are the final holding areas for digested food. Highly muscular, the anus moves digested products into the rectum for elimination from the body.	Alimentary

The EMT–Basic should understand that gastrointestinal emergencies are extremely hard to isolate, effectively diagnose, and treat in the field. Due to the complexity of the structures and the multiple organs involved, there are many emergencies that will have the same medical presentation. The most common of these presentations is abdominal pain. The treatment of abdominal pain is best handled at the emergency department, where comprehensive imaging and medical testing can pinpoint the diagnosis.

The Urinary System

The urinary system is another system that helps the body to eliminate waste. The system is composed of two kidneys, two ureters, the bladder, and the urethra. The kidney's main function is to filter toxins out of the blood and send them to the bladder for excretion from the body. Kidneys are also responsible for maintaining blood volume, which in turn regulates blood pressure. They also assist in the regulation of the pH of the body and are one of the components of the buffer system of the body.

The kidneys are highly vascular organs and need a constant blood supply to avoid damage. This is especially pertinent information when the EMT–Basic is treating a patient in a state of *hypoperfusion*. Hypoperfusion causes the body to shunt blood away from the kidneys to supply the heart, lungs, and brain. Without blood flow, the kidneys shut down, causing additional pathophysiological process in the trauma or hypovolemic patient. Patients who have kidney failure can contract many different illnesses due to the buildup of toxins in the blood.

Patients who have chronic kidney failure are treated by the use of *hemodialysis*. These patients are usually seen three times a week and are attached to a dialysis machine. A dialysis machine filters the blood through a highly technical process. Interaction with any patient who has a history of kidney failure should involve transport for further evaluation.

CONTINUE TO EDUCATE YOURSELF

The human body is a highly complex machine consisting of multiple organ systems and chemical reactions that are necessary to maintain a homeostatic balance. Failure of the respiratory system to properly deliver blood to the capillaries for distribution to the cells will result in multi-organ hypoxia and create cellular changes as they resort to alternate forms of respiration to produce energy needed for their survival.

EMT–Basics should try to gain and retain as much knowledge as possible about the anatomy and physiology of the body systems as well as the pathophysiology of these systems. This understanding will help them in properly assisting and treating patients to offset the chain reactions that occur in the body during a period of illness or injury. This is not by any means an elective topic, and the information given in this text is only the tip of the iceberg as far as

TIP

With a large number of gastrointestinal emergencies requiring surgical intervention, the EMT–Basic best serves the patient by providing a safe, comfortable ride to the emergency department while monitoring vital signs and treating the patient symptomatically to relieve pain and anxiety.

NOTE

It is not uncommon for failure of one system to upset the balance of another.

understanding these complex body systems is concerned. It is suggested that EMT–Basics continue their education in this area, since the understanding of the structure and function of the body is tantamount in the understanding of the treatment of its disease processes.

SUMMING IT UP

- An understanding of basic anatomy and physiology is the foundation for success as an EMT–Basic.
- EMT–Basics must have thorough knowledge of the most commonly used medical terminology.
- EMT–Basics need to understand topographic anatomy in order to communicate with other providers, document patient charts, and adhere to legal and ethical protocols.
- EMT–Basics must fully understand the working mechanisms of the body, including the skeletal system, muscular system, nervous system, heart, blood vessels, endocrine system, respiratory system, gastrointestinal system, and urinary system.

EMT–Basic Practical Skills Evaluation

OVERVIEW

- Guidelines for taking a practical skills examination
- The practical skills
- Practicing skills
- Skills examination day
- EMT–Basic skills evaluation sheets
- Summing it up

GUIDELINES FOR TAKING A PRACTICAL SKILLS EXAMINATION

The process of certification as an EMT–Basic includes the demonstration of competence in the performance of the practical skills that will be used in the field to perform patient care. The EMT–Basic should have a good working knowledge of these skills and should have had sufficient opportunity to practice these skills during your training program. Most states do not allow a candidate to sit for a written examination until you have demonstrated competence in skills performance. This chapter will review how to develop competence in these skills and lend advice on how to pass the practical skills examination.

THE PRACTICAL SKILLS

Typically, the required practical skills for the EMT–Basic include

Patient Assessment/Management—Trauma
Patient Assessment/Management—Medical
Cardiac Arrest Management/AED
Bag-Valve-Mask Apneic with Pulse
Spinal Immobilization—Seated Patient
Spinal Immobilization—Supine Patient
Immobilization Skills—Long Bone Injury
Immobilization Skills—Joint Injury
Immobilization Skills—Traction Splinting
Bleeding Control/Shock Management

Upper Airway Adjuncts & Suction
 Mouth-to-Mask with Supplemental Oxygen
 Supplemental Oxygen Administration
 Fracture Management–Long bone splinting
 Fracture Management–Traction splinting
 Fracture Management–Joint injuries
 Spinal Immobilization–Seated patient
 Spinal Immobilization–Lying Patient
 Cardiac Arrest Management–Use of the AED

Some states add additional requirements to the list of skills above.

Many of these skills are performed while at the same testing station; for example, airway skills may be performed on a continuing scenario-based testing station where all the skills would be performed at the same station. These types of practical examinations base the testing station on a single scenario, allowing the EMT–Basic to assess and manage a patient with a developing “difficult airway” problem. The EMT–Basic would be required to assess the airway, and then perform the correct interventions in order to pass the station.

TIP

It is always beneficial to learn how the testing will be performed and what will be expected of the candidate.

Many training institutions will prepare their candidates for final testing by running their practice stations in the exact way that a testing station is administered.

PRACTICING SKILLS

The EMT–Basic should seek out every opportunity to practice skills. Competence in skills performance will not only help you pass the examination, but it will also help you become a more confident EMT in the field. The more proficiency that you show in the classroom, the better your confidence will be out in the field in an uncontrolled situation.

Practicing skills to a competent level is completed in several ways. In the classroom, it is difficult for all students to get a good amount of time at skills sessions. Usually, there are multiple students in a group, and the group is time controlled before they must move on to a different station. To gain proficiency, the EMT–Basic should practice in the following ways:

- 1 Take full advantage of practice time afforded in class. Hanging out and talking while others practice is not beneficial for you or your classmates. When it is your turn to practice a skill, take your time, perform the skills while looking at the skill sheet, and make sure that all the steps are followed as stated on the skills performance sheet. Make sure that any critique that is offered by the station instructor is noted and that you work to correct deficiencies on your next round of practice.
- 2 If you feel you need more practice, discuss it with your senior instructor. Many institutions will set up hours for you to attend remediation sessions or allow you to

show up early for additional practice time. You can usually request that an instructor be there to assist you in your proficiency.

- ③ If you belong to an EMS agency, ask one of the senior people there to assist you. Most times, EMS agencies will have equipment for training at the station. This can be extremely helpful, especially if you need a large amount of practice. You can spend hours practicing certain skills with senior members who will be happy to assist you.
- ④ Practice your assessment skills at home. Ask family members to allow you to practice your patient assessment skills while they are relaxing at home. All they need to do is lie down, and you can run through the steps of assessment. This approach is extremely helpful. In addition, it will give your family members insight as to what you are trying to accomplish and how difficult it may be to perform your job. You can also ask a family member to look at the sheet as you go through the steps, advising you of missed items and omissions of intervention.

It is essential that you know the skills performance sheet in its entirety. EMS training institutions will almost always give these sheets to the students early on in the training program so that the student will have ample time to memorize them. Memorization of the sheets will guarantee that you have a firm grip on the knowledge. This is best attempted with an assistant present. Your assistant can stop you when you omit a step and also reinforce good performance. Attempts at skills practice prior to memorization will serve to confuse you and possibly delay your mastery of a particular skill.

It is also advisable to get together with other candidates to compare notes. The best study partner is somebody who is also aspiring to pass the same examination. This person will be just as serious about skills performance as you are, and you may accomplish more.

If you misunderstand the theory behind a skill, consult your textbook. Most EMS textbooks will have a full explanation of skills theory as well as pictures of skills being performed. These may help you immensely in understanding the performance of the skills.

ALERT!

Once you have a sheet memorized, then, and only then, should you begin attempting to practice skills without looking at the sheet.

SKILLS EXAMINATION DAY

Just as you would prepare for a written examination, you should prepare for the practical skills examination. This means that you should get plenty of rest the night before the examination. It is never a good idea to stay up all night reading the skills sheets. Reading and studying sheets should be done long before the night prior to the examination. It may be a good idea to get some practice in the night before. Using the suggestions in the practice section of this chapter, go through the skills to smooth out rough edges. This practice session should be very light and lack the pressure and intensity of previous sessions. A review session can be very helpful, if properly executed.

TIP

Bring your skills sheets with you to look over as you are waiting to be called upon for a station. Once again, this should be a light “going over” of the skills mentally. It is not a good idea to focus on any one skill, as you may be called to perform a different skill.

When you arrive at the testing site, make sure you have all the equipment with you that you will need for the examination. Most examination sites will supply everything you need to complete the skills examination; however, some may require you to have your personal equipment, such as a stethoscope, penlight, pocket mask, and a pair of trauma shears.

Entering the Skills Station

Once you enter the skills station, you need to accomplish several things. The first thing is to claim your composure. If you are stressed and nervous, it will affect your performance. Most skills examiners take nervousness into consideration. They have been in your position, so keep that in mind.

If you are nervous, take a deep breath. There is nothing better to reduce stress than a good, long cleansing breath. Take a step back and breathe deeply, hold it, then release it. Try and clear your mind and wait for the examiner to give you your instructions.

Once you have gotten your instructions, the examiner will tell you to look over all the equipment. Look at it. Is it all there? Make sure that you have everything that you need to perform the skills without stopping and asking for additional equipment. It is not a general practice to intentionally remove an essential piece of equipment during testing, but it may have been left out accidentally—so be vigilant.

All skills stations require that the student take infection control precautions. Make sure that at every station, you put on gloves. Omission of infection control precautions is usually a critical failure and will cause the student to fail the station even before they begin. **WEAR GLOVES AT ALL STATIONS.**

TIP

It is suggested that you verbalize everything that you are doing, even though it is obvious.

The most important aspect of the skills examination is successfully completing the skill. In mannequin demonstrations, it may be hard for the examiner to actually know what you are doing during an assessment. As you begin your skill, if you are assessing, ask questions such as “I am opening the airway. Is it open?” The examiner will answer you appropriately, confirming that you have completed that part of the station. Continue verbalization throughout the examination.

If the examiner asks you a question, remain calm. It may be part of the test, or he or she may be giving you a hint that you missed something. Hints are usually not allowed, but they happen. Take advantage of that and think about what you did in the last twenty seconds, trying to remember if you missed anything. If you don’t think you missed anything, don’t dwell on it—answer the question and move on. Dwelling on a previous question will throw you off your plan and break your concentration.

When you complete the station, state that you have completed it. When the examiner releases you, leave. He or she usually will not give you results at the station. It is an uncommon practice because if a student fails a station and is told, it will affect his or her performance at other stations. Move on and finish your other stations. You will get your results soon enough.

Once you leave a station, forget it for now and concentrate on the next station. Keeping the completed station on your mind will leave less room for concentration on the new station. Take a fresh approach to each station as if it is the only station you will test on that day. Then, move on to the next.

EMT–BASIC SKILLS EVALUATION SHEETS

The Skill Sheets

The following skill sheets have been provided with permission from the New York State Department of Health, Bureau of Emergency Medical Services. These are based on the National Standard Curriculum and offer a comprehensive approach to the practical skills. Each sheet will give you a complete set of steps that you need to pass the examination and will outline the critical failures for each station. If your course is going to be using other sheets for testing, do not memorize these sheets. It will only serve to confuse you as to the proper steps required for your examination.

The National Standard Curriculum Templates are commonly used throughout the United States and are the accepted evaluation tool for the EMT–Basic.

NOTE

At the end of the test, you will be given your results. Keep in mind that even if you fail a station or two, most examinations will allow you to retest only those stations you have failed. Many institutions allow retesting the same day, so you can still get another shot at testing while you're on your game.

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION

1

PATIENT ASSESSMENT/MANAGEMENT TRAUMA

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to perform a patient assessment of a victim of multi-systems trauma and “voice” treat all conditions and injuries discovered. You must conduct your assessment as you would in the field including communicating with your patient. You may remove the patient’s clothing down to shorts or swimsuit if you feel it is necessary. As you conduct your assessment, you should verbalize everything you are assessing. Clinical information not obtainable by visual or physical inspection will be given to you after you demonstrate how you would normally gain that information. You may assume that you have two EMTs working with you and that they are correctly carrying out the verbal treatments you indicate. You have 15 minutes to complete this skill station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION
1
PATIENT ASSESSMENT
MANAGEMENT -
TRAUMA

Pass _____
Fail _____

Please print.
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

		Points:	Possible	Awarded	Comments
SCENE SIZE-UP	Takes, or verbalizes, body substance isolation precautions		C		
	Determines the scene is safe		C		
	Determines the mechanism of injury / nature of illness		1		
	Considers stabilization of spine		C		
ASSESSMENT	Verbalizes general impression of the patient		1		
	Determines responsiveness/level of consciousness (AVPU)		1		
	Determines chief complaint/apparent life threats		1		
	Airway and breathing	Assesses and maintains airway	C		
		Initiates appropriate oxygen therapy	C		
		Assures adequate ventilation	C		
		Manages life threats to airway/breathing	C		
	Circulation	Assesses/controls major bleeding	C		
		Assesses pulse	C		
		Assesses skin (color, temperature and condition)	C		
	Assesses airway, breathing & circulation prior to detailed physical exam		C		
	Identifies priority patients/makes transport decision		C		
INITIAL ASSESSMENT	Selects appropriate assessment (focused or rapid assessment)		1		
	Obtains, baseline vital signs	Pulse Determines rate & quality (+/- 10)	C		
		Respirations Determines rate & quality (+/- 4)	C		
		Blood Pressure systolic & diastolic (+/- 10)	C		
	Obtains S.A.M.P.L.E. history		1		
DETAILED PHYSICAL EXAMINATION	Assesses the head	Inspects and palpates the scalp and ears	1		
		Assesses the eyes	1		
		Assesses the facial area including oral and nasal areas	1		
	Assesses the neck	Inspects and palpates the neck	1		
		Assesses for ND	1		
		Assesses for tracheal deviation	1		
	Assesses the chest	Inspects	1		
		Palpates	1		
		Auscultates	1		
	Assesses the abdomen/pelvis	Assesses the abdomen	1		
		Assesses the pelvis	1		
		Verbalizes assessment of genitalia/perineum as needed	1		
	Assesses the extremities	Inspects & palpates all 4 extremities (1 pt. ea.)	4		
		Check motor, sensory, distal circulation (1 pt. ea.)	4		
	Assesses the posterior	Assesses thorax	1		
		Assesses lumbar	1		
	Manages secondary injuries & wounds appropriately		1		
FOCUSED HISTORY/PHYSICAL EXAM RAPID ASSESSMENT	Ongoing Assessment (verbalized) Repeats initial assessment		1		
	Repeats vital signs		1		
	Repeats focused assessment		1		
	Candidate completed station within 15 minute time limit.		C		

Note: Candidate must complete all critical criteria and receive at least 23 points to pass this station.

Total to pass 23 Total 32

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION

2

PATIENT ASSESSMENT/MANAGEMENT MEDICAL

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to perform a patient assessment of a patient with a chief complaint of a medical nature and “voice” treat all conditions discovered. You must conduct your assessment as you would in the field including communicating with your patient. You may remove the patient’s clothing down to shorts or swimsuit if you feel it is necessary. As you conduct your assessment, you should verbalize everything you are assessing. Clinical information not obtainable by visual or physical inspection will be given to you after you demonstrate how you would normally gain that information. You may assume that you have two EMTs working with you and that they are correctly carrying out the verbal treatments you indicate. You have 15 minutes to complete this skill station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical ServicesEMT
Practical ExaminationSTATION
2 PATIENT ASSESSMENT
MANAGEMENT -
MEDICALPass _____
Fail _____Please print.
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

		Points:	Possible	Awarded	Comments			
SCENE SIZE-UP	Takes, or verbalizes, body substance isolation precautions		C					
	Determines the scene is safe		C					
	Determines the mechanism of injury/nature of illness		1					
	Considers stabilization of spine if indicated		1					
ASSESSMENT	Verbalizes general impression of the patient		1					
	Determines responsiveness/level of consciousness (AVPU)		1					
	Determines chief complaint/apparent life threats		1					
	Airway and breathing	Assesses and maintains airway	C					
		Initiates appropriate oxygen therapy	C					
		Assures adequate ventilation	C					
	Circulation	Assesses/controls major bleeding	C					
		Assesses pulse	C					
		Assesses skin (color, temperature and condition)	C					
	INITIAL	Assesses airway breathing & circulation prior to focused history/physical exam		C				
Identifies priority patients/makes transport decision		C						
EXAM	Assesses history of present illness-ask required number of questions		C					
	Respiratory □ Chest? □ Provoked? □ Quality? □ Radiation? □ Severity? □ Time? □ Interventions? (4)	Cardiac □ Chest? □ Provoked? □ Quality? □ Radiation? □ Severity? □ Time? □ Interventions? (4)	Altered Mental Status □ Description of the episode. □ Chest? □ Duration? □ Associated symptoms? □ Evidence of trauma? □ Interventions? □ Seizures? □ Focal? (4)	Allergic Reaction □ History of allergies? □ What were you exposed to? □ How soon you exposed? □ Effects? □ Progression? □ Interventions? (4)	Poisoning (Overdose) □ Substances? □ When did you ingest/become exposed? □ How much did you ingest? □ Over what time period? □ Interventions? □ Estimated Weight? (4)	Environmental Emergency □ Source? □ Environment? □ Onset? □ Loss of consciousness? □ Effects of general or local? (4)	Gynecologic □ Are you pregnant? □ How long have you been pregnant? □ Pain or contractions? □ Bleeding or discharge? □ Has water broken? □ Do you feel the need to push? □ Last menstrual period? (4)	Behavioral □ How do you feel? □ Determine suicide tendencies. □ Is the patient a threat to self or others? □ Is there a medical problem? □ Interventions? (4)
	PHYSICAL AND HISTORY	Signs / symptoms		1				
		Allergies		1				
		Medications		1				
		Past pertinent history		1				
		Last oral intake		1				
		Event leading to present illness (rule out trauma)		1				
		Performs focused physical exam. (consistent with scenario)		1				
		Vitals (obtains baseline vital signs)						
Pulse		Determines Rate and Quality (+/- 10)	C					
Respirations		Determines Rate and Quality (+/- 4)	C					
FOCUS	Blood Pressure	Determines Systolic & Diastolic (+/- 10)	C					
	TREATMENTS/INTERVENTIONS							
	(Consistent with New York State and Regional Protocols)		1					
	Did not administer a dangerous or inappropriate intervention		C					
	Transport (re-evaluates the transport decision)		1					
	Verbalizes the consideration of completing a detailed physical examination		1					
	ONGOING ASSESSMENT (verbalized)							
	Repeats initial assessment		1					
	Repeats vital signs		1					
	Repeats focused assessment regarding patient complaint or injuries		1					
Candidate completed station within the 15 minute time limit		C						

Note: Candidate must complete all critical criteria and receive at least 13 points to pass this station.

Total to pass 13 Total 18

09/02

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION

3

CARDIAC ARREST MANAGEMENT

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to manage a prehospital cardiac arrest by integrating CPR skills, defibrillation, airway adjuncts and patient/scene management skills. There will be an EMT assistant in this station. The EMT assistant will only do as you instruct. As you arrive on the scene, you will encounter a patient in cardiac arrest. A first responder will be present performing single rescuer CPR. You must immediately establish control of the scene and begin resuscitation of the patient with an automated external defibrillator. At the appropriate time, the patient's airway must be controlled and you must ventilate or direct the ventilation of the patient using adjunctive equipment. You may use any of the supplies available in this room. You have 15 minutes to complete this skill station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION
3

**CARDIAC ARREST
MANAGEMENT
AED**

Please print.
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
ASSESSMENT	Takes, or verbalizes, body substance isolation precautions	C		
	Briefly questions the rescuer about arrest events	1		
	Directs rescuer to stop CPR	1		
	Verifies absence of spontaneous pulse (skill station examiner states "no pulse")	C		
	Directs resumption of CPR	1		
	Turns on defibrillator power	1		
	Attaches automated defibrillator to the patient	1		
	Directs rescuer to stop CPR	1		
	Ensures all individuals are clear of the patient	1		
	Initiates analysis of the rhythm	1		
	Delivers shock (up to three successive shocks)	C		
	Verifies absence of spontaneous pulse (skill station examiner states "no pulse")	1		
INTEGRATION	TRANSITION			
	Directs resumption of CPR	1		
	Gathers additional information about arrest event	1		
	Verifies effectiveness of CPR (ventilation and compression)	1		
	Verbalizes insertion of a simple airway adjunct (oral/nasal airway)	1		
	Ventilates the patient	1		
	Assures high concentration of oxygen is delivered to the patient	1		
	CPR continues without unnecessary/prolonged interruption	1		
	Re-evaluates patient in approximately one minute	1		
	Candidate verbalizes defibrillation sequence protocol	1		
TRANSPORTATION	TRANSPORTATION			
	Verbalizes transportation of patient	1		
	Candidate initiated first shock within 90 seconds of arrival	C		
	Assured all individuals were clear of patient before delivering each shock	C		
	Directed initiation/resumption of ventilation/compressions at appropriate times	C		
	Candidate completed station within the 15 minute time limit	C		

Note: Candidate must complete all critical criteria and receive at least 13 points to pass this station.

Total to pass 13 Total 19

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION

4

BAG-VALVE-MASK APNEIC WITH PULSE

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to ventilate a patient using a bag-valve-mask. As you enter the station you will find an apneic patient with a palpable central pulse. There are no bystanders and artificial ventilation has not been initiated. The only patient management required is airway management and ventilatory support. You must initially ventilate the patient for a minimum of 30 seconds. You will be evaluated on the appropriateness of ventilatory volumes. I will then inform you that a second rescuer has arrived and will instruct you that you must control the airway and the mask seal while the second rescuer provides ventilation. You may use only the equipment available in this room. You have five minutes to complete this station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION
4

BAG-VALVE-MASK
APNEIC
PATIENT

Pass _____
Fail _____

Please print.
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
Takes, or verbalizes, body substance isolation precautions		C		
Opens the airway		1		
Inserts an airway adjunct		1		
Selects appropriately sized mask		1		
Creates a proper mask-to-face seal		1		
Ventilates patient at a minimum of 700 ml and no more than 1000 ml volume (The examiner must witness for at least 30 seconds)		C		
Candidate ventilated patient prior to connecting supplemental oxygen		C		
Connects reservoir and oxygen		1		
Adjusts liter flow to 15 liters/minute or greater		C		
The examiner indicates arrival of a second EMT				
The second EMT is instructed to ventilate the patient while the candidate controls the mask and the airway		1		
Reopens the airway		1		
Creates a proper mask-to-face seal		1		
Instructs assistant to resume ventilation at proper volume per breath (400 - 600 ml per breath) (The examiner must witness for at least 30 seconds)		1		
Did not interrupt ventilation for more than 20 seconds		C		
Allows for adequate exhalation		C		
Candidate must complete the station within the 5 minute time limit		C		

Note: Candidate must complete all critical criteria and receive at least 6 points to pass this station.

Total to pass 6 Total 9

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION
5A

SPINAL IMMOBILIZATION SKILLS SEATED PATIENT

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to provide spinal immobilization on a patient using a short spine immobilization device. You and an EMT assistant arrive on the scene of an automobile crash. The scene is safe and there is only one patient. The assistant EMT has completed the initial assessment and no critical condition requiring intervention was found. For the purpose of this station, the patient's vital signs remain stable. You are required to treat the specific, isolated problem of an unstable spine using a short spine immobilization device. You are responsible for the direction and subsequent actions of the EMT assistant. Transferring and immobilizing the patient to the long backboard should be accomplished verbally. You have 10 minutes to complete this skill station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT Practical Examination

Please print.

STATION
5A

SPINAL
IMMOBILIZATION
SEATED PATIENT

Pass _____
Fail _____

Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
Takes, or verbalizes, body substance isolation precautions		C		
Directs assistant to place and maintain head in the neutral in-line position		C		
Reassesses motor, sensory and circulatory function in each extremity		1		
Applies appropriately sized extrication collar		1		
Positions the immobilization device behind the patient		1		
Secures the device to the patient's torso		1		
Evaluates torso fixation and adjusts as necessary		1		
Evaluates and pads behind the patient's head as necessary		1		
Secures the patient's head to the device		1		
Verbalizes moving the patient to a long board		1		
Reassesses motor, sensory and circulatory function in each extremity		C		
Did not release or order release of manual immobilization before it was maintained mechanically		C		
Patient was not manipulated or moved excessively to cause potential spinal compromise		C		
Did not move device excessively up, down, left, right on the patient's torso		C		
Head immobilization does not allow for excessive movement		C		
Torso fixation does not inhibit chest rise, resulting in respiratory compromise		C		
Upon completion of immobilization, head is in the neutral position		C		
Immobilized the torso before the head		C		
Candidate completed station within 10 minute time limit		C		

Note: Candidate must complete all critical criteria and receive at least 6 points to pass this station.

Total to pass 6 Total 8

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION
5B

SPINAL IMMOBILIZATION- SUPINE PATIENT

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to provide spinal immobilization on a patient using a long spine immobilization device. You arrive on the scene with an EMT assistant. The assistant EMT has completed the scene size-up as well as the initial assessment and no critical condition was found which would require intervention. For the purpose of this testing station, the patient's vital signs remain stable. You are required to treat the specific problem of an unstable spine using a long spine immobilization device. When moving the patient to the device, you should use the help of the assistant EMT and the evaluator. The assistant EMT should control the head and cervical spine of the patient while you and the evaluator move the patient to the immobilization device. You are responsible for the direction and subsequent action of the EMT assistant. You may use any equipment available in this room. You have 10 minutes to complete this skill station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION
5B

SPINAL
IMMOBILIZATION
SUPINE PATIENT

Pass _____
Fail _____

Please print.
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
Takes, or verbalizes, body substance isolation precautions		C		
Directs assistant to place and maintain head in the neutral in-line position		C		
Reassesses motor, sensory and circulatory function in each extremity		1		
Applies appropriately sized extrication collar		1		
Positions the immobilization device appropriately		1		
Directs movement of the patient onto the device without compromising the integrity of the spine		C		
Applies padding to voids between the torso and the board as necessary		1		
Secures the patient's torso to the device		1		
Secures the patient's legs to the device		1		
Secures the patient's head to the device		1		
Secures the patient's arms		1		
Reassesses motor, sensory and circulatory function in each extremity		C		
Did not release or order release of manual immobilization before it was maintained mechanically		C		
Patient was not manipulated or moved excessively to cause potential spinal compromise		C		
Did not move device excessively up, down, left, right on the patient's torso		C		
Head immobilization does not allow for excessive movement		C		
Upon completion of immobilization, head is in the neutral position		C		
Immobilized the torso before the head		C		
Candidate completed station within 10 minute time limit.		C		

Note: Candidate must complete all critical criteria and receive at least 6 points to pass this station.

Total to pass 6 Total 8

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION
6A

IMMOBILIZATION SKILLS – LONG BONE

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to properly immobilize a closed, non-angulated long bone injury. You are required to treat only the specific, isolated injury to the extremity. The scene size-up and initial assessment have been completed and during the focused assessment a closed, non-angulated injury of the _____ (radius, ulna, tibia, fibula) was detected. Ongoing assessment of the patient's airway, breathing and central circulation is not necessary. You may use any equipment available in this room. You have 10 minutes to complete this skill station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION
6A

IMMOBILIZATION
SKILLS
LONG BONE INJURY

Pass _____
Fail _____

Please print.
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
Takes, or verbalizes, body substance isolation precautions		C		
Directs application of manual stabilization of the injury		1		
Assesses motor, sensory and circulatory function in the injured extremity		C		
Note: The examiner acknowledges "motor, sensory and circulatory function are present and normal"				
Measures the splint		1		
Applies the splint		1		
Immobilizes the joint above the injury site		C		
Immobilizes the joint below the injury site		C		
Secures the entire injured extremity		1		
Immobilizes the hand/foot in the position of function		1		
Reassesses motor, sensory and circulatory function in the injured extremity		C		
Note: The examiner acknowledges "motor, sensory and circulatory function are present and normal"				
Candidate did not grossly move the injured extremity		C		
Candidate must complete station within 10 minute time limit		C		

Note: Candidate must complete all critical criteria and receive at least 4 points to pass this station.

Total to pass 4 Total 5

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION
6B

IMMOBILIZATION SKILLS – JOINT INJURY

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to properly immobilize a non-complicated shoulder injury. You are required to treat only the specific, isolated injury to the shoulder. The scene size-up and initial assessment have been accomplished on the victim and during the focused assessment a shoulder injury was detected. Ongoing assessment of the patient's airway, breathing and central circulation is not necessary. You may use any equipment available in this room. You have 10 minutes to complete this skill station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION
6B

IMMOBILIZATION
SKILLS
JOINT INJURY

Pass _____
Fail _____

Please print.
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
Takes, or verbalizes, body substance isolation precautions	C			
Directs application of manual stabilization of the shoulder injury	1			
Assesses motor, sensory and circulatory function in the injured extremity	C			
Note: The examiner acknowledges "motor, sensory and circulatory function are present and normal"				
Selects the proper splinting material	1			
Immobilizes the site of the injury	1			
Immobilizes the bone above the injured joint	C			
Immobilizes the bone below the injured joint	C			
Reassesses motor, sensory and circulatory function in the injured extremity	C			
Note: The examiner acknowledges "motor, sensory and circulatory function are present and normal"				
Joint is supported so that the joint does not bear distal weight	C			
Candidate completed station within the 10 minute time limit	C			

Note: Candidate must complete all critical criteria and receive at least 2 points to pass this station.

Total to pass 2 Total 3

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION
6C

IMMOBILIZATION SKILLS – TRACTION SPLINTING

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to properly immobilize a mid-shaft femur injury with a traction splint. You will have an EMT assistant to help you in the application of the device by applying manual traction when directed to do so. You are required to treat only the specific, isolated injury to the femur. The scene size-up and initial assessment have been accomplished on the victim and during the focused assessment a mid-shaft femur deformity was detected. Ongoing assessment of the patient's airway, breathing and central circulation is not necessary. You may use any equipment available in this room. You have 10 minutes to complete this skill station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical ServicesEMT
Practical ExaminationSTATION
6CIMMOBILIZATION
SKILLS
TRACTION SPLINTINGPass _____
Fail _____Please print
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
Takes, or verbalizes, body substance isolation precautions	C			
Directs application of manual stabilization of the injured leg	1			
Candidate assesses motor, sensory and circulatory function in the injured extremity	C			
Note: The examiner acknowledges "motor, sensory and circulatory function are present and normal"				
Directs the application of manual traction	1			
Prepares/adjusts splint to the proper length	1			
Applies the splint to the injured leg	1			
Applies the proximal security device (e.g....ischial strap)	1			
Applies the distal securing device (e.g....ankle hitch)	1			
Applies mechanical traction	1			
Positions/secures the support straps	1			
Re-evaluates the proximal/distal security devices	1			
Candidate reassesses motor, sensory and circulatory function in the injured extremity	C			
Note: The examiner acknowledges "motor, sensory and circulatory function are present and normal"				
Note: The examiner must ask the candidate how he/she would prepare the patient for transportation				
Verbalizes securing the torso to the long board to immobilize the hip	1			
Verbalizes securing the splint to the long board to prevent movement of the splint	1			
Traction is maintained throughout application of splint	C			
The foot was not excessively rotated or extended after the splint was applied	C			
Secured the ischial strap before applying mechanical traction	C			
Final immobilization supported the femur and prevented rotation of the injured leg	C			
Applied mechanical traction before securing the leg to the splint	C			
Candidate completed the station within the 10 minute time limit	C			

Note: If the Sagar splint or the Kendricks Traction Device is used without elevating the patient's leg, application of manual traction is not necessary. The candidate should be awarded one point as if manual traction were applied.

Note: If the leg is elevated at all, manual traction must be applied before elevating the leg. The ankle hitch may be applied before elevating the leg and used to provide manual traction.

Note: Candidate must complete all critical criteria and receive at least 7 points to pass this station.

Total to pass 7 Total 11

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION
6D

BLEEDING CONTROL/SHOCK MANAGEMENT

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to control hemorrhage. This is a scenario-based testing station. As you progress through the scenario, you will be given various signs and symptoms appropriate for the patient's condition. You will be required to manage the patient based on these signs and symptoms. A scenario will be read aloud to you and you will be given an opportunity to ask clarifying questions about the scenario, however, you will not receive answers to any questions about the actual steps of the procedures to be performed. You may use any of the supplies and equipment available in this room. You have five minutes to complete this skill station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION
6D

**BLEEDING CONTROL/
SHOCK
MANAGEMENT**

Pass _____
Fail _____

Please print
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
Takes, or verbalizes, body substance isolation precautions	C			
Applies direct pressure to the wound	1			
Elevates the extremity	1			
Note: The examiner must now inform the candidate that the wound continues to bleed				
Applies an additional dressing to the wound	1			
Note: The examiner must now inform the candidate that the wound still continues to bleed. The second dressing does not control the bleeding.				
Locates and applies pressure to appropriate arterial pressure point	1			
Note: The examiner must now inform the candidate that the bleeding is controlled				
Bandages the wound	1			
Candidate controlled hemorrhage appropriately	C			
Note: The examiner must now inform the candidate the patient is now showing signs and symptoms indicative of hypoperfusion				
Properly positions the patient	1			
Applies high concentration oxygen	C			
Initiates steps to prevent heat loss from the patient	1			
Indicates the need for immediate transportation	C			
Candidate did not apply a tourniquet before attempting other methods of bleeding control	C			
Candidate completed the station within the 5 minute time limit	C			

Note: Candidate must complete all critical criteria and receive at least 5 points to pass this station.

Total to pass 5 Total 7

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION
6E

UPPER AIRWAY ADJUNCTS AND SUCTION

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to properly measure, insert and remove an oropharyngeal and nasopharyngeal airway as well as suction a patient's upper airway. This is an isolated skills test comprised of three separate skills. You may use any equipment available in this room. You have five minutes to complete this station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION 6E	UPPER AIRWAY ADJUNCTS & SUCTION	Pass _____	Candidate _____	Please print	
		Fail _____	Examiner _____	Initials _____	
			Date _____	Start Time _____	Stop Time _____

	Points:	Possible	Awarded	Comments
OROPHARYNGEAL AIRWAY				
Takes, or verbalizes, body substance isolation precautions	C			
Selects appropriately sized airway	1			
Measures airway	1			
Inserts airway without pushing the tongue posteriorly	1			
Note: The examiner must advise the candidate that the patient is gagging and becoming conscious				
Removes the oropharyngeal airway	1			

SUCTION				
Note: The examiner must advise the candidate to suction the patient's airway				
Turns on/prepares suction device	1			
Assures presence of mechanical suction	1			
Inserts the suction tip without suction	1			
Applies suction to the oropharynx/nasopharynx	1			
Candidate demonstrated acceptable suction technique	C			

NASOPHARYNGEAL AIRWAY				
Note: The examiner must advise the candidate to insert a nasopharyngeal airway				
Selects appropriately sized airway	1			
Measures airway	1			
Verbalizes lubrication of the nasal airway	1			
Fully inserts the airway with the bevel facing toward the septum	1			
Candidate did not insert any adjunct in a manner dangerous to the patient	C			
Candidate completed the station within the 5 minute time limit	C			

Note: Candidate must complete all critical criteria and receive at least 8 points to pass this station.

Total to pass 8 Total 12

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION
6F

MOUTH-TO-MASK WITH SUPPLEMENTAL OXYGEN

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to ventilate a patient with supplemental oxygen using a mouth-to-mask technique. This is an isolated skills test. You may assume that mouth-to-barrier device ventilation is in progress and that the patient has a central pulse. The only patient management required is ventilator support using a mouth-to-mask technique with supplemental oxygen. You must ventilate the patient for at least 30 seconds. You will be evaluated on the appropriateness of ventilatory volumes. You may use any equipment available in this room. You have five minutes to complete this station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION
6F

**MOUTH-TO-MASK
WITH SUPPLEMENTAL
OXYGEN**

Pass _____
Fail _____

Please print.
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
Takes, or verbalizes, body substance isolation precautions		C		
Connects one-way valve to mask		1		
Opens patient's airway or confirms patient's airway is open (manually or with adjunct)		1		
Establishes and maintains a proper mask to face seal		1		
Ventilates the patient at the proper volume and rate (700-1000 ml per breath/10-20 breaths per minute)		1		
Candidate ventilated patient prior to connection of supplemental oxygen		C		
Connects the mask to high concentration of oxygen		1		
Adjusts flow rate to at least 15 liters per minute		C		
Continues ventilation of the patient at the proper volume and rate (400-600 ml per breath/10-20 breaths per minute)		1		
Note: the examiner must witness ventilations for at least 30 seconds				
Candidate provided proper volume per breath (Cannot accept more than 2 ventilations per minute below 400 ml)		C		
Candidate provided 10-20 breaths per minute		C		
Candidate allowed for complete exhalation		C		
Candidate completed the station within the 5 minute time limit		C		

Note: Candidate must complete all critical criteria and receive at least 4 points to pass this station.

Total to pass 4 Total 6

COMMENTS:

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

STATION
6G

SUPPLEMENTAL OXYGEN ADMINISTRATION

INSTRUCTIONS TO THE CANDIDATE

This station is designed to test your ability to correctly assemble the equipment needed to administer supplemental oxygen in the prehospital setting. This is an isolated skills test. You will be required to assemble an oxygen tank and a regulator and administer oxygen to a patient using a non-rebreather mask. At this point, you will be instructed to discontinue oxygen administration by the non-rebreather mask and start oxygen administration using a nasal cannula because the patient cannot tolerate the mask. Once you have initiated oxygen administration using a nasal cannula, you will be instructed to discontinue oxygen administration completely. You may use only the equipment available in this room. You have five minutes to complete this station. Do you have any questions?

NOTES

NEW YORK STATE DEPARTMENT OF HEALTH
Emergency Medical Services

EMT
Practical Examination

STATION
6G

**SUPPLEMENTAL
OXYGEN
ADMINISTRATION**

Pass _____
Fail _____

Please print.
Candidate _____
Examiner _____ Initials _____
Date _____ Start Time _____ Stop Time _____

	Points:	Possible	Awarded	Comments
Takes, or verbalizes, body substance isolation precautions		C		
Assembles the regulator to the tank		1		
Opens the tank		1		
Checks for leaks		1		
Checks and verbalizes tank pressure		1		
Attaches non-rebreather mask to oxygen		1		
Prefills reservoir		C		
Adjusts liter flow to 12 liters per minute or greater		C		
Applies and adjusts the mask to the patient's face		1		
Note: The examiner must advise the candidate that the patient is not tolerating the non-rebreather mask. The medical director has ordered you to apply a nasal cannula to the patient.				
Attaches nasal cannula to oxygen		1		
Adjusts liter flow to 6 liters per minute or less		C		
Applies nasal cannula to the patient		1		
The examiner must advise the candidate to discontinue oxygen therapy				
Removes the nasal cannula from the patient		1		
Shuts off the regulator		1		
Relieves the pressure within the regulator		1		
Candidate assembles the tank and regulator without leaks		C		
Candidate completed the station within the 5 minute time limit		C		

Note: Candidate must complete all critical criteria and receive at least 8 points to pass this station.

Total to pass 8 Total 11

COMMENTS:

SUMMING IT UP

- To become certified as an EMT–Basic, you must successfully complete a Practical Skills Examination.
- Due to classroom time restraints, students should practice practical skills as much as possible outside the classroom.
- Evaluation sheets are used to chart a student’s proficiency in each skill area.

PART IV

PRACTICE TEST

Practice Test 2



PRACTICE TEST 2 ANSWER SHEET

- | | | | |
|-------------|-------------|-------------|--------------|
| 1. A B C D | 26. A B C D | 51. A B C D | 76. A B C D |
| 2. A B C D | 27. A B C D | 52. A B C D | 77. A B C D |
| 3. A B C D | 28. A B C D | 53. A B C D | 78. A B C D |
| 4. A B C D | 29. A B C D | 54. A B C D | 79. A B |
| 5. A B C D | 30. A B C D | 55. A B C D | 80. A B C D |
| 6. A B C D | 31. A B C D | 56. A B C D | 81. A B C D |
| 7. A B C D | 32. A B C D | 57. A B C D | 82. A B C D |
| 8. A B C D | 33. A B C D | 58. A B C D | 83. A B C D |
| 9. A B C D | 34. A B C D | 59. A B C D | 84. A B C D |
| 10. A B C D | 35. A B C D | 60. A B C D | 85. A B C D |
| 11. A B C D | 36. A B C D | 61. A B C D | 86. A B C D |
| 12. A B C D | 37. A B C D | 62. A B | 87. A B C D |
| 13. A B C D | 38. A B C D | 63. A B C D | 88. A B C D |
| 14. A B C D | 39. A B C D | 64. A B C D | 89. A B C D |
| 15. A B C D | 40. A B C D | 65. A B C D | 90. A B C D |
| 16. A B C D | 41. A B C D | 66. A B C D | 91. A B |
| 17. A B C D | 42. A B C D | 67. A B C D | 92. A B C D |
| 18. A B C D | 43. A B C D | 68. A B C D | 93. A B C D |
| 19. A B C D | 44. A B C D | 69. A B C D | 94. A B C D |
| 20. A B C D | 45. A B C D | 70. A B C D | 95. A B C D |
| 21. A B C D | 46. A B C D | 71. A B C D | 96. A B C D |
| 22. A B C D | 47. A B C D | 72. A B C D | 97. A B |
| 23. A B C D | 48. A B C D | 73. A B C D | 98. A B C D |
| 24. A B C D | 49. A B C D | 74. A B C D | 99. A B C D |
| 25. A B C D | 50. A B C D | 75. A B C D | 100. A B C D |

answer sheet

Practice Test 2

100 QUESTIONS • 2 HOURS 30 MINUTES

Directions: Each question has a maximum of four possible answers. Choose the letter that best answers the question and mark your answer on the answer sheet.

1. Upon your arrival at any emergency scene, your number one priority is
 - (A) scene survey.
 - (B) crew safety.
 - (C) patient assessment.
 - (D) need for resources.
2. The responsibility for all patient care delivered by the EMT-Basic lies directly with which of the following?
 - (A) The EMT-Basic alone
 - (B) An Advanced Life Support provider
 - (C) The medical director
 - (D) The ambulance service
3. All of the following are appropriate statements by the EMT-Basic to a family who has lost a loved one EXCEPT
 - (A) an offer to contact other family members.
 - (B) advising the family that the patient has died.
 - (C) stating, "I know how you feel."
 - (D) offering to contact a priest, rabbi, or other religious person to assist them in their grief.
4. Which of the following is NOT an acceptable way to reduce stress?
 - (A) Eat properly.
 - (B) Practice relaxation techniques.
 - (C) Drink alcohol to help you sleep after a bad call.
 - (D) Discuss bad calls with your partner or a loved one.

practice test 2

5. Which of the following is the best example of expressed consent?
- (A) An unconscious patient who is treated by an EMS crew with the assumption that if he or she were conscious, he or she would agree to treatment
 - (B) A conscious patient who, after receiving an explanation of treatment, agrees to treatment and transport
 - (C) A child who is treated at school in the absence of the parents
 - (D) A psychiatric patient who is restrained by police and transported to the hospital
6. You are on the scene of a stabbing in which the patient is stable. On the radio, the dispatcher is looking for a crew for a forthwith response to a pedestrian struck. You leave your patient with a first responder fire company and take the new call. You may be found guilty of
- (A) negligence.
 - (B) assault.
 - (C) battery.
 - (D) abandonment.
7. While operating at a crime scene, which of the following is NOT an appropriate action?
- (A) Touching only what you need to provide patient care
 - (B) Keeping a mental note of items or people at the scene that may assist the police later on in an investigation
 - (C) Touching and moving items in the area, regardless of their necessity to patient care
 - (D) Bringing as little equipment as possible into the crime scene
8. "Gurgling" breath sounds usually indicate
- (A) narrowing of the bronchioles.
 - (B) upper airway obstruction.
 - (C) end expiratory noise.
 - (D) fluid in the airway.
9. "Wheezing" breath sounds indicate
- (A) narrowing of the bronchioles.
 - (B) upper airway obstruction.
 - (C) end expiratory noise.
 - (D) fluid in the airway.
10. Airway obstruction, fluid in the lungs, and lung collapse will cause all of the following EXCEPT
- (A) labored breathing.
 - (B) increased respiratory effort.
 - (C) change in breath sounds.
 - (D) decreased heart rate.
11. The difference between auscultation and palpation of a blood pressure is that auscultation will provide
- (A) only a systolic pressure.
 - (B) only a diastolic pressure.
 - (C) both a systolic and diastolic pressure.
 - (D) Blood pressure can only be palpated.
12. Which of the following is NOT a component of the SAMPLE history?
- (A) Symptoms
 - (B) Systolic blood pressure
 - (C) Allergies
 - (D) Medications
13. All of the following are examples of pertinent past history items EXCEPT
- (A) hypertension.
 - (B) heart disease.
 - (C) stroke.
 - (D) gallbladder surgery fifteen years ago.

14. Which of the following is NOT a symptom?
- (A) Chest pain
 - (B) Nausea
 - (C) Dilated pupils
 - (D) Headache
15. Lifting with your legs, proper foot position, and communication are all characteristics of
- (A) good body mechanics.
 - (B) emergency moves.
 - (C) power lifts.
 - (D) speed lifts.
16. An emergency move is performed on all of the following patients EXCEPT
- (A) an unconscious patient with a head injury after a car accident.
 - (B) a patient who is inside a car that is on fire.
 - (C) a patient who is exposed to a possible life hazard.
 - (D) a patient requiring airway management who is trapped under another patient.
17. You are assigned to a motor vehicle collision in which a patient is unconscious with an unsecured airway. Which of the following devices is most appropriate for patient extrication?
- (A) Cervical collar, KED, long board
 - (B) Cervical collar, KED, scoop stretcher
 - (C) Cervical collar, long board, rapid extrication
 - (D) Cervical collar, short board, long board, rapid extrication
18. When performing mouth-to-mask ventilations with supplemental oxygen, the oxygen should be delivered at _____ liters per minute.
- (A) 6
 - (B) 8
 - (C) 10
 - (D) 15
19. When ventilating using a bag-valve-mask ventilator, the EMT-Basic should deliver at least _____ milliliters of air with each ventilation.
- (A) 500
 - (B) 600
 - (C) 700
 - (D) 800
20. When attached to an oxygen supply, what percentage of oxygen will the bag-valve-mask with reservoir device deliver?
- (A) 50 percent
 - (B) 60 percent
 - (C) 90 percent
 - (D) 100 percent
21. Which of the following techniques should be used to open a patient's mouth prior to inserting an oropharyngeal airway?
- (A) Head tilt–chin lift technique
 - (B) Cross-fingered technique
 - (C) Jaw thrust technique
 - (D) Jaw pull technique
22. The indications for use of an oropharyngeal airway include all of the following EXCEPT when the patient
- (A) has a gag reflex.
 - (B) is unconscious.
 - (C) cannot support his or her own airway.
 - (D) needs to be ventilated via a bag-valve-mask.

23. The laryngoscope blade that is designed to fit into the vallecula and lift the epiglottis is known as which of the following?
- (A) Macintosh blade
 - (B) Miller blade
 - (C) Nantucket blade
 - (D) Straight blade
24. Endotracheal tubes used in the adult patient differ from those used in the pediatric patient. The adult endotracheal tube is
- (A) cuffed.
 - (B) uncuffed.
 - (C) thinner.
 - (D) more supple.
25. You have performed endotracheal intubation on a patient in respiratory arrest; you assess lung sounds and find that you have only lung sounds on the right side. What is this a common indication of?
- (A) This is normal, as the air will travel down only one lung.
 - (B) The endotracheal tube is inserted too deeply and in the right mainstem bronchus.
 - (C) The endotracheal tube is in the esophagus.
 - (D) The ventilations are being performed incorrectly.
26. After determining that the endotracheal tube has been inserted too deeply, the first course of action would be to
- (A) remove the endotracheal tube, ventilate, and attempt intubation again.
 - (B) attempt intubation around the endotracheal tube already in place.
 - (C) slowly back the tube out of the trachea while monitoring breath sounds until bilateral breath sounds are heard.
 - (D) contact advanced life support for additional assistance.
27. Your partner has inserted an endotracheal tube, and you are assessing breath sounds. While listening, you hear no breath sounds on either side, but you hear gurgling sounds in the epigastric area. This is a sign of
- (A) right mainstem intubation.
 - (B) esophageal intubation.
 - (C) collapsed lung from intubation.
 - (D) inadequate lung volumes.
28. Determination of the mechanism of injury, scene safety, resource needs, and patient counts are all done during which phase of patient care?
- (A) Initial assessment
 - (B) Scene size-up
 - (C) Detailed physical examination
 - (D) Communications
29. Which of the following is NOT one of the steps in initial assessment?
- (A) Assessment of mental status
 - (B) Past history assessment
 - (C) Airway assessment
 - (D) Breathing assessment

30. Of the following, choose the patient with the highest priority condition.
- (A) Large leg laceration with bleeding controlled by direct pressure
 - (B) Chest pain with no circulatory compromise
 - (C) Chest pain with decreased blood pressure
 - (D) A patient stung by a bee
31. On the AVPU scale, the U stands for
- (A) undetermined.
 - (B) unresponsive.
 - (C) under the influence of mind-altering substances.
 - (D) understands commands.
32. On your arrival at a patient's home, the patient states that she called the ambulance because he or she was having chest pain that did not go away after taking medication. This part of the patient interaction is known as
- (A) patient history.
 - (B) chief complaint.
 - (C) initial assessment.
 - (D) ongoing assessment.
33. You arrive at the scene of a pedestrian struck by a motorcycle. On your arrival, you find a 35-year-old male lying supine on the ground and unresponsive. Your findings also indicate that the patient has signs of internal bleeding and is breathing at eight breaths per minute. What is your classification of this patient?
- (A) Low priority
 - (B) High priority
 - (C) Airway priority
 - (D) Bleeding priority
34. In the trauma patient, the detailed physical examination should be performed
- (A) immediately upon arrival on the scene.
 - (B) before you perform any interventions.
 - (C) after the initial examination and critical interventions.
 - (D) always en route to the hospital.
35. The questions relating to onset, provoking factors, quality, radiation, and severity of pain all lead to information gathering for which part of the assessment process?
- (A) Chief complaint
 - (B) History of present illness
 - (C) Past medical history
 - (D) Chest pain history
36. A detailed physical examination on the trauma patient differs from that performed on a medical patient. Which of the following statements best describes why?
- (A) The trauma patient will always receive a detailed physical examination, while the medical patient will receive an examination based on body system involvement of his chief complaint.
 - (B) The medical patient will always receive a detailed physical examination, whereas a trauma patient may only receive a detailed physical examination based on obvious injury.
 - (C) The trauma and medical patients will both get a detailed physical examination.
 - (D) The detailed physical examination is done at the judgment of the EMT-Basic.

37. Which of the following is NOT a component of the ongoing assessment?
- (A) Initial assessment is repeated.
 - (B) Vital signs are reassessed.
 - (C) Primary interventions are begun.
 - (D) Focused assessment is repeated.
38. Which of the following pieces of information is NOT transmitted over the radio?
- (A) Age
 - (B) Mechanism of injury
 - (C) Name and address
 - (D) Treatments and response
39. A good rule to follow when communicating with a small child is to
- (A) always remain standing when addressing the child so that they identify you as an adult.
 - (B) bring yourself down to the level of the child by sitting or kneeling; this will reduce fear.
 - (C) talk to the parents or caretakers, not with the child.
 - (D) always communicate with a small child away from the parents, so the child does not get distracted by them.
40. Which of the following comments is NOT considered appropriate for the patient care report?
- (A) The patient was drunk and belligerent on our arrival.
 - (B) The patient was found lying supine.
 - (C) The patient stated that chest pain started 30 minutes prior to our arrival.
 - (D) The patient states that he or she always takes the proper medication.
41. Which of the following medications are NOT carried on an ambulance staffed by the EMT-Basic?
- (A) Syrup of ipecac
 - (B) Epinephrine
 - (C) Oxygen
 - (D) Activated charcoal
42. Of the following prescribed medications, which one is the EMT-Basic NOT trained to assist in its delivery?
- (A) Nitroglycerin
 - (B) Epinephrine
 - (C) Insulin
 - (D) Prescribed inhaler
43. An action of a drug other than the desired action is known as a(n)
- (A) indication.
 - (B) contraindication.
 - (C) side effect.
 - (D) allergic reaction.
44. Which of the following is NOT a sign of respiratory distress?
- (A) Noisy breathing
 - (B) Cyanotic skin color
 - (C) Decreased pulse rate
 - (D) Accessory muscle use
45. An acute, episodic disease that causes bronchoconstriction affects patients of all ages and causes severe respiratory distress is known as
- (A) bronchitis.
 - (B) asthma.
 - (C) emphysema.
 - (D) pneumonia.
46. The patient who suffers from a chronic disease that causes mucous plugging and increased work of breathing is diagnosed as having
- (A) bronchitis.
 - (B) emphysema.
 - (C) asthma.
 - (D) pneumonia.

47. You respond to the scene of a 65-year-old man complaining of chest pain. When asked during the assessment, the patient states that he has chest pain in the middle of his chest, which radiates through his jaw and down his left arm. He has taken his medication, and it has not helped. He states that this has been going on for about 45 minutes now. You suspect
- (A) respiratory distress secondary to asthma.
 - (B) angina.
 - (C) myocardial infarction.
 - (D) cardiogenic shock.
48. Your patient is a responsive 66-year-old male having a myocardial infarction. Which of the following treatments or interventions is NOT indicated for this patient?
- (A) Assisted administration of nitroglycerin
 - (B) Oxygen administration
 - (C) Application of the AED
 - (D) Transport in a position of comfort
49. In treating a cardiac arrest patient with the AED, as long as the AED states a shock is indicated, how many initial shocks are delivered?
- (A) 1
 - (B) 2
 - (C) 3
 - (D) 4
50. You are treating a cardiac arrest patient. After delivering your initial shocks, the AED states that no shock is indicated; however, the patient is still pulseless. You should
- (A) turn the AED off and back on, then reassess the patient.
 - (B) continue CPR and consider beginning transport.
 - (C) request advanced life support assistance.
 - (D) request another AED to the scene because yours has malfunctioned.
51. You are treating a 6-year-old patient in cardiac arrest from an unknown cause. All of the following treatments should be initiated EXCEPT
- (A) airway management with bag-valve-mask ventilation.
 - (B) cardiopulmonary resuscitation with a 5:1 ratio.
 - (C) rapid transport to the hospital.
 - (D) application of the AED.
52. You are called to the scene of an unconscious patient. On your arrival, you find a 29-year-old male lying on the bathroom floor unconscious. The patient has a strong pulse and is breathing on his own. The family states that he was fine a few minutes ago and then became sweaty and collapsed. You find a medication vial labeled insulin in the bathroom. You suspect
- (A) myocardial infarction.
 - (B) a diabetic emergency, low blood sugar.
 - (C) a diabetic emergency, high blood sugar.
 - (D) stroke.

53. The patient in question 52 starts to become responsive; treatment of this patient would include all of the following EXCEPT
- (A) high-concentration oxygen.
 - (B) administration of glucose paste.
 - (C) request for advanced life support assistance.
 - (D) assisted medication with the patient's insulin.
54. You are assigned to a schoolyard to assist a teacher who was stung by a bee. On your arrival, the patient is complaining of respiratory distress and itching. You notice hives on the patient's arms, and the patient looks slightly cyanotic. The diagnosis of this patient's condition would be
- (A) asthma attack.
 - (B) anxiety from a bee sting.
 - (C) allergic reaction.
 - (D) myocardial infarction.
55. The patient in question 54 states that she has an epi-pen that she keeps on her person in case of allergic reactions. Because she is responsive, you should
- (A) administer the epi-pen immediately.
 - (B) contact medical control for permission to administer the medication.
 - (C) not administer the medication, as the patient is not in shock.
 - (D) transport the patient and have an advanced life support intercept for additional treatment.
56. A 6-year-old child drinks a bottle of window washer fluid from the cabinet. This is an example of poisoning by
- (A) injection.
 - (B) ingestion.
 - (C) inhalation.
 - (D) absorption.
57. An odorless, colorless, and tasteless gas that can be deadly to patients is known as
- (A) carbon dioxide.
 - (B) carbon monoxide.
 - (C) propane.
 - (D) methane.
58. You are called to a house in the middle of the winter. On your arrival, you notice that it is very cold in the house, and the windows are open. The patient is a 72-year-old man who has an altered mental status, dilated pupils, and muscular rigidity. This patient is suffering from
- (A) mild hypothermia.
 - (B) moderate hypothermia.
 - (C) severe hypothermia.
 - (D) stroke.
59. Your patient has been working in a warehouse during a heat wave. He is complaining of severe cramps in his arms and legs. His skin is cool and extremely moist. This condition is known as heat
- (A) cramps.
 - (B) exhaustion.
 - (C) stroke.
 - (D) seizure.
60. You are assisting a drowning patient on a lake in about 5 feet of water. You are extricating the patient from the water. When would it be most appropriate to establish an airway?
- (A) Immediately, even in the water
 - (B) Once aboard the rescue boat
 - (C) As soon as the patient has been transferred to your stretcher
 - (D) En route to the hospital

- 61.** While attempting to resuscitate a near-drowning patient, you feel a resistance to ventilation efforts. You should
- (A) suction the airway in case water has entered the airway.
 - (B) gently press on the abdomen to help expel swallowed water.
 - (C) contact advanced life support for gastric tube placement.
 - (D) transport while providing forced ventilations.
- 62.** Drug and alcohol abuse, as well as deficiencies in blood sugar, may cause a patient to act inappropriately, giving the impression of a behavioral emergency.
- (A) True
 - (B) False
- 63.** You are at the home of a 54-year-old male who is sitting in the corner of the room, withdrawn. The family states that he has been that way since the death of his wife several weeks ago. Recently, the patient has not been able to sleep, has expressed feelings of guilt and hopelessness, and has verbalized the ideation of suicide. The most probable diagnosis for this condition would be
- (A) a situational reaction.
 - (B) depression.
 - (C) a suicide attempt.
 - (D) a medically caused behavioral problem.
- 64.** Your patient is presenting with tense muscles, a loud angry voice, and is expressing threats of violence. You should
- (A) approach the patient and try to speak with him calmly.
 - (B) try and speak to the patient from a safe distance and convince him to come with you to the hospital.
 - (C) request police assistance and do not attempt to diffuse the situation until assistance arrives.
 - (D) request advanced life support for assistance.
- 65.** You are treating a pregnant patient for dizziness; she claims that she is near term and has had painless bright red vaginal bleeding since the morning. This is a common complaint for the condition known as
- (A) placenta previa.
 - (B) abruptio placenta.
 - (C) pre-eclampsia.
 - (D) eclampsia.
- 66.** You are assisting an emergency delivery of a baby and notice that there is a greenish-colored fluid discharging vaginally after the bag of waters breaks. Based on the color of the fluid, it is likely to be
- (A) normal-colored amniotic fluid.
 - (B) meconium-stained fluid.
 - (C) placental discharge due to infection.
 - (D) Any of the above

67. What would be the highest priority during the delivery of the newborn in question 66?
- (A) Full delivery, suction, oxygenation
 - (B) Suction as soon as the head delivers and before the first breath
 - (C) Drying and warming, then suction
 - (D) Clamp and cut the cord, suction and oxygen
68. After childbirth, at what time intervals is APGAR scoring performed?
- (A) 5 then 10 minutes
 - (B) 4 then 8 minutes
 - (C) 2 then 4 minutes
 - (D) 1 then 5 minutes
69. Your patient is a 22-year-old male who fell from a roof. He has a large open laceration to the upper left leg with deformity and pulsating, bright red blood coming from the wound. This type of injury is classified as a(n)
- (A) suspected femur fracture with arterial bleeding.
 - (B) laceration with venous bleeding.
 - (C) suspected femur fracture with venous bleeding.
 - (D) avulsion with arterial bleeding.
70. You are assigned to a local park for injuries after a fight. A young woman was struck in the abdomen with a baseball bat. She is lying on the ground and holding her abdominal section. Inspection reveals a large area of bruising on the right upper quadrant. This type of bruising is indicative of which type of injury?
- (A) Rib fracture
 - (B) Internal injury with bleeding
 - (C) Evisceration
 - (D) Pelvic fracture
71. All of the following are signs of shock EXCEPT
- (A) restlessness.
 - (B) increased heart rate.
 - (C) hypertension.
 - (D) cool, clammy skin.
72. Treatment of the patient in shock includes all of the following EXCEPT
- (A) high-concentration oxygen.
 - (B) transport in the shock position.
 - (C) administration of fluids by mouth.
 - (D) keeping the patient warm.
73. Which of the following is NOT an open soft-tissue injury?
- (A) Abrasion
 - (B) Laceration
 - (C) Avulsion
 - (D) Contusion
74. Your patient was stabbed in a knife fight. On inspection of the abdomen, you see an area of bowel protruding from the wound. This type of injury is known as
- (A) puncture wound.
 - (B) laceration.
 - (C) evisceration.
 - (D) contusion.
75. The definition of a full thickness burn is
- (A) reddening of the affected area.
 - (B) reddening and blistering of the affected area.
 - (C) charring of the affected area.
 - (D) loss of limb secondary to a burn.
76. An open chest wound should be treated with
- (A) dry sterile dressings.
 - (B) an occlusive dressing.
 - (C) sterile tape to seal the hole.
 - (D) a gloved finger.

77. You respond to a factory for a man who has fallen. On your arrival, you find a 36-year-old male who fell on some pipes. A pipe is impaled in his abdomen and is sticking out about six inches; the correct treatment of this injury would be to
- (A) bandage the area, administer oxygen, and remove the object immediately.
 - (B) request advanced life support assistance to remove the pipe.
 - (C) secure the impaled object with bulky dressings, treat for shock, and transport.
 - (D) immobilize the patient and request a field surgeon, as the patient cannot be moved until the object is removed.
78. You are treating an electrical lineman who was shocked with a high-voltage line. The patient has entrance and exit wounds from the electrical current from the left arm through the right arm and is in cardiac arrest. After performing your initial assessment, your priority in the treatment of this patient would be
- (A) rapid transport to a trauma center.
 - (B) application of the AED to analyze the cardiac rhythm.
 - (C) ventilation with a bag-valve-mask and CPR.
 - (D) All of the above
79. A painful, deformed extremity with an area of contusion is a sign of a closed injury.
- (A) True
 - (B) False
80. When splinting an extremity, which of the following is the proper way to secure a splint?
- (A) The splint should be secured above and below the injury site.
 - (B) The splint should be secured at the joint above and below the injury.
 - (C) A traction splint may be used for lower extremity injuries.
 - (D) A traction splint may be used for pelvic fractures.
81. A sprain is defined as the
- (A) stretching or tearing of ligaments.
 - (B) stretching or tearing of muscle.
 - (C) overexertion of muscle.
 - (D) overexertion of tendons.
82. The trauma patient exhibiting battle signs, clear fluid leaking from the ears, and alteration of mental status is most likely suffering from which of the following injuries?
- (A) Skull fracture with associated brain injury
 - (B) Facial fractures
 - (C) Spinal injury
 - (D) Scalp injury
83. In the spinal column, there are _____ cervical vertebrae.
- (A) seven
 - (B) twelve
 - (C) five
 - (D) four
84. Paralysis of the extremities is one of the most reliable signs of
- (A) brain injury.
 - (B) spinal injuries.
 - (C) nervous system dysfunction.
 - (D) bleeding in the brain.

- 85.** The device most commonly used to immobilize the spine of a seated patient is a
- (A) Kendrick extrication device.
 - (B) long spine board.
 - (C) scoop stretcher.
 - (D) Reeves stretcher.
- 86.** When doing a rapid takedown of the standing patient, where should the tallest rescuer be positioned?
- (A) On the side of the patient
 - (B) In front of the patient
 - (C) To the rear of the patient
 - (D) Any of the above
- 87.** Your patient has been involved in a motor vehicle accident; the patient is still in the car and is unconscious with a large amount of blood coming from his or her mouth. The extrication method of choice on this patient would be
- (A) a cervical collar, KED, and long board.
 - (B) a cervical collar, short board, and long board.
 - (C) a cervical collar and long board only.
 - (D) the physical removal of the patient and transfer to a long board after extrication.
- 88.** A child in a car seat has been involved in a motor vehicle collision. Which of the following methods is most appropriate for extrication and immobilization of this child?
- (A) KED
 - (B) Short board with arm board to protect the spine
 - (C) Extrication to a long board by turning the seat on its back
 - (D) Immobilization in the seat itself by applying a collar and padding around the child
- 89.** Any patient who has impacted the windshield of the car should be suspected of having
- (A) facial trauma.
 - (B) spinal trauma.
 - (C) brain injury.
 - (D) All of the above
- 90.** Due to the fact that the pediatric bones are softer, blunt trauma to the rib cage will cause which of the following?
- (A) Less injury because the soft ribs will absorb the impact
 - (B) Severe injury to the heart and lungs, as the ribs will not protect them
 - (C) Easily broken ribs with no underlying damage
 - (D) Any of the above
- 91.** A pediatric patient with an isolated head injury may show signs of hypovolemic shock.
- (A) True
 - (B) False
- 92.** Your pediatric patient is an infant who has an obstructed airway. According to AHA standards, what is the proper procedure for attempting to clear the airway?
- (A) Abdominal thrusts, blind finger sweeps
 - (B) Back blows, chest thrusts, blind finger sweeps
 - (C) Back blows, chest thrusts, finger sweeps at visible objects
 - (D) Any variation of the procedures above is acceptable.

- 93.** All of the following are steps in management of pediatric shock EXCEPT
- (A) administering high-concentration oxygen.
 - (B) elevating the legs.
 - (C) maintaining body temperature.
 - (D) remaining on the scene for advanced life support personnel to establish intravenous lines for fluid resuscitation.
- 94.** Driving on icy roads, excessive speeds, and disregard for traffic control devices are all aspects of
- (A) EMS response.
 - (B) response-time factors.
 - (C) unsafe driving conditions.
 - (D) safe response practices.
- 95.** Your patient is not officially transferred to the emergency department staff until
- (A) the paperwork is signed.
 - (B) the emergency department staff has received a full report on the patient's condition.
 - (C) the patient has been placed in an emergency department bed, regardless of report being given.
 - (D) you wheel the patient into the hospital.
- 96.** Which of the following equipment is cleaned by sterilization?
- (A) Ambulance stretchers
 - (B) Laryngoscope blades
 - (C) Extrication equipment
 - (D) Suction units
- 97.** The patient who is pinned under a pile of rubble from a building collapse is considered to be a complex access patient.
- (A) True
 - (B) False
- 98.** In a motor vehicle collision, when the EMT-Basic can gain access to a patient without tools, it is considered
- (A) simple access.
 - (B) complex access.
 - (C) extrication.
 - (D) disentanglement.
- 99.** During a hazardous materials incident, the EMT-Basic who has no hazardous materials specialty training should be stationed
- (A) in the hot zone.
 - (B) in the warm zone.
 - (C) in the cold zone.
 - (D) wherever the commander stations him or her.
- 100.** Command and control, the establishment of sectors and resources, and communications at large-scale incidents is known as
- (A) preplanning.
 - (B) size-up.
 - (C) incident command system.
 - (D) mass-casualty incidents.

ANSWER KEY AND EXPLANATIONS

1. B	21. B	41. B	61. B	81. A
2. C	22. A	42. C	62. A	82. A
3. C	23. A	43. C	63. B	83. A
4. C	24. A	44. C	64. C	84. B
5. B	25. B	45. B	65. A	85. A
6. D	26. C	46. A	66. B	86. C
7. C	27. B	47. C	67. B	87. C
8. D	28. B	48. C	68. D	88. D
9. A	29. B	49. C	69. A	89. D
10. D	30. C	50. B	70. B	90. B
11. C	31. B	51. D	71. C	91. A
12. B	32. B	52. B	72. C	92. C
13. D	33. B	53. D	73. D	93. D
14. C	34. C	54. C	74. C	94. C
15. A	35. B	55. B	75. C	95. B
16. A	36. A	56. B	76. B	96. B
17. C	37. C	57. B	77. C	97. A
18. D	38. C	58. B	78. D	98. A
19. D	39. B	59. A	79. A	99. C
20. D	40. A	60. A	80. B	100. C

- The correct answer is (B).** Safety of the crew is the primary concern at any emergency call. The scene survey will determine if the scene is safe or not. The EMT-Basic should complete a comprehensive scene survey on arrival to determine whether or not it is safe to begin operations.
- The correct answer is (C).** The system medical director holds the responsibility for all patient care activity. The EMT-Basic works under the license of the medical director, even when administering care under standing orders.
- The correct answer is (C).** Although it seems like an appropriate statement, telling a person that you know how he or she feels after the loss of a family member may be taken the wrong way. It may appear that you are trying to downplay a family's grief and tell them that they are not the only ones to

whom this happens. While in effect this is a true statement, at the time of severe grief, people may not want to accept that as a fact. The job of the EMT-Basic is to assist the family in their needs and to make sure that everybody else on the scene is stable and safe.

- The correct answer is (C).** The use of alcohol and drugs is the worst thing that the EMT-Basic can do to relieve stress. Proper eating, relaxing, and discussion with partners and loved ones are all good ways to reduce stress. Alcohol and drugs only serve to increase stress levels on the body and reduce healthy recovery from a stressful event.
- The correct answer is (B).** Expressed consent is defined as consent given by a conscious and alert patient who is of sound mind. This consent is given after the EMT-Basic explains his or her findings and treatment plan, including the

hospital that will receive the patient. Choices (A) and (C) define implied consent, and the patient in choice (D) is transported after a decision by the police department that he poses a risk to himself or others.

- 6. The correct answer is (D).** Whenever patient contact is made, regardless of whether or not the patient is stable, the EMT-Basic must stay with the patient until one of the following happens:

1. The patient is transported to the hospital and received properly by the hospital.
2. The EMT-Basic hands over care to a provider of equal or higher certification.
3. The patient refuses medical care, and the refusal process is completed legally.

There are no other options in this matter. If the EMT-Basic leaves the patient with a first-response crew, neither the means of transport nor the means to help the patient are available should his or her condition worsen.

- 7. The correct answer is (C).** When operating at a crime scene, patient care is the highest priority. The EMT-Basic should do whatever is possible to assist the patient; however, at the same time, an EMT-Basic should assist in the preservation of evidence that may be at the scene. EMT-Basics should move only what is necessary, and bring only necessary equipment. If certain equipment is not needed, they should leave it outside the scene.
- 8. The correct answer is (D).** Gurgling sounds during respiration indicate the presence of fluid in the airway. This may be a sign of pulmonary edema and may be an ominous sign. Narrowing of the bronchioles causes wheezing, while upper airway obstruction causes stridor.
- 9. The correct answer is (A).** Wheezing indicates the narrowing of the

bronchioles. In most cases, wheezes are indicative of asthma exacerbations. The patient who is wheezing should be treated with high-concentration oxygen and treated with asthma medications as necessary.

- 10. The correct answer is (D).** Airway problems and problems of respiration and ventilation will all cause changes to respiratory rate and quality, such as labored breathing, increase in respiratory effort, changes in breath sounds from wheezes, and gurgling and stridor to silent chest from lung collapse. The heart rate will increase, not decrease, in response to the decrease in oxygen in the body.

- 11. The correct answer is (C).** Auscultation of a blood pressure with a stethoscope is the only way to obtain a complete blood pressure reading in the field. Palpation is done in severe emergencies where a baseline systolic blood pressure is needed and there is no time to auscultate a blood pressure.

- 12. The correct answer is (B).** Systolic blood pressure is not a component of the SAMPLE history. SAMPLE stands for signs/symptoms, allergies, medications, past history, last meal eaten, and events leading to illness or injury. Blood pressure is obtained under the vital signs part of the assessment.

- 13. The correct answer is (D).** There are many items that fall into the category of pertinent past medical history: hypertension, heart disease, diabetes, seizures, and stroke, to name a few. Gallbladder surgery that was performed many years ago is not pertinent to an emergency patient. It would be pertinent to a patient history if it were very recent and the patient was bleeding, having difficult breathing, etc. The EMT-Basic may document the old surgery; however, it is not pertinent to a diagnosis in an emergency.

- 14. The correct answer is (C).** A symptom is defined as something a patient complains of but cannot be seen by the EMT-Basic. A sign is a

physical finding that the EMT-Basic will document during an assessment. For example, pupil size, cool moist skin, wheezes, and hives are all signs.

15. **The correct answer is (A).** Good body mechanics are essential to the health and safety of the EMT-Basic as well as the patient. The EMT-Basic should size up a lift to ascertain whether or not he or she may need assistance or any special lifting process or equipment may be needed. Good communication between partners as well as proper foot placement and lifting with the legs will prevent injury to all parties involved.
16. **The correct answer is (A).** A patient with a head injury, regardless of mental status, should not be removed from a vehicle unless he or she is still in danger of additional injury. Emergency moves are reserved for situations when the patient is in danger of additional injury from an unsafe area.
17. **The correct answer is (C).** Patients with unmanageable airways are considered unstable and must be rapidly extricated from a vehicle. The use of a cervical collar and a long board is acceptable for rapid extrication. Stable patients should be removed using a properly applied extrication device, such as a KED or a short board. The scoop stretcher should never be used as a spinal immobilization device.
18. **The correct answer is (D).** Mouth-to-mask ventilation requires a liter flow of 15 liters a minute. The EMT-Basic should use a pocket mask with a one-way valve and an oxygen inlet to provide the proper amount of oxygen and provide a safe means of ventilating that avoids contact with blood or other body fluids. A one-way valve will protect the EMT-Basic from bodily fluids.
19. **The correct answer is (D).** Using the bag-valve-mask ventilator, at least 800 milliliters of air must be delivered

to a patient to ensure adequate ventilations. Most modern bag-valve-mask devices deliver more than 1,000 milliliters of air when properly used. It is essential that the EMT-Basic becomes proficient in the use of the bag-valve-mask device.

20. **The correct answer is (D).** The bag-valve-mask with reservoir can deliver oxygen percentages up to 100 percent when attached to an oxygen supply. Percentages this high are essential when ventilating a patient with a bag-valve-mask device. Most patients who are being ventilated artificially are hypoxic from the inability to support their own ventilations. The bag-valve-mask device will deliver much-needed oxygen and ventilatory volumes to a hypoxic patient.
21. **The correct answer is (B).** Insertion of an oropharyngeal airway requires that the EMT-Basic open the mouth using a cross-fingered technique. This is a safe technique that allows the EMT-Basic to keep his or her fingers out of the patient's mouth—therefore, out of danger. Any technique to open the mouth that involves placing fingers in the mouth is not to be used.
22. **The correct answer is (A).** Oropharyngeal airways are contraindicated in patients with an intact gag reflex. Because of the angle of insertion and where the oropharyngeal airway sits in the airway, it will elicit a gag reflex in all patients who still have an intact gag reflex. It is indicated in deeply unconscious patients who have an absent gag reflex, cannot support their own airway or ventilations, and who are going to need ventilatory support via bag-valve-mask.
23. **The correct answer is (A).** The Macintosh blade is inserted into the vallecula, a structure that is defined as the area where the base of the tongue meets the epiglottis. The blade is inserted and upward pressure is

exerted, lifting the epiglottis and allowing visualization of the vocal cords.

24. **The correct answer is (A).** Adult endotracheal tubes have inflatable cuffs to form a seal in the trachea. This seal prevents air leakage and allows for forceful ventilations directly into the trachea. Pediatric endotracheal tubes are uncuffed. The cricoid ring of the pediatric airway is the narrowest part of the airway, and when the proper tube size is used, it forms a natural seal.
25. **The correct answer is (B).** When an endotracheal tube is inserted too deeply into the right mainstem, the EMT-Basic will hear only breath sound in the right lung. This is due to the fact that the right mainstem has less of an acute angle and that the endotracheal tube will naturally follow the lesser of the angles.
26. **The correct answer is (C).** A right mainstem intubation is corrected by slowly backing the tube out of the trachea while monitoring breath sounds. When bilateral breath sounds are auscultated, the EMT-Basic can secure the endotracheal tube and continue ventilations.
27. **The correct answer is (B).** Absence of breath sounds after intubation indicates that the endotracheal tube was improperly inserted and is in the esophagus. The tell-tale signs of esophageal intubation are absence of breath sounds and chest rise as well as noises from the epigastrium.
28. **The correct answer is (B).** On arrival at the scene of any emergency, the EMT-Basic should do a complete assessment of the scene; this is called the scene size-up. Scene size-up includes determination of the mechanism of injury, patient count, and determining whether or not additional resources are needed. The most important part of the scene size-up is that the EMT-Basic will make a determination of scene safety that will

allow the EMT-Basic to proceed to the next steps of patient care.

29. **The correct answer is (B).** The initial assessment consists of six steps in the evaluation of a patient's status. These steps include general impression, mental status, airway, breathing, circulatory status, and prioritizing the patient's illness or injury. Patient history is not a part of the initial assessment and is gathered later on in the call.
30. **The correct answer is (C).** The patient with chest pain and decreased blood pressure is a high-priority patient and needs immediate care and transportation. This patient may be in shock and will need medication therapy in the emergency department.
31. **The correct answer is (B).** The AVPU scale is a scale designed to determine the patient's mental status. The scale is defined as follows: A=Alert, V=Voice responsive, P=Pain responsive, and U=Unresponsive.
32. **The correct answer is (B).** The chief complaint is the reason that the patient has called the ambulance. The chief complaint should be described in the patient's own words. This statement can usually be elicited right after the EMT-Basic asks, "Why was the ambulance called today?" This should be documented exactly as stated, in the patient's own words.
33. **The correct answer is (B).** This patient, based on mental status, breathing assessment, and circulatory status, is critical and should be classified as a high-priority patient. High-priority patients should be transported immediately to the receiving hospital that is trained to care for them—in this case, a trauma center.
34. **The correct answer is (C).** The detailed physical examination should be performed on all trauma patients after the initial assessment as critical interventions are completed. This

examination, which will solidify findings on the initial assessment as well as uncover previously hidden injuries, should be done en route to the hospital when a patient is high priority; however, it may be done on the scene on low-priority patients or in the case of delayed transport.

35. **The correct answer is (B).** The history of present illness will help the EMT-Basic assess different aspects of the onset of the present complaint—namely the onset of the event, factors that provoke the pain or discomfort, quality, radiation and pain severity, and the duration of the onset. All of these factors add up to a presumptive diagnosis of the history of present illness.
36. **The correct answer is (A).** Trauma patients always receive a detailed physical examination due to the fact that there may be a hidden injury that was not uncovered in the initial assessment. Medical patients are given “vectored” examinations that focus in on areas that may be causing the patient’s illness.
37. **The correct answer is (C).** The ongoing assessment is designed as a tool to reassess the patient’s complaints, vital signs, and any physical examinations and results of any interventions. Primary interventions are not performed here; instead, they should be performed after the initial assessments and history. Although additional assessments may be initiated after the ongoing assessment, it is designed as a reevaluation tool to confirm that all interventions are keeping the patient stable.
38. **The correct answer is (C).** The patient’s personal information should never be given over the radio frequencies. This is confidential information and has no bearing on the treatment that will be given at the receiving hospital.
39. **The correct answer is (B).** It is always helpful to communicate with a

child face to face. Children will fear a large adult who is going to touch them, especially a stranger. The best results may be obtained by getting down to the child’s level, playing for a few minutes (if the child is stable), and then beginning your assessment.

40. **The correct answer is (A).** Documentation of intoxication as well as demeanor is not appropriate on the call report. Many patients with medical conditions appear intoxicated. Some patients are even abusive to the crew due to their illness. Documenting that a patient is drunk is not an objective finding and is not recommended.
41. **The correct answer is (B).** Although the EMT-Basic is trained to assist the patient in taking epinephrine in the case of an allergic reaction, this must be the patient’s medication. Epinephrine is not carried on the EMT-Basic ambulance.
42. **The correct answer is (C).** The EMT-Basic is not trained to administer insulin to any patient. Regardless of the fact that the patient has a prescription for insulin, the EMT-Basic is not trained in its use and the dangers associated with its administration.
43. **The correct answer is (C).** Side effects are reactions and other responses to a medication that may cause signs and symptoms in a patient. Some side effects are expected, and others are not. It is important to know that the side effect is not the desired action of a medication and is not a determinant factor that it is working.
44. **The correct answer is (C).** All patients who are suffering from difficulty breathing will show signs and symptoms of their distress. Some of the signs are accessory muscle use, cyanotic skin color, tripod positioning, and intercostal retractions. Symptoms include shortness of breath and anxiety. Decreased pulse rate in respiratory distress is not a normal finding,

as the pulse rate increases with hypoxia. In the pediatric patient, however, decreased pulse rate secondary to respiratory distress is an ominous sign. Be alert for changes in the pediatric patient's status while he or she is having breathing difficulties.

45. **The correct answer is (B).** Asthma is a disease that exacerbates in acute onsets of attacks. These attacks cause the bronchioles to constrict, trapping air in the lungs and forcing the patient to work to exhale. Typical signs of an asthma attack are tripod positioning and audible wheezing. This disease is usually reversible by assisting the patient in taking his or her inhaler medication and oxygen administration.
46. **The correct answer is (A).** Chronic bronchitis is caused by long-term lung damage from smoking or other irritational exposures. These exposures enlarge mucous glands, and they over-secrete mucus, causing plugs. This increases the patient's work of breathing and causes respiratory distress. As this is a chronic condition, the treatment lies in oxygenation and transportation to a medical facility for definitive care.
47. **The correct answer is (C).** This patient is suffering from classic signs and symptoms of myocardial infarction. The diagnosis of angina may also be considered; however, nitroglycerin and rest usually relieve angina. This patient's pain has been persistent for 45 minutes. The treatment of choice would be high-concentration oxygen and assisted medication delivery of additional nitroglycerin, provided that the patient's blood pressure remains stable.
48. **The correct answer is (C).** The AED (automatic external defibrillator) is not indicated in responsive patients under any conditions. The application of the AED is reserved for the unconscious patient who is pulseless. There are cardiac rhythms that may present

with and without pulses that would indicate that a shock is required. For that reason, the AED is never applied to a responsive patient.

49. **The correct answer is (C).** The American Heart Association recommends that the initial electrical therapy for "shocks indicated" cardiac arrests is three successive shocks. The EMT-Basic should deliver three shocks in rapid succession, provided that the AED confirms that a shock is indicated.
50. **The correct answer is (B).** In some cases of cardiac arrest, the heart will not be in a rhythm that is correctable by electrical current. It is in these cases that the shock is not indicated. The EMT-Basic should request ALS assistance immediately upon arrival to a cardiac arrest call. If no shock is indicated, he or she should continue CPR and begin transport.
51. **The correct answer is (D).** Children under 12 years of age and under 90 pounds are not candidates for electrical countershocks in the field. In most cases, the arrest is caused by another medical problem, and the cardiac rhythm will not be a "shockable" rhythm. It is best to continue basic life support and transport rapidly to a receiving hospital.
52. **The correct answer is (B).** This patient has the textbook signs of a hypoglycemic event. A rapid onset of unconsciousness in a known diabetic is almost always associated with a drop in blood sugar. In the field, all unconscious diabetics should be treated as if they are hypoglycemic, regardless of the rate of onset. Patients with high blood sugar usually have a delayed onset from hours to days before they become unconscious. A rapid onset is indicative of low blood sugar.
53. **The correct answer is (D).** The EMT-Basic should never assist a patient in administration of his or her own insulin. Treatment of this patient

is oxygen, glucose, and transport. It is always advisable to request advanced life support when a patient is unresponsive. This patient luckily started becoming responsive, so oral glucose was indicated. If the patient remained unconscious, administration of oral glucose would not be indicated.

- 54. The correct answer is (C).** This patient is having an allergic reaction to a bee sting. Bee stings are one of the most common causes of allergic reactions. The patient will develop respiratory distress, hives, itching, alteration of mental status, unconsciousness, and cardiovascular collapse and death. Rapid intervention and assisted medication administration will greatly assist the patient's chances of survival.
- 55. The correct answer is (B).** When assisting in the administration of medications, the EMT-Basic should contact medical control for permission and guidance in the proper administration of assisted medication. Anaphylaxis is a true emergency, and seconds count. Not treating this patient can lead to irreversible shock and death.
- 56. The correct answer is (B).** Poisons may enter the body from four different paths: injection, ingestion, inhalation, and absorption (through skin). Taking the window washer fluid in by mouth is an example of poisoning by ingestion.
- 57. The correct answer is (B).** Carbon monoxide poisonings are extremely common, especially in the winter. One of the by-products of combustion is carbon monoxide gas. This colorless and odorless gas will attach to the hemoglobin faster and more efficiently than oxygen, causing death by hypoxia. Treatment of these patients includes removing the patient from the affected area and administering high-concentration oxygen.
- 58. The correct answer is (B).** This patient has the symptoms of moderate

hypothermia. In mild hypothermia, the patient is relatively alert and awake. The body begins shivering to produce heat. Moderate hypothermia sees the patient stop shivering and muscle rigidity set in, pupils dilate, and mental status drops. Severe hypothermia sets in, and the patient becomes unresponsive. In severe hypothermia, the patient may develop ventricular fibrillation and die.

- 59. The correct answer is (A).** Heat cramps are the first stage of the reaction to excessive environmental heat by the body. The patient will complain of muscular cramping and may even be rigid and unable to move his extremities. Left untreated, the patient will develop heat exhaustion and then progress to heat stroke.
- 60. The correct answer is (A).** Establishment of an airway is the highest priority in any emergency. The EMT-Basic should establish a patent airway as soon as it is possible to do so. This includes while still in the water.
- 61. The correct answer is (B).** When an EMT-Basic encounters resistance while treating the near-drowning patient, this is due to pressure in the stomach caused by swallowed water. The EMT-Basic should gently push down to expel the water through the patient's mouth. The EMT-Basic should have a suction unit ready to keep the airway clear at all times.
- 62. The correct answer is (A).** There are multiple medical and toxicological causes that may present themselves as a psychological emergency. Before the diagnosis of a behavioral emergency can be made, the EMT-Basic should try to rule out medical causes of the event.
- 63. The correct answer is (B).** This patient has some of the classic signs of depression with a suicidal ideation. The loss of a loved one can lead to severe depression and, sometimes, attempted suicide. The EMT-Basic

can never take a discussion about suicide lightly. These patients should never be allowed to refuse medical attention, and all must be transported for further evaluation.

- 64. The correct answer is (C).** Whenever the EMT-Basic is faced with a threat of violence, the concept of crew safety should be the first priority. In this situation, it is best to take a step back and request police assistance to restrain this patient prior to transport. Even if the patient calms down, there is no guarantee that he or she will not develop another violent episode during transport.
- 65. The correct answer is (A).** Placenta previa is a premature separation of the placenta prior to birth. It is characterized by bright red vaginal bleeding that causes no pain. Treatment of this emergency is oxygen and rapid transport to the emergency department.
- 66. The correct answer is (B).** Whenever the amniotic fluid has a greenish color, it is assumed that there is meconium staining and that the infant may be in danger of meconium aspiration. The EMT-Basic should prepare to suction the infant immediately after the delivery of the newborn's head.
- 67. The correct answer is (B).** The newborn with meconium-stained amniotic fluid must be suctioned prior to the full delivery. This means that as soon as the head delivers, the newborn should be suctioned thoroughly. The EMT-Basic should not begin to stimulate respirations until the newborn is suctioned thoroughly.
- 68. The correct answer is (D).** The APGAR score is a generalized report of the newborn's health after birth. It may advise the emergency department of the type of stress encountered during childbirth. It is essential that the APGAR score be performed in the field at the required time intervals.
- 69. The correct answer is (A).** This patient has a deformity as well as bright red pulsating bleeding. This is most likely a long bone fracture of the leg with arterial injury and bleeding. The EMT-Basic should be aware that this type of bleeding can be life threatening and attempts to control the bleeding should be made immediately after securing the airway and stabilizing breathing.
- 70. The correct answer is (B).** All of the potential answers to this question have a possibility of occurring secondary to a blow by a blunt instrument; however, the area of bruising is indicative of internal organ injury—in this case, the liver.
- 71. The correct answer is (C).** Hypertension is not a sign of shock. Internal and external bleeding causes blood pressure to decrease. Initially, the body compensates by constricting blood vessels, and then the blood vessels begin to dilate, causing hypotension and, eventually, irreversible shock. The EMT-Basic should be alert for signs of shock and treat accordingly to prevent end-stage organ failure (irreversible shock).
- 72. The correct answer is (C).** The EMT-Basic should never administer fluids by mouth to a patient in shock. A shock patient may complain of thirst; however, the blood is shunted away from the gastrointestinal system during shock to perfuse the vital organs. Administration of fluid by mouth may cause vomiting and airway management complications.
- 73. The correct answer is (D).** A contusion is an example of a closed soft-tissue injury and is characterized by an area of bruising. A laceration is a jagged- or smooth-edged injury. An abrasion is a scraping of the skin that oozes blood, and an avulsion is a flap of skin that is torn loose.
- 74. The correct answer is (C).** An evisceration is defined as any injury in which bowel protrudes from the

wound. Treatment of this type of injury is essential because the sterility of the bowel has been broken and severe infection can develop. The area should be covered with a moist sterile dressing and an occlusive dressing over that.

75. **The correct answer is (C).** A full thickness burn (third degree) involves the upper layers of skin as well as the sub-dermal layers. It is characterized by charring of the tissue and is usually painless, due to severe nerve damage. There may be areas of blistering and reddening around the full thickness burn, as most full thickness burns have partial thickness burns in the same vicinity.
76. **The correct answer is (B).** Any open chest wound, regardless of whether or not it is a sucking chest wound, should be covered with an occlusive dressing. This will seal the hole and prevent air movement in and out of the wound. Air movement in this area may develop into a tension pneumothorax and cause decreased cardiac output and hypoxia.
77. **The correct answer is (C).** Impaled objects are never to be removed in the field, unless they are impaled in the patient's cheek. An impaled object may be preventing bleeding, and its removal may cause massive bleeding. The treatment is to stabilize them with a bulky dressing and transport immediately to the emergency department.
78. **The correct answer is (D).** In this situation, there are a few priorities; ventilation and CPR are a high priority. In electrical injuries, electrical current stops the heart, and the application of the AED is indicated to analyze for a shockable rhythm. If shock is advised, the same treatment algorithm is utilized, as if the patient were a medical arrest.
79. **The correct answer is (A).** Closed musculoskeletal injuries are usually extremely painful, deformed, and

swollen; there may be an area of contusion and sensitivity to touch. Distal pulses should be checked before the splint is applied to assess for arterial involvement in the injury.

80. **The correct answer is (B).** When splinting, the splint is applied and secured to immobilize the joint above and below the injury site. This prevents movement of the injured bones and decreases the amount of pain involved in the movement of the injury site. After the application of the splint, distal pulses and neurological function should be assessed to assure that there is no impairment in blood flow or nerve impulse transmission.
81. **The correct answer is (A).** A sprain is the stretching or tearing of a ligament. Ligaments are tissues that connect bones to other bones. Any excessive stretch on a ligament can tear it or stretch it out of place, causing a painful and swollen injury. In the field, it may be difficult to differentiate between a ligament injury and a fracture, so splinting is the treatment of choice.
82. **The correct answer is (A).** Battle signs, clear fluid from the ears, and altered mental status are obvious signs of skull fracture and associated brain injury. This patient needs aggressive airway management, immobilization, and rapid transport to the nearest trauma center.
83. **The correct answer is (A).** The spinal column consists of seven cervical vertebrae. Injuries to the cervical spine can be severe and life threatening because much of the innervation to the respiratory system and the other vital organs is in the area of the first two vertebrae. A fracture in this area can cause death from respiratory failure.
84. **The correct answer is (B).** All of the nerves that innervate the body originate from the spinal cord. If the spinal cord is damaged, nerve function below the area of the injury is impaired or

lost. Usually, this damage is irreparable, and the patient suffers permanent injury. It is essential to identify possible areas of injury and immobilize the patient to prevent further injury.

- 85. The correct answer is (A).** The Kendrick extrication device is used to immobilize the patient with suspected spinal injuries. After the patient has a cervical collar applied, the KED is then applied and the patient moved to a long board. Distal pulses and neurological function are assessed throughout the application of the device to maintain that no additional injury has been incurred. It is important to mention that this device should not be used on critical trauma patients who require rapid transport, as it takes time to apply the device.
- 86. The correct answer is (C).** The rapid takedown requires that cervical spine immobilization is maintained from behind the patient until the patient is secured to the board and brought down to the ground. This position requires a tall person with a good reach. Therefore, the tallest rescuer should be positioned behind the patient in this maneuver.
- 87. The correct answer is (C).** The critical trauma patient should be rapidly extricated with the cervical collar and long board only. Treatment of uncontrolled bleeding, especially if it involves the airway, is essential for survival of the patient. Time is wasted by applying complicated extrication devices, and their use is saved for non-critical patients.
- 88. The correct answer is (D).** Child car seats may also double for an extrication device. The child can have a cervical collar applied, and then padding can be placed around the child and taped down. It not only serves as a good device, but it also provides airway and vascular access, if necessary.

89. The correct answer is (D). Impacts with windshields are signs that leave a high index of suspicion. The EMT-Basic should suspect facial trauma, spinal trauma, and serious brain injury after a patient impacts a windshield. Precautionary immobilization should be applied, including the KED, unless the patient is critical.

90. The correct answer is (B). The softness of the pediatric patient's rib cage makes it unable to protect the organs of the thoracic cavity. This will lead to serious chest trauma and massive internal bleeding.

91. The correct answer is (A). The pediatric cranial cavity is larger in proportion to the adult; therefore, blood loss in that area may lead to hypovolemic shock and decreased blood pressure. This is the exact opposite of the adult, who will develop hypertension secondary to the isolated head injury.

92. The correct answer is (C). American Heart Association guidelines for infant foreign body airway obstruction states that the patients should receive alternating back blows and chest thrusts, with finger sweeps only utilized to remove visible objects. Blind finger sweeps are not indicated, as they may push the object deeper inside the airway.

93. The correct answer is (D). The EMT-Basic should never remain on the scene for the advanced life-support providers in any case of shock. Immediate transport to the emergency department is the best possible chance of patient treatment. Advanced life-support field procedures may maintain the patient's circulatory status initially; however, it will not repair the internal damage causing the shock in the first place. So, the EMT-Basic should transport as soon as he or she is ready and try for an advanced life-support intercept on the way to the emergency department.

- 94. The correct answer is (C).** Driving at excessive speeds, on icy roads, and disregarding traffic control devices are all considered unsafe driving conditions. The primary concern of the EMT-Basic is crew safety. Placing oneself in danger by driving unsafely is not an acceptable practice.
- 95. The correct answer is (B).** The patient is not transferred to emergency department care unless the staff has received a full report, the patient is transferred to a bed, and the paperwork for transfer is signed. The EMT-Basic who leaves the patient before any of these factors are complete may be guilty of abandonment.
- 96. The correct answer is (B).** Any equipment that is used for invasive procedures should be sterilized using heat processes. The ambulance stretcher, extrication equipment, and suction units may be cleaned with high-level disinfection. Most suction units have disposable parts that eliminate the need for disinfection. To prevent the spread of disease, the EMT-Basic should practice good cleaning techniques.
- 97. The correct answer is (A).** Any patient who requires extrication with

other than typical extrication equipment is considered a complex extrication. Building collapses have a whole range of complicating factors and will result in long and complex extrication procedures.

- 98. The correct answer is (A).** Simple access is defined as gaining access to a patient with no specialized tool, while complex access requires specialized tools to gain access to a patient.
- 99. The correct answer is (C).** EMS personnel with no specialty training in hazardous materials should never venture into the hot zone; only personnel with specialty training and protective equipment should operate in the hot zone. All medical treatment should occur after decontamination and in the cold zone.
- 100. The correct answer is (C).** The incident command system was designed to break down different responsibilities at large incidents into sectors that are responsible for different activities. Each sector has a commander, and each commander reports to the overall incident commander. This system, when operated efficiently, will streamline patient care and movement, leading to the successful completion of the incident.

APPENDIXES

Appendix A Availability of Training

Appendix B Professional EMS Organizations
and Journals

Availability of Training

EMS training is widely available in every state. Most states offer training that is easily accessible to interested parties. Fire and Rescue departments may offer EMS programs. In addition, some states may have dedicated EMS training facilities.

Each state also has a Regional Medical Advisory Committee (REMAC), which is a subset of the State Emergency Medical Advisory Committee (SEMAC).

The Public Health Law states that it “shall develop policies, procedures and triage, treatment and transportation protocols which are consistent with the standards of the State Emergency Medical Advisory Committee and which address specific local conditions.” The statute goes on to detail other responsibilities of the REMAC, including approval of online medical control physicians, and participation in Quality Improvement (QI) programs. Provision is made for physician membership on REMAC from each of the hospitals in the region, plus representative membership from the nursing and EMS communities.

Good QI programs and the assurance of appropriate physician oversight is a real need in every region. After all, pre-hospital Advanced Life-Support (ALS) care must be practiced under a physician’s license, according to law.

Without the dedication and cooperation of our agency medical directors and our REMAC physician members, ALS as we know it could not take place. As in so many ways, EMS remains a highly interdependent effort.

Each state has an EMS division within the state Department of Health. Providers who are interested should contact the Department of Health in their home state for additional information. The following pages contain the addresses, phone numbers, and Web sites (if applicable) of EMS offices within the fifty states and Washington, D.C.

ALABAMA

Alabama Department of Public Health
Emergency Medical Services Division
RSA Tower, Suite 750
201 Monroe Street
Montgomery, AL 36104
Phone: 334-206-5383
Fax: 334-516-5132
Web site: www.adph.org/ems

ALASKA

Community Health and Emergency Medical Services
410 Willoughby, Suite 109
P.O. Box 110616
Juneau, AK 99811-0616
Phone: 907-465-3141
Fax: 907-465-4101
Web site: www.chems.alaska.gov

ARIZONA

Arizona Department of Health Services
Bureau of Emergency Medical Services
150 N. 18th Avenue, Suite 540
Phoenix, AZ 85007
Phone: 602-364-3186
Fax: 602-364-3568
Web site: www.azdhs.gov/bems/index.htm

ARKANSAS

Arkansas Department of Health
Emergency Medical Services
4815 W. Markham
Little Rock, AR 72205
Phone: 501-661-2262
Fax: 501-280-4901
Web site: www.healthyarkansas.com/health.html

CALIFORNIA

California EMS Authority
1930 9th Street
Sacramento, CA 95814
Phone: 916-322-4336 (Main)
916-323-9875 (Paramedic Licensure)
Fax: 916-324-2875
Web site: www.emsa.ca.gov

COLORADO

Colorado Department of Public Health and Environment
Emergency Medical and Trauma Services
4300 Cherry Creek Drive South
Denver, CO 80246-1530
Phone: 303-692-2980
Fax: 303-691-7720
Web site: www.cdphe.state.co.us/em/emhom.html

www.petersons.com/arco

CONNECTICUT

Connecticut Department of Public Health
Office of Emergency Medical Services
410 Capitol Avenue
MS #12 EMS
P.O. Box 340308
Hartford, CT 06134-0308
Phone: 860-509-7875
Fax: 860-509-7987
Web site: www.dph.state.ct.us/OHCPHHO/EMS_Office/welcome_to_oems.htm

DELAWARE

Delaware Health and Social Services
Division of Public Health
417 Federal Street
Dover, DE 19901
Phone: 302-744-4700
Fax: 302-739-3008
Web site: www.dhss.delaware.gov/dhss/dph/ems/ems.html

DISTRICT OF COLUMBIA

Department of Health
Fire and Emergency Medical Services
1923 Vermont Avenue, NW, Suite 102
Washington, DC 20001
Phone: 202-673-3331
Fax: 202-645-0526
Web site: <http://fems.dc.gov/fems/site/default.asp>

FLORIDA

Florida Department of Health
Division of Emergency Medical Operations
4025 Esplanade Way
Tallahassee, FL 32301
Phone: 850-245-4440
Web site: www.doh.state.fl.us/demo/EMS/index.html

GEORGIA

Georgia Division of Public Health
Emergency Medical Services and Trauma
Two Peachtree Street, NW
Atlanta, GA 30303-3186
Phone: 404-657-2700
Web site: <http://health.state.ga.us/programs/ems/index.asp>

HAWAII

State Department of Health
State Emergency Medical Services & Injury Prevention System
P.O. Box 916
Hilo, HI 96720
Phone: 808-974-6006
Fax: 808-974-6000
Web site: www.hawaii.gov/health/family-child-health/ems/index.html

IDAHO

Department of Health & Welfare
Emergency Medical Services
450 West State Street
Boise, ID 83720
Phone: 208-334-5500
Web site: www.healthandwelfare.idaho.gov/site/3344/default.aspx

ILLINOIS

Illinois Department of Public Health
Division of EMS and Highway Safety
535 West Jefferson Street
Springfield, IL 62761-0001
Phone: 217-782-4977
Fax: 217-782-3987
Web site: www.idph.state.il.us/ems/index.htm

INDIANA

State Emergency Management Agency
Department of Fire and Building Services
Public Safety Training Institute
Indiana Government Center South
402 West Washington Street, Room E239
Indianapolis, IN 46204
Phone: 317-232-4680
Web site: www.in.gov/dhs/ems

IOWA

Iowa Department of Public Health
Bureau of Emergency Medical Services
Lucas State Office Building
321 East 12th Street
Des Moines, IA 50319
Phone: 515-281-7689
Web site: www.idph.state.ia.us/ems/default.asp

KANSAS

Kansas Board of Emergency Medical Services
Landon State Office Building, Room 1031
900 SW Jackson Street
Topeka, KS 66612
Phone: 785-296-7296
Fax: 785-296-6212
Web site: www.ksbems.org

KENTUCKY

Emergency Medical Services Branch
Department for Health Services
275 E. Main Street
Frankfort, KY 40621
Phone: 502-564-8963
Fax: 502-564-6533
Web site: <http://cfc-chs.chr.state.ky.us/ems.htm>

LOUISIANA

Louisiana Department of Health and Hospitals
Bureau of Emergency Medical Services
8919 World Ministry Avenue, Suite A
Baton Rouge, LA 70821
Phone: 225-763-5700
Fax: 225-763-5702
Web site: www.oph.dhh.louisiana.gov/emergencymedical/index.html

MAINE

Maine Emergency Medical Services
Department of Public Safety
152 State House Station
Augusta, ME 04333-0152
Phone: 207-626-3860
Fax: 207-287-6251
Web site: www.state.me.us/dps/ems

MARYLAND

The Maryland Institute for Emergency Medical Services Systems
653 W. Pratt Street, Room 105
Baltimore, MD 21201-1536
Phone: 410-706-3666
Fax: 410-706-2367
Web site: www.miemss.org

MASSACHUSETTS

Office of Emergency Medical Services
2 Boylston Street, 3rd Floor
Boston, MA 02116
Phone: 617-753-7300
Fax: 617-753-7320
Web site: www.mass.gov/dph/oems/oems.htm

MICHIGAN

Michigan Department of Community Health
Lewis Cass Building
320 South Walnut Street, 6th Floor
Lansing, MI 48913
Phone: 517-373-3740
Web site: www.michigan.gov/mdch

MINNESOTA

Minnesota Emergency Medical Services Regulatory Board
2829 University Avenue SE, Suite 310
Minneapolis, MN 55414
Phone: 612-627-6000
Fax: 612-627-5442
Web site: www.emsrb.state.mn.us

MISSISSIPPI

EMS/Trauma Care System
P.O. Box 1700
Jackson, MS 39215-1700
Phone: 601-576-7380
Fax: 601-576-7373
Web site: www.ems.doh.ms.gov/ems/index.html

MISSOURI

State of Missouri Department of Health & Senior Services
Unit of Emergency Medical Services
P.O. Box 570
Jefferson City, MO 65102-0570
Phone: 573-751-6356
Fax: 573-751-6348
Web site: www.dhss.mo.gov/EMS

MONTANA

Montana Department of Public Health & Human Services
EMS & Trauma Systems
P.O. Box 202951
Helena, MT 59620
Phone: 406-444-3895
Fax: 406-444-1814
Web site: www.dphhs.state.mt.us/hpsd/pubheal/healsafe/ems/index.htm

NEBRASKA

Nebraska Department of Health & Human Services
P.O. Box 95007
Lincoln, NE 68509-5007
Phone: 402-471-3578
Web site: www.hhs.state.ne.us/ems/emsindex.htm

NEVADA

Nevada State Health Commission
Emergency Medical Services
1550 E. College Parkway, Suite 158
Carson City, NV 89706
Phone: 775-687-3065
Fax: 775-684-5313
Web site: <http://health2k.state.nv.us/ems>

NEW HAMPSHIRE

Department of Safety
Bureau of Emergency Medical Services
33 Hazen Drive
Concord, NH 03305
Phone: 800-371-4503
Web site: <http://webster.state.nh.us/safety/fst/index.html>

NEW JERSEY

New Jersey Department of Health and Senior Services
Office of Emergency Medical Services
50 East State Street
P.O. Box 360
Trenton, NJ 08625-0360
Phone: 609-633-7777
Fax: 609-633-7954
Web site: www.state.nj.us/health/ems/index.html

NEW MEXICO

State of New Mexico
Injury Prevention & EMS Bureau
Public Health Division
P.O. Box 26110
901 W. Alameda
Santa Fe, NM 87502-6110
Phone: 505-827-1400
Fax: 505-827-1410
Web site: <http://naemt.org/nmems>

NEW YORK

New York State Department of Health
Bureau of Emergency Medical Services
One Fulton Street
Troy, NY 12180-3298
Phone: 518-408-5318
Fax: 518-408-5392
Web site: www.health.state.ny.us/nysdoh/ems/main.htm

NORTH CAROLINA

The North Carolina Office of EMS
701 Barbour Drive
Raleigh, NC 27603
Phone: 919-855-3935
Fax: 919-733-7021
Web site: www.ncems.org

NORTH DAKOTA

North Dakota Department of Health
Division of Emergency Medical Services
600 East Boulevard Avenue, Department 301
Bismarck, ND 58505-0200
Phone: 701-328-2388
Fax: 701-328-1890
Web site: www.health.state.nd.us/ndhd/resource/dehs

OHIO

Ohio Department of Public Safety
Emergency Medical Services Division
P.O. Box 182073
1970 West Broad Street

Columbus, OH 43218-2073
Phone: 800-233-0785
Fax: 614-466-9461
Web site: www.ems.ohio.gov/ems.asp

OKLAHOMA

Oklahoma State Department of Health
Emergency Medical Services Division
1000 NE 10th
Oklahoma City, OK 73117
Phone: 405-271-4027
Fax: 405-271-3986
Web site: www.health.state.ok.us/program/ems/index.html

OREGON

DHS, EMS & Trauma Systems
800 NE Oregon Street, Suite 607
Portland, OR 97232
Phone: 971-673-0520
Fax: 971-673-0555
Web site: www.oregon.gov/DHS/ph/ems/index.shtml

PENNSYLVANIA

Pennsylvania Department of Health
Pennsylvania EMS Office
P.O. Box 90
Harrisburg, PA 17108
Phone: 717-787-8740
Web site: www.dsf.health.state.pa.us/health

RHODE ISLAND

Rhode Island Department of Health
Emergency Medical Services
3 Capitol Hill
Providence, RI 02908
Phone: 401-222-2231
Fax: 401-222-6548
Web site: www.health.ri.gov/hsr/professions/amb.php

SOUTH CAROLINA

Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201
Phone: 803-545-4200
Web site: www.scdhec.gov/hr/ems

SOUTH DAKOTA

Emergency Medical Services
South Dakota Department of Health
118 W. Capitol
Pierre, SD 57501-5070
Phone: 605-773-4031
Web site: www.state.sd.us/dps/ems/index.htm

TENNESSEE

Tennessee Department of Health
Division of Emergency Medical Services
425 Fifth Avenue, North
Cordell Hull Building, 1st Floor
Nashville, TN 37247-0701
Phone: 615-741-2584
Fax: 615-741-4217
Web site: www2.state.tn.us/health/ems/index.htm

TEXAS

Texas Department of Health
Bureau of Emergency Management
1100 West 49th Street
Austin, TX 78756-3199
Phone: 512-834-6700
Fax: 512-834-6736
Web site: www.tdh.state.tx.us/hcqs/ems/default.htm

UTAH

Utah Department of Health
Bureau of Emergency Medical Services
P.O. Box 141010
Salt Lake City, UT 84114-1010
Phone: 801-538-6101
Web site: <http://health.utah.gov/ems>

VERMONT

Vermont Department of Health
Division of Health Protection
EMS and Injury Prevention
108 Cherry Street
P.O. Box 70
Burlington, VT 05402
Phone: 802-863-7200
Fax: 802-865-7754
Web site: www.healthyvermonters.info/hp/ems/emshome.shtml

VIRGINIA

Virginia Department of Health
Office of Emergency Medical Services
109 Governor Street, Suite UB-55
Richmond, VA 23219
Phone: 804-864-7600
Fax: 804-864-7580
Web site: www.vdh.state.va.us/OEMS/Email/email.asp

WEST VIRGINIA

West Virginia Department of Health & Human Resources
Office of Emergency Management Services
1411 Virginia Street East
Charleston, WV 25301-3013
Phone: 304-558-3956
Fax: 304-558-1437
Web site: www.wvohs.org/oems

WASHINGTON

Washington State Department of Health
Office of Emergency Medical Services and Trauma System
P.O. Box 47853
Olympia, WA 98504-7853
Phone: 360-236-2828
Fax: 360-236-2829
Web site: www.doh.wa.gov/hsqa/emstrauma

WISCONSIN

EMS Systems Section
P.O. Box 2659
Madison, WI 53701-2659
Phone: 608-266-0472
Fax: 608-261-6392
Web site: http://dhfs.wisconsin.gov/ems/system/EMS_Section.htm

WYOMING

Wyoming Office of Emergency Medical Services and Injury Control
Hathaway Building, 4th Floor
2300 Capitol Avenue
Cheyenne, WY 82002
Phone: 307-777-7955
Fax: 307-777-5639
Web site: <http://wdhfs.state.wy.us/ems>

Professional EMS Organizations and Journals

The EMS provider should be aware that there are numerous professional organizations and journals that are dedicated to the field of Emergency Medical Services. These organizations and publications promote professional EMS standards for education. EMT–Basics should review the objectives and mission statements for each organization and publication and become a member or subscriber of those that would suit their needs for continued education. The following list identifies the most widely recognized organizations and journals:

National Association of Emergency Medical Technicians

408 Monroe Street
Clinton, MI 39056-4210
Phone: 800-34-NAEMT (toll-free)
Web site: www.naemt.org

National Registry of Emergency Medical Technicians

Rocco V. Morando Building
6610 Busch Boulevard
P.O. Box 29233
Columbus, OH 43229
Phone: 614-888-4484
Web site: www.nremt.org

National Association of EMS Educators

Foster Plaza 6
681 Andersen Drive
Pittsburgh, PA 15220-2766
Phone: 412-920-4775
Web site: www.naemse.org

National Association of EMS Physicians

P.O. Box 15945-281
Lenexa, KS 66285-5945
Phone: 913-492-5858
800-228-3677 (toll-free)
Fax: 913-599-5340
Web site: www.naemsp.org

Emergency Medical Services Magazine

Summer Communications Inc.
7626 Densmore Avenue
Van Nuys, CA 91406-2042
Phone: 818-786-4367
800-224-4367 (toll-free)
Fax: 818-786-9246
Web site: www.emsmagazine.com

Journal of Emergency Medical Services (JEMS)

JEMS Communications
525 B Street, Suite 1900
San Diego, CA 92101
Phone: 619-687-3272
Fax: 619-699-6396
Web site: www.jems.com

NOTES

NOTES

THOMSON PETERSON'S

FIND the right school.

PREPARE for your test.

UNCOVER great college deals.

EXPLORE career options.

SHAPE your future.

GET IN.

FIND PREPARE UNCOVER EXPLORE SHAPE GET IN.

PETERSON'S
getting you there



Visit **Petersons.com/gen1**
for everything you need. In print or online,
Thomson Peterson's can help.

Get a Résumé that Gets Results at...

ResumeEdge.com



Put Certified Professional Résumé Writers to Work for You!

In today's competitive job market, you need every advantage you can get. At **ResumeEdge.com**, certified professional résumé writers (CPRWs) help you focus on your strengths, better articulate your qualifications, and land more interviews. Whether you're a student entering the workforce for the first time or an experienced executive trying to reach the next level, you'll make a powerful first impression with a professionally written résumé.

Visit

www.ResumeEdge.com today
and give yourself an edge!

*"Specializing in High-Impact Résumés for
Executives and Professionals"*

—The Wall Street Journal's CareerJournal

"The Net's Most Talented Résumé Experts"

—Lycos Careers

THOMSON
★
PETERSON'S