

## National Guidelines for First Aid Training in Occupational Settings

After more than two years in development, The National Guidelines for First Aid Training in Occupational Settings (NGFATOS) document has been completed. The document is being published on the Internet to encourage widespread dissemination.

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# **National Guidelines for First Aid Training in Occupational Settings**

A course development guideline containing the essential elements of what can be considered safe, helpful and effective first aid training in occupational settings.

Intended for use by first aid program developers, institutions teaching first aid courses, regulatory agency personnel who review and/or approve first aid courses and the consumers of these courses.

The Project Management Team in association with the National Advisory Board (NAB) provides these National Guidelines for First Aid Training in Occupational Settings. They have been conceived and are offered in the spirit of conscientious and voluntary cooperation with the sole purpose of fostering safe, helpful and proper training programs in first aid for those with an occupational requirement to learn these self-preserving or life-supporting skills.

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# National Advisory Board Role and Recognition

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From the very beginning of this project, investigators relied on the knowledge, attitudes, and skills of the National Advisory Board (NAB). Individual participants sought their own level of involvement and contribution toward accomplishing the goals of this project. These contributions varied from individual to individual, and regardless of the level of involvement, everyone played a significant role in the development of these guidelines. It is important to make clear that the nature of the consensus process is one of general - not undivided agreement. **Each NAB participant and organization served the project in an advisory fashion. Their representation does not necessarily constitute endorsement.**

To ensure the validity and strength of the document, medical or educational recommendations from the NAB had to be supported by authoritative sources and/or scientific evidence when available. However, there is a tremendous lack of meaningful, objective, measurable data available for analysis in regard to first aid. Persuasive recommendations based upon sound clinical practice or expert opinion were made that could not be supported by objective evidence. As a result, anecdotal evidence, in the absence of hard science, played a role in the development of these guidelines. All input was tabulated according to its support (literature, text, clinical practice and expert opinion), and presented to the National Advisory Board with the goal of consensus – the general agreement to change (or not to change) the document based on the weight of the evidence. Consequently, the goal of devising safe, helpful and effective national guidelines for first aid training in occupational settings using a non-governmental, voluntary, self-supported consensus process based on objective evidence and expert input presented a formidable challenge – but has been achieved. The final review round of the document ended in October 1997 without further input from the NAB.

It is essential that NAB participants and organizations be acknowledged for their efforts. Each has voluntarily assisted in shaping safe, effective guidelines to help assure that a First Aid Provider has the appropriate core knowledge, skills and attitudes to provide emergency care for injury or sudden illness in an occupational setting before professional emergency medical care is available.

## National Advisory Board Peer Reviewers

During the project each NAB member was invited to select peer-reviewers for the document. It was preferred, though not required, that peer-reviewers be selected from persons outside the organization represented by the NAB member. Peer-reviewers were under no obligation to comment officially. However, those who did were required to provide medical or educational recommendations supported by authoritative sources and/or scientific evidence when available. In addition to NAB-selected peer-review, the document was available for public peer-review and comment on the Internet for a six-month period, courtesy of the US Department of Transportation, United States Coast Guard, National Maritime Center. For all who commented officially and unofficially during the peer-review and public comment period, thank you for sharing your concerns and ideas. Each of you has contributed to this long-overdue document and to the safety and health of working Americans.

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# **National Guidelines for First Aid Training in Occupational Settings**

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## **Preface**

## Introduction

In the United States, traditional or formal first aid training (classroom instruction supervised by a qualified instructor) is available through national and local organizations, which design and produce first aid training courses for use in an occupational setting. Although many possess a long-standing history in first aid program development, none of these organizations *creates* first aid standards and/or guidelines. Rather, these organizations translate the consensus of medical and educational science into standardized first aid training programs to reflect up-to-date information and techniques.

The American Heart Association® (AHA) is the organizer of national conferences for developments in cardiopulmonary resuscitation and emergency cardiac care. The resulting guidelines are translated into educational programs in emergency cardiac care for the general public and health care professionals.<sup>1</sup> Unlike the *Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care*, national, consensus-built, peer-reviewed first aid training guidelines did not exist (prior to the release of this document) for those persons with an occupational requirement to be first aid trained. Providing a “source authority” for occupational first aid program content is the purpose of these *National Guidelines for First Aid Training in Occupational Settings*.

## Background

The First Aid Provider is an important part of the Emergency Medical Services (EMS) System. Therefore, these guidelines are designed to integrate the First Aid Provider into the EMS system by helping him or her to learn the same priorities of care and general approach to the patient used by professional responders. The result is a continuity of care as the ill or injured person is passed from layperson to professional.

National guidelines for training *professional* emergency responders are the responsibility of the National Highway Traffic Safety Administration (NHTSA) established by the Highway Safety Act of 1966 (amended). NHTSA is the producer of the *Emergency Medical Technician Basic: National Standard Curriculum* and *First Responder: National Standard Curriculum*. These courses are part of the National EMS education program for professional out-of-hospital care as outlined by the *National EMS Education and Practice Blueprint*.

Additionally, NHTSA is the producer of the *National Standard Curriculum For Bystander Care* (DOT HS 807 872 October 1992). This report describes a program to promote more effective bystander actions in rural highway crashes. This bystander care program explores how the lay public—bystanders and passersby—could learn to provide very basic life-saving care to respond to the most critical needs of the seriously injured victims. The purpose of this project was to determine how laypersons could best be taught how to call EMS, manage the airway, control bleeding, and avoid getting hurt. Unlike other approaches, the Bystander Care Project focuses on the front end of the continuum of emergency care—the “Six Simple Steps for Saving Lives”:

1. Recognizing the emergency,
2. Deciding to help,
3. Contacting the EMS system,
4. Preventing further injuries,
5. Assessing the victim, and

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<sup>1</sup>Emergency Cardiac Care Committee and Subcommittees, American Heart Association®. Guidelines for cardiopulmonary resuscitation and emergency cardiac care, *JAMA* 1992;268.

6. Providing life-sustaining care, if needed.

These simple bystander skills should receive wide-scale implementation and diffusion to mass audiences at the community level using communication media with the broadest possible reach. Citizen bystanders must be encouraged and empowered to use this information to save lives.

There exists, however, another important provider of first aid care for which there has previously been no national guidelines for care—those persons who are *occupationally required* to be first aid trained.

## **First Aid Training in Occupational Settings**

People at work are not “bystanders” in the traditional sense, as they may be required by regulation, job description, rule, policy, custom, or public perception to receive adequate first aid training. Unlike the bystander who is coincidentally confronted by a fellow citizen in need and who may or may not choose to provide assistance, those with an occupational requirement to be first aid trained may be *expected* to provide care until EMS arrives. These persons include (but are not necessarily limited to) employees subject to federal or state labor regulations, line-of-duty police officers, firefighters, corrections officers, school teachers, school bus operators, day care workers, and pool and ocean lifeguards.

Two examples of federal agencies with regulations requiring people at work to be first aid trained are the Department of Labor, Occupational Safety and Health Administration (OSHA) and the United States Coast Guard. The OSHA act applies to every employer engaged in business affecting commerce who has employees. Employers and employees have a duty to comply with these health and safety standards. Given the positive impact that first aid can provide, eight OSHA standards include first aid requirements.<sup>2</sup> While all employees should be afforded quick and effective first aid attention in the event that an injury occurs on the job, section 1910.151(b) of the Code of Federal Regulations requires that “in the absence of an infirmary, clinic or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid.” At least one OSHA Review Commission decision has explicitly adopted 3 minutes as a test of whether medical help is reasonably accessible.<sup>3</sup> Thus, if medical help is not available within a 3 minute response time, employers must assure the presence of personnel trained in first aid at or near those places where employees are working. OSHA does not teach first aid courses or certify first aid training courses for instructors or trainees.

The United States Coast Guard (USCG) is a multimissioned maritime service and one of the nation’s five Armed Forces. The mission of the USCG is to protect the public, the environment, and U.S. economic interests—in our ports and waterways, along our nation’s coasts on international waters, or in any maritime region as required to support national security. The USCG operates under the authority of the Department of Transportation, but may, in time of war, be assigned to the Department of Navy.<sup>4</sup>

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<sup>2</sup>General Industry (CFR 1910.151), Construction (CFR 1926.50), Shipyard (CFR 1915.98), Longshoring (CFR 1918.96), Diving (CFR 1940.151), Hazardous Waste and Emergency Response (CFR 1910.120), Temporary Labor Camps (CFR 1910.142), and First Aid and Lifesaving Facilities (CFR 1917.26).

<sup>3</sup>*The L.E. Meyers Company*, 10 OSHC 1384 (1982).

<sup>4</sup> Coast Guard Performance Plan, 1997.

To satisfy USCG regulations and international requirements, applicants for licenses, certificates of registry, and merchant mariner's documents are required to present a certificate indicating successful completion of a first aid and CPR course within the last 12 months. First aid and CPR training courses must meet the requirements of Chapter VI of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978, as amended in 1995<sup>5</sup> and be approved by the USGC.

## **Definition of First Aid Provider**

For the purpose of *this document*, a "First Aid Provider" is defined as a person who has an occupational requirement to be first aid trained, but responds as a "Good Samaritan" (see Table 1). First Aid is emergency care provided for injury or sudden illness in an occupational setting before professional emergency medical care is available. It is the goal of these guidelines to provide students with the core knowledge, skills, and attitudes to function in the capacity of a First Aid Provider. It is recognized that there may be additional specific instruction that will be required of First Aid Providers due to their time and distance from EMS. These changes should be consistent with the intent and design of these guidelines. Some first aid program developers, instructors, and employers may need to incorporate additional skills into the scope of practice for the First Aid Provider

## **Summary**

National guidelines for bystanders and for professional emergency responders have been previously established. However, national first aid training guidelines for those with an occupational requirement to be first aid trained did not exist prior to this document. The goal of these guidelines is to provide program developers, institutions teaching first aid courses, consumers of these courses, and regulatory agency personnel who review and/or approve courses the essential elements of what is considered safe, helpful, and effective first aid training.

These guidelines are designed to strengthen the chain of survival by helping First Aid Providers learn the same priorities of care and general approach to the ill or injured person as professional emergency medical care providers use. The result of which is a continuity of care from layperson through professionals. It is expected that the widespread use of these guidelines for those persons with a requirement to be first aid trained will improve both the quality of first aid training programs and the emergency care provided in occupational settings.

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<sup>5</sup> International Maritime Organization, London, ©1996

**Continuity of Care Model for Emergency Medical Services System.<sup>6</sup>**

<b>Curriculum &amp; Nomenclature</b>	<b>Definition</b>	<b>Description</b>	<b>Source Authority</b>
Bystander	Lay public. Citizen bystanders and passersby.	Very basic life-saving care to respond to the most critical needs of the seriously injured or ill victims.	<i>National Standard Curriculum for Bystander Care</i> , National Highway Traffic Safety Admin., U.S. Dept. of Transportation, HS 807 872 10/92
First Aid Provider	Persons who are occupationally required to be trained in first aid even though they may not be specifically obligated by law to perform first aid.	Uses a limited amount of equipment to perform initial assessment and provide immediate life support and care while awaiting arrival of EMS.	National Guidelines for First Aid Training in Occupational Settings, 1998
First Responder	First designated level of professional emergency medical care provider as outlined by the National EMS Education and Practice Blueprint.	Uses a limited amount of equipment to perform initial assessment and intervention and is trained to assist other EMS providers.	National EMS Education and Practice Blueprint and First Responder National Standard Curriculum, 1995, National Highway Traffic Safety Admin., U.S. Dept. of Transportation
Emergency Medical Technician-Basic	Second designated level of professional emergency medical care provider as outlined by the National EMS Education and Practice Blueprint.	Has the knowledge and skills of the first responder but is also qualified to function as the minimum staff for an ambulance	National EMS Education and Practice Blueprint and EMT-Basic National Standard Curriculum, 1994, National Highway Traffic Safety Admin., U.S. Dept. of Transportation
EMT- Intermediate	Third designated level of professional emergency medical care provider as outlined by the National EMS Education and Practice Blueprint.	Has the knowledge and skills of the EMT-Basic but in addition can perform essential advanced techniques and administer a limited number of medications.	National EMS Education and Practice Blueprint and EMT-Basic National Standard Curriculum, 1994, National Highway Traffic Safety Admin., U.S. Dept. of Transportation
Paramedic	Fourth designated level of professional emergency medical care provider as outlined by the National EMS Education and Practice Blueprint.	Has the knowledge and skills of the EMT-Intermediate but can administer additional interventions and medications.	National EMS Education and Practice Blueprint, Paramedic National Standard Curriculum, National Highway Traffic Safety Admin., U.S. Dept. of Transportation (currently under revision).

**TABLE 1**

<sup>6</sup>An Emergency Medical Services (EMS) system is a network of resources—people, communications, and equipment—organized to provide emergency care to victims of sudden illness or injury.

## Process

The *National Guidelines for First Aid Training In Occupational Settings* was developed through a voluntary consensus process led by a Project Management Team with the involvement and contribution of a National Advisory Board including medical and EMS professionals, representatives from industry, government, and recognized first aid training program developers. These experts met in person and via teleconference to review, edit, and critique the developmental document.

## Basic Life Support / Cardiopulmonary Resuscitation (BLS/CPR)

These guidelines contain many of the knowledge and skill objectives of BLS/CPR. In order to maintain an up-to-date guideline, the didactic material has not been reproduced. Program developers and/or instructors must utilize the most current version of *Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care, Emergency Cardiac Care Committee and Subcommittees, American Heart Association*<sup>®</sup>.

## Risk Factors and Prudent Heart Living

Cardiovascular disease accounts for nearly 1 million deaths each year in the United States. As investigators search for the causes of this “epidemic,” they have identified several specific conditions and behaviors associated with cardiovascular disease. It is a well-known fact that persons with one or more of these identified “risk factors” are at increased risk of heart attack or other blood vessel diseases. It is also known that persons who practice “prudent heart living” minimize the risk of future heart disease. Because this information plays an important role in preventing death from cardiovascular disease, Risk Factors and Prudent Heart Living information from the most recent edition of *Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care, Emergency Cardiac Care Committee and Subcommittees, American Heart Association*<sup>®</sup>, should be included in all emergency care courses.

## Integration with the National EMS Education and Practice Blueprint

*The National EMS Education and Practice Blueprint*, adopted through a national peer review and consensus process, guided the development of the NHTSA curriculum for professional responders as well as these *National Guidelines for First Aid Training In Occupational Settings*. The blueprint constitutes the *minimum* national knowledge and skill competencies for professional responders, beginning with the First Responder, who is identified in the Blueprint as an individual who:

*"...uses a limited amount of equipment to perform initial assessment and intervention and is trained to assist other EMS providers."*

As this guideline is intended to be consistent with the blueprint, the First Aid Provider is identified in this document as an individual who:

*"...uses a limited amount of equipment to perform initial assessment and intervention while awaiting arrival of EMS."*

Future integration of these guidelines in the *National EMS Education and Practice Blueprint*

would provide direction for constituting the *minimum* national knowledge and skill competencies for First Aid Providers. As any chain is only as strong as the weakest link, such integration would undoubtedly serve to strengthen the entire chain of survival by allowing laypersons to learn the same priorities of care and general approach to the patient used by professional responders, resulting in a continuity of care as the patient is passed from layperson to professional.

As part of a consistent, organized, nationwide approach to the education of First Aid Providers, training agencies or regulatory offices may wish to supplement these guidelines with additional knowledge and skills. However, to be consistent with the intent and philosophy of the *National EMS Education and Practice Blueprint*, local additions to the First Aid Provider's education and scope of care should reflect the Blueprint's continuum of knowledge and skills. Each level of knowledge and skill includes all previous levels. If knowledge or skill items are "out of synch" with the logical continuum, the utility and value of the Blueprint is significantly decreased. When knowledge and skills are added to the First Aid Provider's scope of care, the additional information should be consistent with the corresponding levels of the next higher level of national curriculum.

## **Automated External Defibrillators**

An enrichment program for emergency AED use by those with an occupational requirement to be first aid trained and specially trained rescuers has been developed as a complement to these *National Guidelines for First Aid Training in Occupational Settings*. The 1992 *National Conference on Cardiopulmonary Resuscitation and Emergency Cardiac Care* strongly endorsed the principle of early defibrillation, which states that all personnel whose jobs require that they perform basic CPR be trained to operate and permitted to use defibrillators, particularly automated external defibrillators (AEDs).<sup>7</sup> Additionally, experts estimate that nationally 20,000 to 100,000 lives could be saved annually by greater public access to automated external defibrillators.<sup>8</sup> Rescuers should know the indications for and techniques of using AED equipment. **Currently, rescuers must operate AEDs under the authority of the medical license of a medical director and the enabling administrative codes of the state.**

## **First Aid Oxygen Administration**

An enrichment program for emergency oxygen use by those with an occupational requirement to be first aid trained and specially trained rescuers has also being developed as a complement to these *National Guidelines for First Aid Training in Occupational Settings*. Supplemental oxygen should be used during cardiopulmonary emergencies as soon as it is available.<sup>9</sup> Masks equipped with a one-way valve that diverts the victim's exhaled gas and a standard oxygen (insufflation) inlet are recommended for mouth-to-mask ventilation by appropriately trained rescuers.<sup>10</sup> Bag-Valve-Mask (BVM) devices are not recommended for use by persons who are occupationally required to be first aid trained. Supplemental oxygen should be used for victims of serious illness or injury by First Aid Providers who have been properly instructed in its use. Program developers are encouraged to implement supplemental oxygen in their training programs. Rescuers should know the indications for and techniques of using adjunctive equipment. **Adjunctive equipment should not divert attention or effort from basic first aid efforts.**

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<sup>7</sup>Emergency Cardiac Care Subcommittees, American Heart Association®. Guidelines for cardiopulmonary resuscitation and emergency cardiac care, *JAMA*. 1992;268:2199.

<sup>8</sup>*Currents in Emergency Cardiac Care*, Spring ©1995, American Heart Association®

<sup>9</sup>*JAMA*. 1992;268:2199.

<sup>10</sup>*Ibid.*



## **First Aid Program Development**

The ultimate liability for standardized instructional programs rests with the producer.<sup>11</sup> An organization promoting a standardized instructional system designed and tested by a professional body, drawing on the talent and experience of recognized experts in the field and outside consultants should be willing and able to easily identify and document not only their source for appropriate medical treatment guidelines, but also be readily capable of producing reasonably acceptable criteria for:

- Course curriculum and lesson format.
- Successful completion of the course by learners.
- Instructor certification measures, including revocation procedures with due process.
- Administration and course record management.
- Ongoing quality assurance.

Medical oversight is paramount in ensuring the highest quality out-of-hospital care. Program developers should work with medical professionals to review first aid training program curriculum in order to achieve a sound method of continuous quality improvement.

## **Implementation**

Some alterations to the content of current first aid training programs may be necessary to fulfill the intent of these guidelines. Revising programs to meet the intent of these guidelines would undoubtedly serve to strengthen the entire chain of survival and the continuity of patient care. Revision takes time. Any changes to program content deemed necessary should be accomplished when program developers have conceived thorough plans to do so. Program developers who wish to create *new* programs following the release of this guidelines should consider this an influential document that provides guidelines for appropriate content and flow of material. Lesson plans should be based upon these guidelines and adapted to authoritative instructional design methodology.

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<sup>11</sup>Dougherty, NJ, Trends in Education, The professionally standardized instructional system: a valuable tool in the reduction of program and instructor liability. *The Undersea Journal* ©1988 International PADI, Inc.

# **National Guidelines for First Aid Training in Occupational Settings**

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## **Course Guide**

## History

The *National Guidelines for First Aid Training in Occupational Settings* came about as a result of the reality that no current document existed to standardize first aid training program content for those with an occupational requirement to be first aid trained. A well-meaning attempt to define what constituted “basic and essential elements of a first aid program” in the workplace had been previously released. These guidelines recommended everything from very minor injuries to diagnostic differentiation and management of a major illness or significant trauma as course content.<sup>12</sup> This was a commendable attempt to provide guidelines for workplace first aid training in the absence of any national consensus document. However, these 1991 guidelines are not consistent with national guidelines for EMS training programs released in 1995.<sup>13</sup>

The First Aid Provider is an integral part of the Emergency Medical Services System. The chain of survival would doubtlessly be strengthened by helping those persons with an occupational requirement to be first aid trained learn the same priorities of care and general approach to the patient used by professional responders. The expectant result being a continuity of care as the ill or injured person is passed from layperson to professional. Thus, these guidelines are based upon and are derived from NHTSA’s revised *First Responder: National Standard Curriculum*.

A successful state-wide pilot project to standardize first aid program content for industry was originated by the Washington State First Aid Training Task Force (WSFATTF) and organized by the State of Washington Department of Labor and Industries (appendixes A & B). Using a formal group process, the participants identified the priority needs for first aid training in Washington State based upon the aforementioned documents. Following successful consensus and peer-review of first aid guidelines in Washington State, revisions were made to the Washington State guidelines to produce one with a national perspective.

To ensure the validity and strength of any recommendations or changes in the peer-review process, recommendations were supported by authoritative sources and/or scientific evidence. This included current published EMS texts (revised to meet the new DOT-First Responder or EMT-B curriculum), or published, peer-reviewed scientific literature. Additionally, recommendations had to be feasible; i.e., safe, effective, teachable, and easily incorporated into the current practice for the First Aid Provider.

The following are priorities from the 1994–1996 Washington State First Aid Training Task Force meetings:

- Review and development of guidelines for first aid based on national consensus of practice for professional responders. Identify “need to know” versus “nice to know” content. (What really needs to be done in first aid? What makes a difference? Define what First Aid Provider’s need to do).
- Establish an on-going committee to provide for future revision.
- Emphasize an assessment-based format rather than a diagnostic-based format.
- Ensure that there is adequate focus on primary skills of assessment and ABCs.
- Include review of published EMS textbooks when revising guidelines and curricula.
- Emphasize rescuer and injured/ill person safety components, including infection control,

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<sup>12</sup>OSHA Guidelines for First Aid Training Programs CPL 2-2.53 1991. III; General Program Elements.

<sup>13</sup>First Responder National Standard Curriculum, 1995, National Highway Traffic Safety Admin., U.S. Dept. of Transportation.

in all curricula.

- Ensure adequate emphasis as appropriate and/or desired for children and infants by integrating optional information throughout the guidelines.
- Utilize measurable educational objectives (knowledge, skills, judgment) to determine individuals' learning needs.

## **Goal**

This course guide has been designed and developed to assist the program developer, instructors, and others in planning, managing, and teaching first aid in occupational settings. Through the use of these guidelines those with an occupational requirement to be first aid trained will learn the core knowledge and skills to provide basic life-supporting care to ill or injured person prior to the arrival of professional EMS personnel.

## **The “Toolbox” Concept**

A toolbox is a compartmentalized box or chest in which tools are kept. While the box organizes the tools, it does not determine the order that they are selected and put to use. This is the job of the craftsman. Like a toolbox, these guidelines (specifically the modules) contain the information and skills (tools) to be used in the training of First Aid Providers. Program developers (craftspeople) are responsible for selecting the order in which modules are presented and the instructional methodology used to present them.

## **First Aid Provider Core Elements**

These guidelines are designed to instruct a student to the level of First Aid Provider, who serves as a vital link in the chain of survival. The First Aid Provider Core Elements include the minimum knowledge and skills necessary for the individual to provide first aid with a limited amount of equipment. After successful completion of a training program based on the First Aid Provider Core Elements, the student will be able to:

- Explain the Roles and Responsibilities of the First Aid Provider
- Explain the Importance of Scene Safety and Body Substance Isolation
- Explain the Good Samaritan Law, Consent, and Confidentiality
- Perform an Emergency Move and Place a Person in the Recovery position
- Open and Maintain an Airway
- Provide Rescue Breathing
- Manage an Obstructed Airway
- Perform Scene Assessment
- Perform Initial and On-Going Assessments of the Injured/Ill Person
- Perform Adult One Rescuer CPR
- Explain the “Warning Signs and Symptoms” of Medical Problems
- Care for a Decreased Level of Responsiveness
- Control External Bleeding, Recognize Internal Bleeding, and Care for Shock
- Stabilize Suspected Spinal Injury
- Provide Manual Stabilization of Suspected Skeletal Injuries

## Skill Practice

Emphasis should be placed on the skills of the First Aid Provider Core Elements. **The majority of the class time should be used for skill practice.** Program developers and instructors should limit presentations to the essential knowledge needed by the First Aid Provider to perform the skill.

## Barriers to Action in an Emergency

Exploring the First Aid Provider's barriers to action in an emergency is one of several fundamental first steps in curriculum design. Traditionally, receiving first aid instruction has been no guarantee that a First Aid Provider will respond to another person in need of immediate life support and care. It is apparent that many First Aid Providers do not provide emergency care when it is indicated. The reasons cited generally fall into two categories: (1) poorly designed programs which are not objectively developed and fail to adhere to fundamental rules of curriculum development, and (2) specific layperson characteristics within the social/cultural and psychological/emotional domain.<sup>14</sup>

First aid program developers and instructors are responsible for helping First Aid Providers overcome barriers to action in an emergency. Factors that are key to bridging obstacles include basing content and instructional decisions on objective criteria and assuring that instructor preparation focuses on the cultural and psychosocial needs of the students (in addition to program knowledge and skills).<sup>15</sup>

One of the most common and intense emotions at the time of a medical emergency is fear (fear of death, fear of failure, and fear of negative consequences) which can quickly result in panic. Panic may result in improper action or inaction by the First Aid Provider. First aid curricula need to focus on skills and confidence building, not medical facts and information.<sup>16</sup> Information concerning common barriers to actions and knowledge of what constitutes appropriate action should be combined with skill practice to build confidence that can be translated into effective action.

## Bloodborne Pathogens and First Aid in Occupational Settings

Another common barrier to action in an emergency is fear of disease transmission between an ill or injured person and a First Aid Provider. For example, the perceived risk of disease transmission during CPR has reduced the willingness of some laypersons to initiate mouth-to-mouth ventilation in unknown victims of cardiac arrest.<sup>17</sup> Because of disease transmission concerns, First Aid Providers must learn the importance of universal precautions/body substance isolation. They should know what steps to take for personal protection from bloodborne pathogens, be able to describe necessary personal protective equipment, and demonstrate how to use, remove, and discard such equipment. However, First Aid Providers may also have to

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<sup>14</sup>Braslow, A. (1994) *Standardization of Medical Training for the Non-Medical Professional*. Presented at the Eleventh Annual International Aircraft Cabin Safety Symposium and Technical Conference, Long Beach, CA.

<sup>15</sup>Braslow, A. CPR; A Skill for Everyone? in: *Proceedings of the Australian Resuscitation Council Spark of Life Conference*. Melbourne, Victoria, Australia: Australian Resuscitation Council; 1993:18.

<sup>16</sup>National Standard Curriculum for Bystander Care, National Highway Traffic Safety Admin., U.S. Dept. of Transportation, 1992. 17-20.

<sup>17</sup>Emergency Cardiac Care Committee and Subcommittees, American Heart Association®. Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care, *JAMA* 1992;268:2197

meet more comprehensive bloodborne pathogen standards.

In 1992, with input from the Centers for Disease Control (CDC), the Occupational Safety and Health Administration (OSHA) announced a workplace standard entitled Occupational Exposure to Bloodborne Pathogens.<sup>18</sup> The purpose of the standard was to eliminate or minimize occupational exposure to Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV), and other bloodborne pathogens for employees who face a health risk from exposure to blood and other potentially infectious materials. The bloodborne pathogens standard addresses the broad issue of occupational exposure to blood and other potentially infectious materials and is not meant solely for employees in health care settings. Since there is no population that is risk free for human immunodeficiency virus and hepatitis B virus infectivity, any employee who has occupational exposure to blood or other potentially infectious materials is included within the scope of this standard.

The standard does not apply automatically to employees if they are trained in first aid, but rather to those employees who are required by the employer to *actually administer first aid* in instances where occupational exposure may occur. Occupational exposure is defined as reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties. Therefore, those employees who are designated by the employer as responsible for rendering first aid as part of their job duties are covered by the standard. Employees who perform unanticipated "Good Samaritan" acts are not covered by the standard, since such actions do not constitute "occupational exposure" as defined by the standard. However, employers are encouraged to offer follow-up procedures to an employee who experiences an exposure incident as a result of a "Good Samaritan" act.<sup>19</sup> As has been previously stated, for the purpose of *this document*, a "First Aid Provider" is defined as a person who has an occupational requirement to be first aid trained, but responds as a "Good Samaritan." Further training for employees designated by their employers to render first aid as part of their job duties will be necessary to meet the requirements of OSHA 29 CFR 1910.1030.

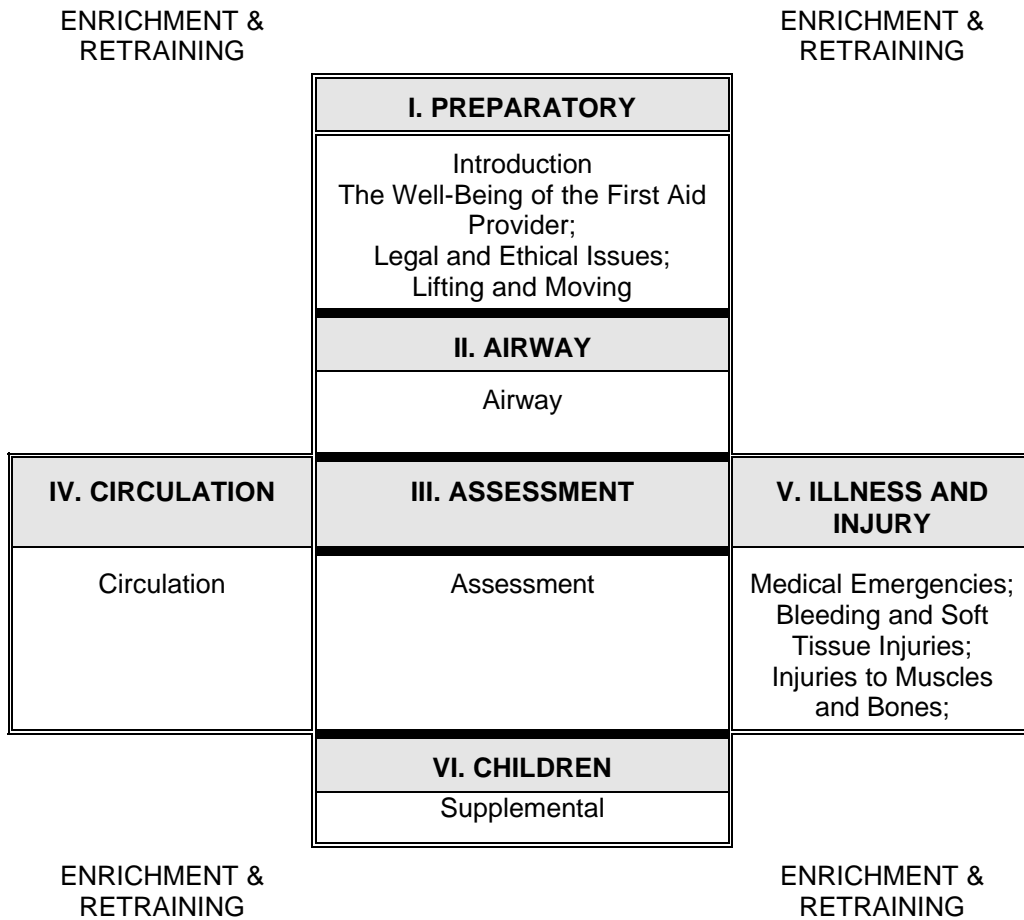
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<sup>18</sup>U.S. Department of Labor, Occupational Safety & Health Administration 29 CFR 1910.1030.

<sup>19</sup>U.S. DOL/OSHA, Standard Interpretations and Compliance Letters, [http://www.osha-slc.gov/OshDoc/Interp\\_toc/Interp\\_toc\\_by\\_std.html](http://www.osha-slc.gov/OshDoc/Interp_toc/Interp_toc_by_std.html).

## First Aid Training Guidelines

### DIAGRAM OF INSTRUCTIONAL MODEL



**Program developers are responsible for selecting the order in which modules are presented and the instructional methodology used to present them.**

## **Course Design**

### **Module 1: Preparatory**

#### **Lesson 1-1**

##### **Introduction**

Familiarizes the First Aid Provider with the introductory aspects of first aid . Topics include the Emergency Medical Services system and roles and responsibilities of the First Aid Provider.

#### **Lesson 1-2**

##### **Well-Being of the First Aid Provider**

Covers the emotional aspects of first aid, stress management, scene safety, body substance isolation (BSI), personal protection equipment (PPE), and safety precautions that can be taken prior to performing the role of a First Aid Provider.

#### **Lesson 1-3**

##### **Legal and Ethical Issues**

Explores the scope of care, moral and ethical responsibilities, consent, refusals, abandonment, negligence, and confidentiality.

#### **Lesson 1-4**

##### **Lifting and Moving Ill or Injured Persons**

Provides students with knowledge of emergency lifting-and-carrying techniques, and principles of moving injured/ill persons when necessary to protect life or prevent further injury.

### **Module 2: Airway**

#### **Lesson 2-1**

##### **Airway**

Addresses airway anatomy and physiology, how to maintain an open airway, rescue breathing, *optional* variations for infants and children, as well as injured/ill persons with stomas. The barrier devices will be discussed in this lesson. Also included is the management of foreign-body airway obstructions.

### **Module 3: Assessment**

#### **Lesson 3-1**

##### **Assessment**

Enhances the First Aid Provider's ability to evaluate a scene for potential hazards, to determine the number of injured/ill persons, summon EMS, and to evaluate the mechanism of injury or nature of illness. This lesson provides the knowledge and skills to properly perform the initial assessment. In this session, the student will learn about forming a general impression, determining responsiveness, and assessing the airway, breathing, and circulation. Students will discuss how to determine priorities of emergency care. This lesson also teaches the knowledge and skills required to continue the assessment and management of the ill or injured person.

### **Module 4: Circulation**

#### **Lesson 4-1**

##### **Circulation**

This lesson provides the First Aid Provider with the knowledge and skills of Basic Life Support/Cardio-Pulmonary Resuscitation (BLS/CPR) for adults (*children and infants optional*).



## **Module 5: Illness and Injury**

### **Lesson 5-1**

#### **Medical Emergencies**

Discusses the recognition and management of general medical problems, seizures, levels of responsiveness, environmental emergencies, and typical emergency care situations.

### **Lesson 5-2**

#### **Bleeding, Shock, and Soft-Tissue Injuries**

Reviews the cardiovascular system, describes the care of the injured/ill person with internal and external bleeding, and teaches the management of soft tissue injuries and burns. Techniques of dressing and bandaging wounds will also be taught in this lesson.

### **Lesson 5-3**

#### **Injuries to Muscles and Bones**

Reviews the anatomy of, and injuries to, the muscles and bones. Presents information about injuries of the skeletal system. Reviews the anatomy. Discusses injuries to the spine and head, including the mechanism of injury, signs and symptoms of injury, and assessment.

## **Module 6: Children (supplemental)**

### **Lesson 6-1**

#### **Infants and Children**

Presents information concerning anatomical differences in infants and children, discusses common medical and trauma situations.

## **Length and Depth of First Aid Training Programs**

The length and depth of first aid training programs need to be targeted at occupational risk and EMS accessibility. Employers are understandably concerned with the financial impact that first aid training programs create. Workers taken out of production and presented with extensive, non-essential first aid information unrelated to their specific occupational needs expends resources needlessly. Occupationally targeted first aid training based upon occupational hazards and time and distance from EMS is essential. As an example, the core program might be considered adequate for a clerical worker in an urban/suburban office. Conversely, a supplemental and/or enrichment program may be desired to adequately prepare a worker in a rural setting 25 minutes or more from EMS and/or in a high hazard work environment.

The method of estimating these variable risk factors and matching them to appropriate knowledge categories and skill proficiencies (to ensure reasonably effective first aid can be provided at the work site) is the responsibility of employers with the assistance of first aid training program developers, safety professionals, and first aid instructors. However, caution is warranted. Too much flexibility in program content may result in presentations that lack an organized approach to the care of the ill or injured person.

## **Core Programs**

The Core Program is based in part upon the concept of Life-Supporting First Aid,<sup>20</sup> adapted for use within an occupational setting. Core programs are appropriate for many low risk worksites and is the minimum information and skills in which persons with an occupational requirement should be trained (Table 2). At worksites with low occupational hazards and short EMS response times, first aid training should focus on information, assessment, and skills that will protect life or prevent further injury during the brief interval (4–6 minutes under normal circumstances) between incident and EMS arrival. The core program should minimally consist of the modules and lessons that appear in the table on the following page. Coverage of these modules and lessons with proper emphasis will help assure presentation of essential life-supporting first aid information.

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<sup>20</sup>Safar P, International Resuscitation Research Institute, Pittsburgh, PA.

## First Aid Provider Core Elements

Core Topic	Emphasis
<b>Module 1: Preparatory</b> Lesson 1-1 Introduction  Lesson 1-2 The Well-Being of the First Aid Provider  Lesson 1-3 Legal and Ethical Issues  Lesson 1-4 Moving and Positioning of Injured or Ill Persons	<ul style="list-style-type: none"> <li>• Roles and Responsibilities of the First Aid Provider</li> <li>• Personal Safety, Scene Safety, and Body Substance Isolation</li> <li>• Good Samaritan Law, Consent, and Confidentiality</li> <li>• Emergency Moves and Recovery Position</li> </ul>
<b>Module 2: Airway</b> Lesson 2-1 Airway	<ul style="list-style-type: none"> <li>• Opening and Maintaining an Airway</li> <li>• Rescue Breathing</li> <li>• Managing an Obstructed Airway</li> </ul>
<b>Module 3: Assessment</b> Lesson 3-1 Assessment	<ul style="list-style-type: none"> <li>• Scene Assessment</li> <li>• Initial Assessment of the Injured/Ill Person</li> <li>• On-Going Assessment of the Injured/Ill Person</li> <li>• Physical Assessment</li> </ul>
<b>Module 4: Circulation</b> Lesson 4-1 Circulation	<ul style="list-style-type: none"> <li>• One Rescuer CPR</li> </ul>
<b>Module 5: Illness and Injury</b> Lesson 5-1 Medical Emergencies  Lesson 5-2 Bleeding, Shock, and Soft Tissue Injuries  Lesson 5-3 Injuries to Muscles and Bones	<ul style="list-style-type: none"> <li>• Recognize the “Warning Signs and Symptoms” of Medical Problems</li> <li>• Recognize and Care for a Decreased Level of Responsiveness</li> <li>• Control of External Bleeding</li> <li>• Recognize Internal Bleeding</li> <li>• Recognize and Care for Shock</li> <li>• Recognize and Stabilize Suspected Spinal Injury</li> <li>• Manual Stabilization of Suspected Skeletal Injuries</li> </ul>

**Table 2**

**Program developers are responsible for selecting the order in which modules are presented and the instructional methodology used to present them.**

## **Supplemental Programs**

Supplemental programs should be used at worksites with moderate to high occupational hazards and/or lengthened EMS response times. First aid training should include the core program components and some or all of the supplemental information on physical assessment (Lesson 3-1), emergency care for specific medical and environmental emergencies (Lesson 5-1), emergency care for specific soft tissue injuries (Lesson 5-2) and Children (Lesson 6-1). The length and depth of the supplemental topics is dependent on occupational risk and worksite requirements.

## **Enrichment Programs**

Enrichment programs are necessary in some occupational settings when the employer, instructor, or program developer determines additional training beyond the core and supplemental programs is necessary to meet occupational risk. Examples of these topics may include, but are not limited to, automated external defibrillation, oxygen administration, advanced lifting and moving techniques, splinting of injured bones, specific treatment for exposure to hazardous materials used in the workplace, information relative to daycare for infants/children, and commercial or recreational scuba diving accidents.

Occupational risk or extended time and distance from EMS resources may indicate a need for training beyond the Core Program. Each work environment should be surveyed to determine the appropriate level of training that workers should receive.

## How to Use the Modules

There are six modules of instruction in the core content. Each lesson has the following components:

### Objectives

The objectives are divided into three categories: Cognitive, Affective, and Psychomotor.

<b>Cognitive</b> (thinking)	<b>Psychomotor</b> (physical process)	<b>Affective</b> (emotional response)
<ul style="list-style-type: none"><li>• knowledge</li></ul>	<ul style="list-style-type: none"><li>• physical movement</li></ul>	<ul style="list-style-type: none"><li>• feelings</li></ul>
<ul style="list-style-type: none"><li>• comprehension</li></ul>	<ul style="list-style-type: none"><li>• skilled activities</li></ul>	<ul style="list-style-type: none"><li>• emotional intensity</li></ul>
<ul style="list-style-type: none"><li>• application</li></ul>		

To assist with the design and development of a specific lesson, each objective has a numerical value, e.g., 3-1.1. The first number is the module of instruction, followed by a hyphen and the number of the specific lesson. For example, 3-1.1 is:

Module 3:	Patient Assessment
Lesson 3-1:	Patient Assessment
Objective 3-1.1	Recognize hazards/potential hazards. (C-1)

At the end of each objective is a letter for the type of objective: C = Cognitive; A = Affective; and P = Psychomotor. (The example above is Cognitive). The number following the type of objective represents the level of objective: 1 = Knowledge; 2 = Application; and 3 = Problem Solving. (The example above is Knowledge).

### Preparation

Motivation—Each lesson has a motivational statement that should be presented prior to teaching the lesson. It is important to be familiar with its content and to be able to prepare the students or explain why this lesson is important.

### Prerequisites

Prior to starting a lesson, the instructor should assure that the students have completed the necessary prerequisites.

### Materials

**Audio Visual (AV) Equipment**—In recent years, high-quality video materials have become available for first aid. They should be used as an integral part of the instruction in this program. The course coordinator should ensure in advance that the necessary types of AV equipment are available for the class. If possible, the course administrator should have a video library available for the student.

### Equipment

Each lesson plan contains a list of equipment that should be available for instruction.

## Recommended Time to Complete

The time to complete each lesson will vary according to factors such as instructional design, the varying nature of adult learners, and their number in a given class. The recommended time to complete all lessons and present cognitive, affective, and psychomotor objectives of the core guidelines is within 4 to 6 hours. However, it is important to recognize that first aid training can be both general and specific to the unique hazards of a particular industry or process. Therefore, it is impossible to state that recommended minimum times to complete the core elements will satisfy all occupational requirements.

Programs of greater length (more than 6 hours) and depth in knowledge and/or skill components may be necessary to ensure compliance with state or federal regulations, provide training for specific occupational risks, or to prepare for extended EMS response times. These programs will contain the core program as well as additional supplemental and/or enrichment information. The length of these extended programs is determined by the scope and depth of the additional information and skills presented.

## Presentation

### Declarative (What)

This is the cognitive lesson plan, the information that the instructor provides the students. This may be accomplished by various methods, including lectures, small group discussion, and the use of audio-visual materials. Demonstrations, if the instructor desires, may be used as part of the instruction. The instructor must be well versed in the entire content of the lesson plan. These *National Guidelines for First Aid Training in Occupational Settings* should be considered an influential document that provide *guidelines* for the appropriate flow of information. The amount of declarative information included to accomplish the objectives is the responsibility of the program developer and/or instructor. **These guidelines are not intended to be the instructors lesson plans.** The instructor's lesson plans should be based upon these guidelines, instructional design methodology, and local practice. The program developer and/or instructor should make their own lesson plans according to authoritative instructional design methodology.

## Application

### Procedural (How)

This is the skills portion of the program. The students should be able to demonstrate reasonable proficiency in all skills listed in each section. **Emphasis should be placed on the development of psychomotor skills. Instructors and program developers should develop lesson plans that allow for the majority of class time to be spent doing hands-on practice.** If the declarative (what) content was presented as a lecture, the instructor should perform demonstrations prior to having the students perform the skills. If the instructor performed a demonstration as part of the declarative component, the students may begin by practicing skills in the practical setting. When this component of the lesson is being conducted, student-to-instructor ratios (SIR) should be consistent with authoritative instructional design methodology. In order to maintain the optimal teaching environment, the SIR should not exceed 12:1 and a student to manikin ratio of 6:1. Exceeding these ratios will significantly increase the instructional time frames.

Students should be praised for their progress. For those students having difficulty performing a skill or skills, remediation is required. It is well known that a demonstration must be followed by practice in which skills are reproduced. Reproductive skills are simple skills that involve very

little planning or strategy on the learner's part. For example, performing a head-tilt, chin-lift maneuver. The instructor demonstrates the skill and the learner reproduces it. Reproductive skills improve with repetition. Reproductive skills for new learners usually require only the amount of information necessary to reasonably perform the skill.<sup>21</sup> Periodic practice of new skills is necessary to maintain a reasonable level of competency. It has been argued that a personal "threshold" exists for mastery of reproductive skills. Forcing the learner to perform at a level beyond this personal threshold does not increase ability; on the contrary, attempting to do so increases the error rate and eventually leads to a "total breakdown" of the skilled performance.<sup>22</sup>

### **Contextual (When, Where, and Why)**

This section is designed to help the students understand the application of their knowledge and skills relating to their performance as First Aid Providers. This section relates back to the motivational statement and represents the reasoning as to why, where, and when a First Aid Provider would need to use the knowledge or perform the skills. It is important that the instructor be familiar with the intent of this section and relay that intent to the students.

### **Student Activities**

Students learn by various methods. The three learning styles are auditory, visual, and kinesthetic (A-V-K). The intent of this section is to ensure that the content of the guidelines is presented to meet the needs of the three different types of learning styles. These three areas should not necessarily be used separately from the lesson plan, but as an adjunct to it. An attempt to provide instruction to the student with these three types of modalities will enhance student learning. Instructors should feel free to add additional A-V-K experiences appropriate for each lesson.

### **Auditory (Hearing)**

This section allows information to be presented verbally. Students who learn best by hearing will benefit from this method of instruction.

### **Visual (Seeing)**

This section allows the instructor to provide material through visual representations. Visual learners will benefit from this method of instruction.

### **Kinesthetic (Doing)**

This section allows the instructor to teach material by having the students perform the skill. Those students who learn best by doing will benefit from this method of instruction.

## **Instructor Activities**

This section is to remind the instructors that they should always supervise student practice and praise progress. They should use positive reinforcement in the cognitive, affective, and psychomotor domains. Occasionally some learners may perform less than adequately or fall short of the necessary objectives to receive a successful completion card within the time constraints of the program. They should be offered remediation and remediation opportunities should be accessible to all. Professionalism, patience, and positive coaching in a relaxed environment of mutual respect should assist most in reaching their goal of successful completion.

## **Testing and Evaluation of First Aid Training Course Participants**

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<sup>21</sup>Romiszwski AJ, *Designing Instructional Systems. Decision making in course planning and curriculum design*, ©1981 Kogan Page, London/Nichols Publishing, New York: 300–303.

<sup>22</sup>Ibid.

The purpose of occupationally regulated first aid training for laypersons should be to educate, not to test or certify competence. It is the responsibility of course instructors to assess the student's skill and knowledge of course content, and determine if he or she has successfully completed the course.

First aid course participants are not medical professionals and thus are accountable only by personal choice—the sense of ethical and moral responsibility—for application of knowledge or skill. Furthermore, difficulties with literacy and language are a common impediment as the American public and labor pool continue to diversify. Subsequently, formal written evaluation (testing) is discretionary at the level of First Aid, unless required by regulation, rule, or policy. Informal evaluation (including prompt feedback of knowledge and skills gained) should always be used. This will allow the learner, with the considerate guidance of a qualified instructor, to evaluate his or her own skills and knowledge, and to correct insufficiencies.

The goal for each individual who participates in occupationally required first aid training is to succeed to his or her highest level of performance. Individuals experiencing problems in learning should be offered positive reinforcement and assistance to reach a reasonable performance level within the constraints of time.

Persons with special needs who express a desire to learn first aid should be provided a positive learning experience. Many (if not most) people with special needs are entirely capable of successful completion. Routine instructional strategies may have to be adjusted to meet their special needs.

Evaluatory tools used to rate learner performance should be maintained by instructors or their organizations and used to demonstrate reasonable achievement of the course objectives by the learner. This is especially true in this setting, where government regulations compel first aid training within an occupational setting.

## **Remediation**

The intent of this section is to ensure that the instructor meets the needs of those students who are experiencing difficulty understanding the material or performing practical skills.

## **Enrichment**

This section is designed to allow the program designers, instructors, and employers to add additional information or augment the guidelines content. Anything that is unique to your occupational setting should be added.

Additionally, brief safety messages and injury/illness prevention information may be included to enhance accident reduction and wellness programs. Stressing prevention of workplace accidents and illnesses is an important aspect of occupationally required first aid training.



## Instructors

### Assessing Student Achievement

All written examinations used within the program should be valid and reliable and conform to psychometric standards. Instructors should be encouraged to use outside sources to validate examinations and/or as a source of classroom examination items.

The primary purpose of this course is to prepare students to meet the expectations for a First Aid Provider. Each student, therefore, should demonstrate attainment of knowledge, attitude, and skills in each area taught in the course. It is the responsibility of the program administrator, primary instructor, and employer to assure that students obtain proficiency. The level of knowledge, attitude, and skills attained by a student in the program will be reflected in first aid performance.

### Successful Completion

Successful completion of a training program in first aid for non-dutied laypersons indicates completion of a course which follows generally recognized medical treatments that are safe, indicated, and helpful. A successful completion card or certificate should be issued when a qualified instructor:

- Respects the course curriculum and lesson format.
- Identifies each student's understanding of the cognitive, affective, and psychomotor objectives of these guidelines.
- Observes each student's comfort with, and reasonable performance of, essential psychomotor skills.
- Uses an appropriate evaluation tool to document the student's successful performance.

### Program Developer

The primary responsibility of the program developer is instructional design consistent with these guidelines. This is fundamentally a diagnostic enterprise. It involves planning sequences of learning experiences that will produce a desired result.<sup>23</sup> This involves diligent effort toward selecting the most effective methods and techniques for producing this result.

### Instructor Supervision

Technology-based approaches for learning first aid, such as computer-based learning, audio cassettes, film, and television, have been recommended.<sup>24</sup> These technologies hold promise, especially in disseminating knowledge content. Limited integration with guided feedback has been accomplished<sup>25</sup> but is generally limited to dutied emergency medical care personnel. More complex first aid interventions involve psychomotor skills. Reasonable proficiency in skill requires guided supervision for reliable reproduction. Classic research has demonstrated that expositive methods (demonstration and prompted practice) of the entire task or special exercises are required to reach a reasonable, but not necessarily high, standard of performance. Instructor

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<sup>23</sup>Knowles MS, *The Modern Practice of Adult Education, From Pedagogy to Andragogy*, The Adult Education Company, Cambridge, 1980:26.

<sup>24</sup>Ibid.,54.

<sup>25</sup>Anderson PB, *Interactive Training for Emergency Medical Personnel, 1994 Presentation*, NAEMSP Winter Meeting.

supervision is necessary to prevent unsatisfactory performance and to prevent the learner from “drifting” from correct procedures through lack of corrective feedback.<sup>26,27</sup>

Education in first aid can be separated into approaches which are dependent upon instructor supervision and feedback and those that are not. For the purpose of meeting occupational or regulatory demands, computer-based learning, audio or video cassettes, film, and television are useful adjuncts to initial learning and continuing education but currently should not be considered adequate when used alone.

*Acceptable first aid training programs for meeting occupational or regulatory concerns should include supervision by qualified instructors.* Thus, reliable learning programs to develop qualified instructors are an undeniable necessity for first aid training programs which offer evidence of successful completion to participants.

The instructor must be knowledgeable in aspects of first aid and BLS/CPR, in methods of adult education, and in managing resources and personnel. This individual should have attended and successfully completed a standardized course of instruction in first aid at the instructor level.

## Several Characteristics of Adult Learners

Individuals participating in this educational program should be considered adult learners even in those programs instructing students younger than age 18. Adult learners are responsible for their own learning. There are several characteristics regarding the adult learner as a First Aid Provider student.

1. Students usually want to utilize knowledge and skills they have learned soon after they have learned them.
2. Students are interested in learning new concepts and principles; they enjoy situations that require problem-solving, not necessarily learning facts.
3. Adult learners learn better if they are active participants rather than passive learners.
4. Adult learners want to relate the material they are learning to past experiences of their own.
5. Students will learn best if they are able to proceed at a reasonable pace.
6. Motivation is increased when the content is relevant to the immediate interests and concerns of the student.
7. Immediate feedback is essential to the student, who needs to be kept continuously informed of progress.

One intent of these guidelines is to alter the methods of instruction used by the instructor. These guidelines has been designed and developed to reduce the amount of lecture time and move towards an environment of discussion and practical skills. This way both learners and instructors are active in the process of learning.

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<sup>26</sup>Romisowski AJ, *Designing Instructional Systems, Decision making in course planning and curriculum design*, Kogan Page, London/Nichols Publishing, New York: 300–303.

<sup>27</sup>Thorndike E, *Adult Learning*, New York, MacMillan, 1928.

## **Gain and Maintain the Attention of the First Aid Student**

To be successful, instructors need to gain and maintain the attention of the students. There are many methods that may be used to gain the student's attention (e.g., telling a *brief and immediately relevant* anecdote (not inappropriate "war stories"), posing a unique situation, or asking how they would solve a problem). Once the attention of the student is gained, it must be maintained throughout the entire lesson. After about 15–20 minutes of presentation, it is essential that the student be reinvolved in the learning process.

## **Conducting Emergency Care Scenarios in the Classroom**

Adults desire hands-on training. One very effective method of teaching is the use of emergency care scenarios in the classroom. This is the acting out of a first aid situation. This provides the student an opportunity to respond, evaluate the scene, assess the injured/ill person, control life threats, and do any of the treatments covered in the course that would be appropriate while waiting for EMS. Scenarios give students the opportunity to demonstrate integration of the course's cognitive, affective, and psychomotor objectives into a real-life scenario while working with a team of First Aid Providers. This is an application which "puts it all together" for the student by incorporating their ability to hear, see, and do as well as begin to emphasize teamwork and leadership skills.

A possible limitation of scenarios is the creation of a false sense of security on the part of learner(s) who successfully complete the program. There is some concern that a bad simulation may simplify complex reality to such an extent that the learner gets a "dangerous illusion of perfect understanding."<sup>28</sup> Such superficial understanding may result in emotional distress when the learner recognizes that the real world does not always reflect the simulation.<sup>29</sup> To lessen the potential impact on especially new learners, instructors should be careful to point out a scenario is, at best, an *imperfect simulation* of reality.

## **Retraining**

Retraining is an important issue. Emergency medical care is increasingly being studied. Changes in procedure occur with escalating frequency. Acquired first aid skills and knowledge deteriorate at a variable rate. Though little objective research exists, organizations that develop training programs determine how often knowledge and skills remain viable based on past performance and well-grounded practical experience. Any dependable local or national organization promoting reliable, safe, and effective first aid training sets limits for the effective duration of acquired knowledge and skills.

Responsible organizations should be readily capable of defending self-imposed limits. In the absence of objective and reliable research to base durational limits, any reliable organization who can show an established course curriculum, and lesson format for retraining with reasonably acceptable time limits should be regarded as an acceptable program.

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<sup>28</sup>Sivasailam T, Stolovitch HD, *Instructional Simulation Games*, in; *The Instructional Design Library*, Educational Technology Publications, Englewood Cliffs, NJ., ©1978:60.

<sup>29</sup>Ibid.

Limits for setting the effective duration of acquired knowledge and skills should not be one dimensional. The factors which determine retraining course frequency that should be considered are:

1. Federal or state regulations.
2. Occupational risk.
3. Time and distance from Emergency Medical Services.

Persons working in high-risk occupations or activities or for whom time and distance from EMS or other sources of professional medical care is excessive should receive more frequent retraining.

## Students

### Description—First Aid Provider

The First Aid Provider may function in the context of a broader role (i.e., law enforcement, fire rescue, or industrial response). With a limited amount of equipment, the First Aid Provider performs initial assessment and provides immediate life support and care while awaiting arrival of EMS. After receiving notification of an emergency, the First Aid Provider safely responds to the location given.

- Has a basic understanding of scene safety;
- Has an understanding of body substance isolation;
- Understands basic legal and ethical concepts relative to first aid;
- Functions within the scope of first aid care as defined by regulatory agencies.

Before initiating emergency care, the First Aid Provider will “size-up” the scene to determine that the scene is safe, to identify the mechanism of injury or nature of illness, determine the total number of injured or ill persons, and to request EMS. Using a limited amount of equipment, the First Aid Provider renders first aid based on assessment findings. Responsibilities include but are not limited to:

- Opening and maintaining an airway;
- Ventilating ill/injured persons;
- Administering cardiopulmonary resuscitation;
- Providing first aid of simple and multiple system trauma such as:
  - Controlling hemorrhage
  - Wound care
  - Manually stabilizing injured extremities;
- Providing first aid to:
  - Manage general medical problems, levels of responsiveness, seizures, and environmental emergencies;
- Searching for medical identification emblems as a guide to identify preexisting conditions;
- Reassuring injured/ill persons and bystanders;
- Avoiding mishandling or further harm to the injured/ill person;
- Ongoing assessment of the injured/ill person while awaiting EMS;
- Administering additional care as indicated;
- Orally reporting their observations and first aid of the injured/ill person to EMS. Upon request, provides assistance to EMS personnel;
- Attending continuing education and refresher education programs as required.

## Environment

### Educational Environment

The intent of these guidelines is to allow for greater interaction between students and instructors. The instruction should be experiential and interactive. By using the procedural (how) section of the application area of the lesson plan as well as the kinesthetic (do) component of the student activity section, the instructor should be able to enhance the educational experience for the students.

### Maintaining Records

It is recommended that the Program Developer/Administrator and/or instructor maintain, as a minimum, information on the following:

- Student attendance and performance, including comments as appropriate regarding need for improvement in skills, knowledge, and attitudes.
- Results of evaluation.
- Number and qualifications of the instructional team.
- Student's evaluation of the instructor and course.
- Lists of enrichments and add-on courses taught in conjunction with the program.

### Equivalency and Reciprocity

It is important to recognize that possession of a successful completion card from one training agency *does not* imply equivalency with another. While possession of a card indicates successful completion of a course, an employer has a right to use the program of their choice and a need to confirm individual competence. Though there may be local variance, *none* of the national programs currently has pure reciprocity—the *mutual and unconditional* acceptance of each other's successful completion certificates.

*Students should understand that reciprocity is not guaranteed.* They should check with the agency for specific course requirements prior to registering, paying for, or completing a class. Alerting the student to possible complications in this regard is primarily the responsibility of the instructor or instructor's organization. Employers and consumers are encouraged to seek out the program and agency that best serves their need. Costs and materials will vary.

### Program Evaluation

On-going evaluation of the program should be conducted to identify instructional or organizational deficiencies affecting student performance. The evaluation process should be two-fold in nature, objective, and subjective. Two main methods of objective evaluation generally used are:

- 1) How well do students measure up to evaluation?
- 2) How well do First Aid Providers perform?

Group and individual deficiencies may indicate problems in the training program. The training program should be evaluated by how well the objectives relate to the learning activities.

Subjective evaluation should be conducted at regular intervals by providing students with instruments to gather their opinion of the program's strengths and weaknesses. Students should be given the opportunity to comment on the primary and assistant instructors, presentation styles, and effectiveness. Students should also be asked to comment on the quality and quantity of psychomotor skills.

The purpose of this evaluation process is to strengthen future training efforts. All information obtained as part of the subjective evaluation should be reviewed for legitimacy and possible incorporation into the course. Due to the important nature of this educational program, every effort should be made to ensure instruction of the highest quality.

## **Facilities**

The physical environment of the First Aid program is a critical component for the success of the overall program. The facility should have sufficient space for seating all students. Abundant space should be made available for demonstrations. Additional rooms or adequate space should be available as practice areas. Facilities should also be evaluated for their ability to meet requirements for students with special needs.

The facility should be well lit for adequate viewing of various types of visual aids and demonstrations. Heating and ventilation should assure student and instructor comfort. A chalkboard, flip chart, or grease board, and appropriate audio-visual equipment should be available. If possible, light switches should be conveniently located in the presentation area. The practice areas should be carpeted and large enough to accommodate students and instructor(s) and the necessary equipment. Inadequate facilities may increase course length and negatively impact student learning.

# **Module 1: Preparatory**

## **Lesson 1-1**

### **Introduction**

# Objectives

## Objectives Legend

- C=Cognitive A=Affective P=Psychomotor
- 1 = Knowledge level
- 2 = Application level
- 3 = Problem-solving level

## Cognitive Objectives

At the completion of this lesson, the First Aid Provider student will be able to:

- 1-1.1 Discuss the components of Emergency Medical Services (EMS) systems. (C-1)
- 1-1.2 Differentiate the roles and responsibilities of the First Aid Provider from other out-of-hospital care providers. (C-3)

## Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1-1.4 Accept and uphold the responsibilities of a First Aid Provider in accordance with the generally recognized standards of care. (A-3)

## Psychomotor Objectives

*No psychomotor objectives identified.*

# Preparation

## Motivation:

The first link in the Emergency Medical Services (EMS) system is the Bystander or First Aid Provider. Prompt, properly administered first aid care can make the difference between life and death, rapid versus prolonged recovery and temporary versus permanent disability. These guidelines are designed to assist instructors in producing First Aid Providers that are knowledgeable and capable of rendering effective emergency care prior to arrival of professional responders.

## Prerequisites:

None.

## Materials

## AV Equipment:

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

## Equipment:

None required.

## Recommended Minimum Time to Complete:

See page 12 of *Course Guide*.



# Presentation

## Declarative (What)

- I. Course Overview
  - A. Course description and expectations
  - B. Advancement—other training opportunities
  
- II. The Emergency Medical Services (EMS) system and the First Aid Provider
  - A. Overview of the Emergency Medical Services system
    1. Access to the Emergency Medical Services system.
      - a. 9-1-1
        - (1) Basic
        - (2) Enhanced 9-1-1
      - b. Non 9-1-1
      - c. Emergency Medical Dispatch (EMD)
        - (1) In some EMS systems, besides dispatching EMS to the scene, dispatchers are specially trained EMD's
        - (2) Priorities for EMD's
          - (a) Calm the caller
          - (b) Keep caller on line (when possible)
          - (c) Collect additional information
          - (d) Provide pre-arrival instructions
    2. Emergency response plans specific to occupation and location
      - a. Recognition
      - b. Notification and Activation (EMS & First Aid Providers)
        - (1) Fixed site
        - (2) Mobile
      - c. First Aid Response
      - d. EMS Response
      - e. Turnover to EMS
    3. National levels of training (local levels may differ)
      - a. Bystander
      - b. First Aid Provider
      - c. First Responder
      - d. EMT-Basic
      - e. EMT-Intermediate
      - f. Paramedic
    4. Brief overview of the local EMS system
    5. The chain of survival and the EMS system
      - a. Weak links in the chain lower survival rates
      - b. Early access—Phone first/fast
      - c. Early BLS/CPR
      - d. Early defibrillation
      - e. Early advanced cardiac life support (ACLS)
  - B. Roles of the First Aid Provider
    1. Personal, ill or injured person, and bystander safety
    2. Gaining access to the ill or injured person
    3. First Aid assessment of the ill or injured person to identify life-threatening conditions
    4. Continuation of care through EMS resources
    5. Emergency care based on assessment findings
    6. Liaison with public safety workers

- a. Local law enforcement
  - b. State and federal law enforcement
  - c. Fire departments
  - d. EMS Providers
- C. Responsibilities of the First Aid Provider
1. Personal health and safety
  2. Maintain caring attitude—reassure and comfort ill or injured person, family, and bystanders while awaiting additional EMS resources
  3. Maintain composure
  4. Maintain up-to-date knowledge and skills
    - a. Continuing education
    - b. Refresher courses
  5. Put ill or injured person's needs as a priority without endangering self

## Application

### Procedural (How)

None identified for this lesson.

### Contextual (When, Where, Why)

The student will use this information throughout the course to enhance his/her understanding and provide direction for the First Aid Provider's relationship to the EMS system. The lesson will provide the student with a road map for learning the skill and knowledge domains of First Aid. This lesson sets the foundation for the remaining teaching/learning process. A positive, helpful attitude presented by the instructor is *essential* to assuring a positive, helpful attitude from the student.

### Student Activities

#### Auditory (Hearing)

1. Students will hear what they can expect to receive from the training program.
2. Students will hear the specific expectations of the training program.
3. Students will hear the instructor present information on the local EMS system.

#### Visual (Seeing)

1. Students will see visual materials explaining the components of the EMS system, First Aid level of care, and the First Aid Provider's roles and responsibilities.
2. Students will receive student materials.

#### Kinesthetic (Doing)

1. Students will complete any necessary course paperwork.
2. Students will indicate if they will require/request assistance during the course based on the Americans with Disabilities Act. Additionally, students will provide the necessary documentation to support the requirements/request.

### Instructor Activities

1. Facilitate discussion and supervise completion of paperwork as necessary.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.

3. Redirect students having difficulty with content.

## **Evaluation**

Evaluate the actions of First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.

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# **Lesson 1-2**

## **The Well-Being of the First Aid Provider**

# Objectives

## Objectives Legend

- C=Cognitive A=Affective P=Psychomotor  
1 = Knowledge level  
2 = Application level  
3 = Problem-solving level

### Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1-2.1 Discuss possible emotional reactions that the First Aid Provider may experience when faced with trauma, illness, death, and dying. (C-1)
- 1-2.2 Discuss the possible reactions that others may exhibit when confronted with death and dying. (C-1)
- 1-2.3 Explain the need to determine scene safety. (C-2)
- 1-2.4 Discuss the importance of body substance isolation. (BSI) (C-1)
- 1-2.5 Describe the steps the First Aid Provider should take for personal protection from bloodborne pathogens. (C-1)
- 1-2.6 Describe the personal protective equipment necessary for exposure to bloodborne pathogens. (C-1)

### Affective Objectives

At the completion of this lesson, the First Aid student will be willing to:

- 1-2.7 Help others to understand the importance of personal protection from bloodborne pathogens. (A-2)
- 1-2.8 Demonstrate compassion when caring for any ill or injured person with illness or injury. (A-2)
- 1-2.9 After rescuer safety is assured, place the interests of the ill or injured person as the foremost consideration when making any and all emergency care decisions. (A-3)

### Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1-2.10 Given a scenario with potential infectious exposure, the First Aid Provider will use appropriate personal protective equipment. At the completion of the scenario, the First Aid Provider will properly remove and discard the protective garments. (P-1,2)

# Preparation

## Motivation:

First Aid Providers may encounter stressful situations involving emergency medical care. These range from major injury and/or illness to death. First Aid Providers may be confronted with angry, scared, violent, seriously injured or ill people. This lesson emphasizes the emotional aspects of providing first aid. Additionally, personal safety will be discussed. It is important to realize that the safety and well-being of the First Aid Provider must come before that of the ill or injured person. A First Aid Provider who is injured as a result of attempting to help is certainly of no benefit to a victim of illness or injury.

## Prerequisites:

None.

## Module 1: Preparatory

### Lesson 1-2: The Well-Being of the First Aid Provider

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## Materials

### AV Equipment:

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

### Equipment:

Eye protection, gloves, masks.

### Recommended Minimum Time to Complete:

See page 13 of *Course Guide*.

# Presentation

## Declarative (What)

- I. Emotional Aspects of Emergency Medical Care
  - A. Stressful situations
    1. Examples of situations that may produce a stress response
    2. The First Aid Provider will experience personal stress as well as encounter ill or injured persons and bystanders in severe stress.
  - B. Critical incident stress—The normal stress response to abnormal circumstances
  - C. Methods for dealing with critical incident stress
    1. Informal
    2. Formal
- II. Body Substance Isolation (BSI)
  - A. First Aid Providers must be aware of the risks associated with emergency medical care
    1. Barrier devices should be used when ventilating an ill or injured person
    2. Personal protective equipment should be utilized as needed or required by the local system
  - B. First Aid Providers may be exposed to infectious diseases when treating ill or injured person
  - C. OSHA/State regulations regarding BSI is employer responsibility
    1. Company Exposure Plan
    2. Other
  - D. Infection Control
    1. Techniques to prevent disease transmission
      - a. Hand washing/personal hygiene
      - b. Equipment replacement or disposal
    2. Body substance isolation
      - a. Eye protection
      - b. Gloves (vinyl or latex, synthetic)\*
      - c. Clothing change if clothing is contaminated
      - d. Masks—Surgical/dust particle type for possible blood splatter (worn by care provider)

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\*The incidence of latex allergy in the general population is believed to be approximately 7%. The percentages are higher in health care providers and medically fragile children. McKenna K, et al. [Latex Allergy: The Dark Side of Infection Protection](#). *JEMS* April 1996;59-64.

## Module 1: Preparatory

### Lesson 1-2: The Well-Being of the First Aid Provider

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- e. Improvised techniques for BSI
    - f. Requirements and availability of specialty training
  - E. Statutes/regulations reviewing notification and testing in an exposure incident—report exposure to employer immediately
- III. Scene Safety
  - A. Scene safety
    - 1. Definition—an assessment of the scene and surroundings that will provide valuable information to the First Aid Provider and will help ensure the well-being of the First Aid Provider
    - 2. Personal protection—Is it safe to approach the ill or injured person?
    - 3. Protection of the ill or injured person—environmental considerations
    - 4. Protection of bystanders—do not let the bystander become ill or injured
    - 5. If the scene is unsafe do not enter

# Application

## Procedural (How)

1. The First Aid Provider will know how to access additional information on hazardous materials and infectious disease exposure, notification, and follow-up.

## Contextual (When, Where, Why)

1. The First Aid Provider will use the aspects of scene safety and personal protection.
2. This lesson should provide incentive to seek out continuing education programs relative to personal safety during hazardous material incidents, rescue situations, and/or other special situations that may be occupationally required.
3. If the First Aid Provider fails to develop and use personal safety skills, the First Aid Provider may be seriously injured or die.
4. The well-being of the First Aid Provider depends upon the ability to recognize that stressful situations do occur, and that the situation may be beyond the First Aid Provider's ability to help. If the First Aid Provider experiences emotional trauma, early recognition and consultation with an appropriately licensed mental health professional may prevent more serious problems.

## Student Activities

### Auditory (Hearing)

1. The student should hear information regarding dealing with the emotional stress that may result from performing first aid care.

### Visual (Seeing)

1. The student should see various visual representations of scenes requiring personal protection.
2. The student should see various visual representations of personal protection clothing as required by occupation.
3. The student should see the gloves, masks, and eye protection associated with body substance isolation (BSI).

### Kinesthetic (Doing)



**Module 1: Preparatory**Lesson 1-2: The Well-Being of the First Aid Provider

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1. The student should practice assessment of the scene and surroundings that will help ensure the well-being of the First Aid Provider.
2. The student should practice improvised techniques for BSI.

## **Module 1: Preparatory**

### **Lesson 1-2: The Well-Being of the First Aid Provider**

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#### **Instructor Activities**

1. Facilitate discussion and supervise practice.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.
3. Redirect students having difficulty with content.

## **Evaluation**

Evaluate the actions of the First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.

**Module 1: Preparatory**

Lesson 1-2: The Well-Being of the First Aid Provider

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# **Lesson 1-3**

## **Legal and Ethical Issues**

# Objectives

## Objectives Legend

- C=Cognitive A=Affective P=Psychomotor
- 1 = Knowledge level
- 2 = Application level
- 3 = Problem-solving level

## Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1-3.1 Define the First Aid scope of care. (C-1)
- 1-3.2 Be familiar with statutes and regulations in your state regarding First Aid Providers. (C-1)
- 1-3.3 Define consent and discuss the methods of obtaining consent. (C-1)
- 1-3.4 Differentiate between expressed and implied consent. (C-3)
- 1-3.5 Discuss the issues of abandonment, negligence, and battery, and their implications to the First Aid Provider. (C-1)
- 1-3.6 State the First Aid Provider's moral and ethical obligation to provide assistance. (C-1)
- 1-3.7 Explain the importance of ill or injured person confidentiality. (C-1)

## Affective Objectives

*No affective objectives identified.*

## Psychomotor Objectives

*No psychomotor objectives identified.*

# Preparation

## Motivation:

Legal and ethical issues are an important element of First Aid care. Should a First Aid Provider stop and treat an automobile crash victim? Should information be released to an attorney or the media? Can a child with a broken arm be treated even though the parents are not present and/or only the child care provider is around? These and other legal and ethical questions may face the First Aid Provider. Information will be presented in this lesson to address these legal and ethical questions.

## Prerequisites:

None.

## Materials

## AV Equipment:

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

## Equipment:

None required.

**Recommended Minimum Time to Complete:**  
See page 13 of *Course Guide*.

# Presentation

## Declarative (What)

- I. Scope of Care
  - A. Responsibilities to the ill or injured person
    1. Provide for the well-being of the ill or injured person by rendering necessary interventions outlined in the scope of care
  - B. Moral and Ethical responsibilities
    1. First Aid Providers have a moral responsibility to perform first aid for fellow human beings in time of crisis regardless of age, gender, race, ethnicity, or socioeconomic status
    2. Make the physical/emotional needs of the ill or injured person a priority
    3. Practice of skills to a level of reasonable proficiency
    4. Attend continuing education/refresher programs
- II. Consent
  - A. The acceptance of care
  - B. An ill or injured person has the right to make decisions regarding care
  - C. A responsive ill or injured person must consent to receive first aid
  - D. Types of consent
    1. Expressed
      - a. Verbal consent obtained from every responsive injured or ill adult before rendering care
      - b. Methods of obtaining consent
        - (1) Identify yourself
        - (2) Inform the ill or injured person of your level of training
    2. Implied
      - a. Consent is assumed from the unresponsive ill or injured person requiring emergency intervention
      - b. Based on the assumption that the unresponsive ill or injured person would consent to life-saving interventions
  - E. Children\*
    1. Consent for first aid must be obtained from a parent or legal guardian
    2. When life-threatening situations exist and parent or legal guardian is not available for consent, first aid care should be rendered based on implied consent
- III. Refusals
  - A. Adult ill or injured persons have the right to refuse first aid
  - B. The ill or injured person may withdraw from first aid care at any time (Example: an unresponsive ill or injured person regains responsiveness and refuses care)

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\* When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.

## Module 1: Preparatory

### Lesson 1-3: Legal and Ethical Issues

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- C. When in doubt, err in favor of providing care
  - D. The First Aid Provider should consider activating EMS to evaluate the ill or injured person
- IV. Specific statutes and regulations regarding first aid in your state
- A. Good Samaritan Laws
  - B. Occupational Regulations (OSHA, Bloodborne Pathogens, etc.)
  - C. Other
- V. Assault/Battery—Attempting to provide care when the ill or injured person has refused
- VI. Abandonment—Terminating care of the ill or injured person without ensuring that care will continue at the same level or higher
- VII. Negligence—Deviation from the generally recognized standard of care resulting in further injury to the ill or injured person

# Application

## Procedural (How)

None identified for this lesson.

## Contextual (When, Where, Why)

1. Legal and ethical issues must be considered in first aid care. Decisions to treat or not treat an ill or injured person requires a knowledge of current state and local legislation. Up-to-date information on issues such as negligence, battery, confidentiality, consent, and refusal of first aid is important for the First Aid Provider.

## Student Activities

### Auditory (Hearing)

1. Students should hear Good Samaritan laws.

### Visual (Seeing)

1. Students should see visual representations relating to negligence, abandonment, battery, duty to act, and consent.

### Kinesthetic (Doing)

1. Students should review scenarios involving legal and ethical situations that occur in first aid situations (including consent, abandonment, battery, and negligence).

## Instructor Activities

1. Facilitate discussion and supervise practice.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.
3. Redirect students having difficulty with content.

## **Evaluation**

Evaluate the actions of First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.



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# **Lesson 1-4**

## **Moving and Positioning of Ill or Injured Persons**

# Objectives

## Objectives Legend

- C=Cognitive A=Affective P=Psychomotor
- 1=Knowledge level
- 2=Application level
- 3=Problem-solving level

### Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1-4.1 Define body mechanics. (C-1)
- 1-4.2 Discuss the guidelines and safety precautions that need to be followed when lifting an ill or injured person. (C-1)
- 1-4.3 Describe the indications for an emergency move. (C-1)

### Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1-4.4 Explain the reason for properly lifting and moving ill or injured persons. (A-3)
- 1-4.5 Explain the reasons for an emergency move. (A-3)

### Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1-4.6 Demonstrate an emergency move. (P-1,2)

# Preparation

## Motivation:

First Aid Providers may be injured if they attempt to lift or move ill or injured persons improperly.

## Prerequisites:

None.

## Materials

### AV Equipment:

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

### Equipment:

None required.

### Recommended Minimum Time to Complete:

See page 13 of *Course Guide*.

# Presentation

## Declarative (What)

- I. Role of the First Aid Provider
  - A. Moving ill or injured persons who are in immediate danger
  - B. Position ill or injured persons to prevent further injury
  - C. Assist EMS responders as requested and able.
  
- II. Body Mechanics/Lifting Techniques
  - A. Safety precautions
    1. Use legs, not back, to lift
    2. Keep weight as close to body as possible
  - B. Guidelines for lifting
    1. Consider weight of ill or injured person and the need for help
    2. Know physical ability and limitations
    3. Lift without twisting
    4. Have feet positioned properly
    5. Communicate clearly and frequently with assistants
  
- III. Principles of Moving Ill or Injured Persons
  - A. General considerations
    1. An ill or injured person should be moved *immediately* (emergency move) only when:
      - a. There is an immediate danger to the ill or injured person if not moved (e.g., fire, flood, collapse, etc.)
      - b. Life-saving care cannot be given because of the ill or injured person's location or position, (e.g., a cardiac arrest victim sitting in a chair or lying on a bed)
    2. If there is no threat to life, the ill or injured person should be moved *only* by EMS.
  - B. Emergency moves
    1. The greatest danger in moving an ill or injured person quickly is the possibility of aggravating a spine injury
    2. In an emergency, every effort should be made to pull the ill or injured person in the direction of the long axis of the body to provide as much protection to the spine as possible
    3. It is impossible to remove an ill or injured person from a vehicle quickly and at the same time provide much protection to the spine
    4. If the ill or injured person is on the floor or ground, he or she can be moved by:
      - a. Pulling on the ill or injured person's clothing in the neck and shoulder area
      - b. Putting the ill or injured person on a blanket and dragging the blanket
      - c. Putting the First Aid Provider's hands under the ill or injured person's armpits (from the back), grasping the ill or injured person's forearms and dragging the ill or injured person
      - d. Never pull the ill or injured person's head away from the neck and shoulders

## Module 1: Preparatory

### Lesson 1-4: Moving and Positioning of Ill or Injured persons

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- C. Ill or injured person positioning
  - 1. An unresponsive ill person without trauma should be moved into the recovery position by rolling the ill person onto his or her side.
  - 2. An injured person with trauma should not be moved until EMS resources can evaluate and stabilize the injured person, except to protect the airway
  - 3. An ill or injured person experiencing pain or discomfort or difficulty breathing should be allowed to assume a position of comfort
  - 4. An ill or injured person who is nauseated or vomiting should be allowed to remain in a position of comfort; however, the First Aid Provider should be positioned appropriately to manage the airway
  - 5. An injured person who is unresponsive (or has a decreased level of responsiveness), who you *must* leave in order to activate EMS, should be placed in the recovery position to maintain an open airway

## Application

### Procedural (How)

- 1. Show examples of situations where emergency moves are appropriate.
- 2. Demonstrate emergency moves.
- 3. Demonstrate positioning ill or injured persons with different conditions:
  - Unresponsiveness;
  - Chest pain or discomfort or difficulty breathing;
  - Ill or injured persons who are vomiting or nauseated.

### Contextual (When, Where, Why)

- 1. When to move a ill or injured person is determined by both the ill or injured person's condition and the environment in which he or she is found.

## Student Activities

### Auditory (Hearing)

- 1. The student should hear explanations of body mechanics.
- 2. The student should hear principles of lifting and moving.
- 3. The student should hear indications for emergency moves.

### Visual (Seeing)

- 1. The student should see situations where emergency moves are appropriate.
- 2. The student should see emergency moves.
- 3. The student should see ill or injured persons with different conditions positioned properly:
  - Unresponsiveness;
  - Chest pain or discomfort or difficulty breathing;
  - Ill or injured persons who are vomiting or nauseated.

## **Module 1: Preparatory**

### **Lesson 1-4: Moving and Positioning of Ill or Injured persons**

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#### **Kinesthetic (Doing)**

1. The student should practice determining whether emergency moves are appropriate.
2. The student should practice emergency moves.
3. The student should practice positioning ill or injured persons with different conditions:
  - Unresponsiveness;
  - Chest pain or discomfort or difficulty breathing;
  - Ill or injured persons who are vomiting or nauseated.

#### **Instructor Activities**

1. Facilitate discussion and supervise practice.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.
3. Redirect students having difficulty with content

## **Evaluation**

Evaluate the actions of First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.

**Module 1: Preparatory**

Lesson 1-4: Moving and Positioning of Ill or Injured persons

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# **Module 2: Airway**

## **Lesson 2-1**

### **Airway**



# Objectives

## Objectives Legend

C=Cognitive A=Affective P=Psychomotor

1 = Knowledge level

2 = Application level

3 = Problem-solving level

## Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 2-1.1 Describe the major structures of the respiratory system. (C-1)
- 2-1.2 Describe determining the presence of breathing. (C-1)
- 2-1.3 Describe the steps in the head-tilt chin-lift (Chin-lift without Head-tilt). (C-1)
- 2-1.4 Relate mechanism of injury to opening the airway. (C-3)
- 2-1.5 Describe how to ventilate an ill or injured adult, infant, and child\* with a resuscitation barrier device. (C-1)
- 2-1.6 Describe the steps in providing mouth-to-mouth and mouth-to-stoma ventilation. (C-1)
- 2-1.7 Describe how to clear a foreign body airway obstruction in a responsive adult, infant, and child.\* (C-1)
- 2-1.8 Describe how to clear a foreign body airway obstruction in an unresponsive adult, infant, and child.\* (C-1)

## Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- 2-1.9 Explain why airway protective skills and basic life support ventilation take priority over all other basic life support skills. (A-3)
- 2-1.10 Demonstrate a caring attitude towards ill or injured persons with airway problems who request emergency medical services. (A-3)
- 2-1.11 After rescuer safety is assured, place the interests of the ill or injured person with airway problems as the foremost consideration when making any and all emergency care decisions. (A-3)

## Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- 2-1.12 Demonstrate the steps in the head-tilt chin-lift. (P-1,2)
- 2-1.13 Describe the steps in the chin-lift without head-tilt.(P-1,2)
- 2-1.14 Demonstrate the steps in mouth-to-mouth ventilation with body substance isolation (barrier shields) in the unresponsive adult, infant and child.\* (P-1,2)
- 2-1.15 Demonstrate how to clear a foreign body airway obstruction in a responsive adult, infant, and child.\* (P-1)
- 2-1.16 Demonstrate how to clear a foreign body airway obstruction in an unresponsive adult, infant, and child.\* (P-1)

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\* When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.

# Preparation

## Motivation:

An ill or injured person without an airway has no chance of survival. It is essential for the First Aid Provider to be able to manage an airway and support breathing with and without resuscitation barriers. First Aid Providers should focus on airway and ventilation as their first priority of care to assure oxygen to the brain.

## Prerequisites:

Preparatory.

## Materials

### AV Equipment:

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

### Equipment:

Training manikin(s), resuscitation mask(s), barrier device(s).

### Recommended Minimum Time to Complete:

See page 13 of *Course Guide*.

# Presentation

- I. The Respiratory system
  - A. Function
    1. Deliver oxygen to the body
    2. Remove carbon dioxide from the body
  - B. Components of anatomy
    1. Nose and mouth
    2. Epiglottis—a leaf-shaped structure that prevents food and liquid from entering the trachea during swallowing
    3. Windpipe (trachea)
    4. Lungs
    5. Diaphragm
    6. Chest wall muscles
  - C. Physiology
    1. Diaphragm moves down, chest moves out, drawing air into the lungs (inhalation)
    2. Exchange of oxygen and carbon dioxide in the lungs
    3. Diaphragm moves up, causing air to exit the lungs (exhalation)
  - D. Infant and Child Considerations\*
    1. All structures are smaller and more easily obstructed

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\* When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.

**Module 2: Airway**  
Lesson 2-1: Airway

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2. Infants' and children's tongues take up proportionally more space in the mouth
  3. Trachea more flexible
  4. Smaller lung capacity
  5. Large head-to-body ratio in infants requires different positioning of the head for airway management
  6. Primary cause of cardiac arrest is respiratory arrest
- II. Opening the Airway
- A. After activating the EMS system, the most important action that the First Aid Provider can perform is opening the airway of an unresponsive ill or injured person
    1. An unresponsive ill or injured person loses muscle tone, and the soft tissue and base of the tongue may occlude the airway.
    2. The tongue is the most common cause of airway obstruction in an unresponsive ill or injured person
    3. Since the tongue is attached to the lower jaw, forward displacement of the jaw will lift the tongue away from the back of the throat.
  - B. Head-tilt, chin-lift
    1. The method of choice for opening the airway in uninjured persons
    2. Research has indicated that the head-tilt chin-lift consistently provides the optimal airway
    3. Technique
      - a. Place your hand that is closer to the person's head on his or her forehead, apply firm backward pressure to tilt the head back
      - b. Place the fingers of your hand that is closer to the person's feet on the bony part of his or her chin.
      - c. Lift the chin forward and support the jaw, helping to tilt the head back
    4. Precautions
      - a. Finger must not press deeply into the soft tissues of the chin as this may lead to airway obstruction
      - b. The thumb should not be used for lifting the chin
      - c. The mouth must not be closed
  - C. Chin lift without head-tilt
    1. Indications
      - a. Used for unresponsive persons with suspected head/neck or back injuries
      - b. Used when the First Aid Provider is uncertain if the unresponsive person is ill or injured
    2. Technique
      - a. Place your hand that is closer to the person's head on his or her forehead to stabilize the head
      - b. Place the fingers of your hand that is closer to the person's feet on the bony part of his or her chin
      - c. Lift the chin forward and support the jaw
      - d. The head should be carefully supported without tilting it backward or turning it from side to side
      - e. If chin-lift alone is unsuccessful, the head should be tilted backward slightly
- III. Inspect the Mouth
- A. An unresponsive ill or injured person may have fluid or solids in their mouth that may compromise the airway
  - B. Responsive ill or injured persons who cannot protect their airway should also have their mouth inspected

**Module 2: Airway**  
Lesson 2-1: Airway

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- C. Indications
    - 1. All unresponsive ill or injured persons
    - 2. Responsive ill or injured persons who may not be able to protect their own airways
  - D. Technique
    - 1. Open the ill or injured person's mouth with a gloved hand
    - 2. Look inside the mouth
      - a. Mouth clear
      - b. Mouth not clear
        - (1) Fluids
        - (2) Solids
        - (3) Teeth, including dentures
- IV. Clearing the Compromised Airway and Maintaining the Open Airway
- A. There are two ways that First Aid Providers can clear or maintain an airway
  - B. These techniques are not sequential; the situation will direct which technique is most appropriate
  - C. There are two methods of clearing and protecting the airway from liquids or solids
    - 1. The Recovery Position
      - a. The first step in maintaining an open airway
      - b. Uses gravity to keep the airway clear
      - c. The airway is likely to remain open in this position
      - d. Unrecognized airway obstructions are less likely to occur
      - e. Monitor the ill person until additional EMS arrives and assumes care
      - f. Allows fluids to drain from the mouth and not into the airway.
      - g. Used in unresponsive, uninjured person who is breathing adequately
      - h. Technique
        - (1) Kneel at the person's waist
        - (2) Move the nearer arm above the head
        - (3) Straighten the legs
        - (4) Grasp the opposite shoulder and pull the person towards you onto his or her side while supporting the head and neck; avoid twisting the body.
        - (5) Pull the top leg forward and place the person's top hand under the side of the face to stabilize the person in this position
    - 2. Finger sweeps
      - a. Uses your fingers to remove solid objects from the airway
      - b. Use body substance isolation
      - c. If foreign material or vomit is visible in the mouth, it should be removed
      - d. Do this quickly
      - e. Technique
        - (1) If uninjured, roll the ill or injured person to their side
        - (2) Liquids or semi-liquids should be wiped out with the index and middle fingers covered with a cloth
        - (3) Solid objects should be removed with a hooked finger

*Note: Blind finger sweeps should not be performed on infants and children since the foreign body may be pushed back into the airway, causing further obstruction.*
- V. Determining Presence of Breathing
- A. Immediately after opening the airway, check for breathing

**Module 2: Airway**  
Lesson 2-1: Airway

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- B. As you determine the presence of breathing, look at the effort or work of breathing
    - 1. Breathing should be effortless
    - 2. Observe the chest for adequate rise and fall
  - C. Techniques
    - 1. Responsive ill or injured persons
      - a. Ask: "Can you speak?", "Are you choking?"
      - b. The ability to talk or make vocal sounds indicates that air is moving past the vocal cords
    - 2. Unresponsive ill or injured persons
      - a. Maintain an open airway
      - b. Place your ear close to the ill or injured person's mouth and nose
      - c. Assess for three to five seconds
        - (1) Look for the rise and fall of the chest
        - (2) Listen for air escaping during exhalation
        - (3) Feel for air coming from the mouth and nose
      - d. The First Aid Provider may observe the rise and fall of the chest even if an airway obstruction is present, but will not hear or feel air movement
      - e. Some reflex gasping (agonal respirations) may be present just after cardiac arrest (this should not be confused for breathing)
      - f. If unable to determine presence of breathing in unresponsive person, provide ventilations
- VI. Ventilation
- A. Once the airway has been assured, and breathing is assessed, breathing for the ill or injured person may be necessary
  - B. If the ill or injured person is not breathing they only have the oxygen in their lungs and their bloodstream remaining
  - C. In order to prevent death, the First Aid Provider must ventilate the ill or injured person
  - D. There are many techniques for ventilation—the First Aid Provider must be competent in the following techniques of ventilation
- VII. Techniques of Ventilation
- A. The techniques of ventilation in order of preference are
    - 1. Mouth-to-barrier device
    - 2. Mouth-to-mouth
  - B. Mouth-to-barrier device
    - 1. A barrier device should be used if available to protect the ill or injured and the First Aid Provider
    - 2. When a barrier device is not available, consider mouth-to-mouth ventilation
    - 3. Technique
      - a. Position the device over the ill or injured person's mouth and nose, ensuring an adequate seal
      - b. Keep the airway open by the head tilt-chin lift maneuver.
      - c. Give one slow (1.5–2.0 second) breath of sufficient volume to make the chest rise
      - d. Too much ventilation is likely to allow air to enter the stomach
      - e. Adequate ventilation is determined by:
        - (1) Observing the chest rise and fall
        - (2) Hearing and feeling the air escape during exhalation
      - f. Continue at the proper rate

**Module 2: Airway**  
**Lesson 2-1: Airway**

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- (1) 10–12 breaths per minute for adults
      - (2) 20 breaths per minute for infants and children
    - g. If initial (or subsequent) attempts to ventilate the ill/injured person are unsuccessful, the ill/injured person's head should be repositioned and ventilation reattempted
    - h. If the ill or injured person cannot be ventilated after repositioning the head, the rescuer should proceed with foreign-body airway maneuvers
  - C. Mouth-to-mouth
    - 1. The First Aid Provider must be aware of the risks of performing mouth-to-mouth ventilation
    - 2. Quick, effective method of delivering oxygen to the non-breathing ill or injured person
    - 3. Ventilating an ill or injured person with your exhaled breath while making mouth-to-mouth contact
    - 4. The rescuer's exhaled air contains enough oxygen to support life
    - 5. Barrier devices are available for use during ventilation
    - 6. Mouth-to-barrier device does not replace *training* in mouth-to-mouth ventilation
    - 7. The decision to perform mouth-to-mouth ventilation on a stranger or ill or injured person with unknown infectious status by First Aid Providers is a matter of personal choice
    - 8. Technique
      - a. Keep the airway open by the head-tilt chin-lift or chin-lift without head-tilt maneuver
      - b. Gently squeeze the ill or injured person's nostrils closed with the thumb and index finger of your hand on the ill or injured person's forehead
      - c. When ventilating an infant, cover the infant's mouth and nose with your mouth
      - d. Take a deep breath and place your lips over the ill or injured person's mouth, creating an airtight seal
      - e. Give one slow (1.5–2 second) breath of sufficient volume to make the chest rise
        - (1) Too much ventilation is likely to allow air to enter the stomach
        - (2) Adequate ventilation is determined by:
          - (a) Observing the chest rise and fall
          - (b) Hearing and feeling the air escape during exhalation
      - f. Continue at the proper rate
        - 1) 10–12 breaths per minute for adults, with 1.5–2 second inspiratory time.
        - (2) 20 breaths per minute for infants and children
      - g. If initial (or subsequent) attempts to ventilate the ill or injured person are unsuccessful, the ill or injured person's head should be repositioned and ventilation reattempted
      - h. If the ill or injured person cannot be ventilated after repositioning the head, the rescuer should proceed with foreign-body airway maneuvers
- VIII. Foreign Body Airway Obstructions in Adults (FBAO)
  - 1. Partial
    - a. Good air exchange
      - (1) Ill or injured person remains responsive
      - (2) May be able to speak

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Lesson 2-1: Airway

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- (3) Can cough forcefully
      - (4) May be wheezing between coughs (whistling sounds)
    - b. Poor air exchange
      - (1) Weak ineffective cough
      - (2) High-pitched noise on inhalation
      - (3) Increased respiratory difficulty
      - (4) Blue tissue color at lips and nail beds
  - 2. Complete
    - a. No air can be exchanged
    - b. Person will be unable to speak, breathe, or cough
    - c. Person may clutch the neck—the universal distress signal
    - d. Death will follow rapidly if prompt action is not taken
- IX. Management of FBAO  
**See “Foreign Body Airway Obstruction Management” in the most current version of the *Emergency Cardiac Care Committee and Subcommittees, American Heart Association. Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care.***
- X. Foreign Body Airway Obstruction in Infants and Children\*
  - A. More than 90% of childhood deaths from FBAO are in children below the age of 5 years
  - B. 65% are infants
  - C. FBAO in children is caused by:
    - 1. Toys
    - 2. Balloons
    - 3. Small Objects
    - 4. Food (hot dogs, round candies, nuts, and grapes)
  - D. Should be expected in infants and children who demonstrate a sudden onset of difficulty breathing
  - E. Airway obstruction may be caused by infection and should be considered when there is a history of fever with congestion, hoarseness, drooling, or inactivity
    - 1. Infection must be distinguished from FBAO
    - 2. Attempting to clear the airway of a child with an infection using maneuvers for FBAO is dangerous and unnecessary
    - 3. Activate EMS
  - F. The First Aid Provider should only attempt to clear a complete or partial FBAO with poor air exchange
  - G. “Blind” finger sweeps are not done in infants or small children
  - H. For management of FBAO in infants and children:  
**See “Foreign Body Airway Obstruction Management” in the most current version of the *Emergency Cardiac Care Committee and Subcommittees, American Heart Association. Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care.***
- XI. Special Considerations
  - A. Persons with stomas
    - 1. Persons who have had their voice box have a permanent opening (stoma) that connects the windpipe (trachea) to the front of the neck

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\*When infants and/or children are not present or are not anticipated in the First Aid Provider’s occupational setting, this information may be omitted.

2. When such person requires rescue breathing, mouth-to-stoma ventilations are required
  3. Technique
    - a. Make an airtight seal around the stoma (use a barrier if possible)
    - b. Deliver a ventilation slowly, allowing the chest to rise
    - c. After delivering the ventilation, allow time for the person to exhale
  4. If air escapes from the mouth or nose when ventilating the ill or injured person through the stoma, close the mouth and pinch the nostrils.
- B. Infants and children\***
1. Place an infant's head in a neutral position; extend a little past neutral for a child
  2. Take care not to over extend the infant or child's head/neck
  3. Limit the amount of ventilation to that which makes the chest rise
  4. Avoid excessive ventilation volumes that may force air into the stomach
- C. Dental appliances**
1. Dentures—ordinarily dentures should be left in place
  2. Partial dentures (plates) may become dislodged during an emergency; leave in place, but be prepared to remove it if it becomes dislodged

## Application

### Procedural (How)

1. Show visual representations of the airway and respiratory system of adults. (optional—children and infants).
2. Demonstrate how to determine the presence of breathing.
3. Demonstrate the head-tilt, chin-lift method of opening the airway.
4. Demonstrate ventilation of an ill or injured person with a barrier device and/or resuscitation mask
5. Demonstrate mouth-to-mouth ventilation of a ill or injured person.
6. Optional—Demonstrate ventilation of an infant or child ill or injured person.

### Contextual (When, Where, Why)

1. Every ill or injured person must have an open airway to survive. When the airway is obstructed, the First Aid Provider must clear it as soon as possible using the methods described in this lesson. Once the airway has been opened, the First Aid Provider must determine if breathing is adequate. Unresponsive ill or injured persons with inadequate breathing may need to be ventilated.

## Student Activities

### Auditory (Hearing)

1. The student should hear presentations of ill or injured persons with abnormal breathing.
2. The student should hear a manikin ventilated with a resuscitation mask/barrier device.

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\* When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.



**Visual (Seeing)**

1. The student should see visual representations of the airway and respiratory system.
2. The student should observe normal breathing in other students.
3. The student should see visual representations of abnormal breathing.
4. The student should see visual representations of ill or injured persons with stomas.
5. The student should see different devices for ventilating ill or injured persons (resuscitation masks, barrier devices).

**Kinesthetic (Doing)**

1. The student should practice evaluating breathing.
2. The student should practice opening the airway with the head-tilt, chin-lift maneuver.
3. The student should practice mouth-to-mouth ventilation.
4. The student should practice ventilation of an ill or injured person with a resuscitation barrier (using a manikin).
5. The student should practice techniques for clearing a FBAO.
6. The student should practice ventilating an ill or injured infant or child.\*

**Instructor Activities**

1. Facilitate discussion and supervise practice.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.
3. Redirect students having difficulty with content.

## Evaluation

Evaluate the actions of First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## Remediation

Identify students or groups of students who are having difficulty with this subject content.

## Enrichment

Address unique student requirements or local area needs concerning this topic.

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\* When infants and/or children are not present or are not anticipated in the First Aid Providers occupational setting, this information may be omitted.

# **Module 3: Assessment**

## **Lesson 3-1**

### **Ill or Injured Person Assessment**

# Objectives

## Objectives Legend

C=Cognitive A=Affective P=Psychomotor

1 = Knowledge level

2 = Application level

3 = Problem-solving level

### Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 3-1.1 Describe the components of scene assessment. (C-1)
- 3-1.2 Describe common hazards found at the scene. (C-1)
- 3-1.3 Determine if the scene is safe to enter. (C-2)
- 3-1.4 Describe common mechanisms of injury or nature of illness. (C-1)
- 3-1.5 Describe the reason for determining the total number of ill or injured persons at the scene. (C-1)
- 3-1.6 Describe methods of assessing responsiveness. (C-1)
- 3-1.7 Describe methods used for assessing if an ill or injured person is breathing. (C-1)
- 3-1.8 Distinguish between an ill or injured person with adequate and inadequate breathing. (C-3)
- 3-1.9 Describe how to assess circulation. (C-1)
- 3-1.10 Describe the differences between obtaining a pulse in an adult, child, and infant.\* (C-3)
- 3-1.11 Determine the need for assessing external bleeding. (C-1)
- 3-1.12 Describe the components of on-going assessment. (C-1)

### Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- 3-1.13 Explain the reason for assessment of scene safety prior to entering. (A-2)
- 3-1.14 Explain the value of initial assessment. (A-2)
- 3-1.15 Explain the value of questioning the ill or injured person and bystanders. (A-2)
- 3-1.16 Explain the value of an on-going assessment. (A-2)
- 3-1.17 Demonstrate a caring attitude when performing initial and physical assessments. (A-3)

### Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- 3-1.18 Demonstrate the ability to distinguish potential hazards. (P-1)
- 3-1.19 Demonstrate the techniques for assessing responsiveness. (P-1,2)
- 3-1.20 Demonstrate the techniques for assessing the airway. (P-1,2)
- 3-1.21 Demonstrate the techniques for assessing breathing. (P-1,2)
- 3-1.22 Demonstrate the techniques for assessing circulation. (P-1,2)
- 3-1.23 Demonstrate the techniques for assessing external bleeding. (P-1,2)
- 3-1.24 Demonstrate the techniques for assessing skin color, temperature, moisture, and capillary refill (infants and children only).\*
- 3-1.25 Demonstrate the techniques for physical assessment. (P-1,2)
- 3-1.26 Demonstrate the on-going assessment (P-1,2)

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\* When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.

# Preparation

**Motivation:**

Reemphasizing scene safety is the first aspect of assessment. It begins as the First Aid Provider approaches the scene. During this phase, the First Aid Provider surveys the scene to determine if there are any threats that may cause an injury/illness to the First Aid Provider, bystanders, or may cause additional injury/illness to the ill or injured person. The initial assessment, physical assessment, and ill or injured person questioning are used to help identify those who require immediate first aid and/or professional medical care.

**Prerequisites:**

Preparatory, Airway Modules.

## Materials

**AV Equipment:**

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

**Equipment:**

Gloves and/or other barriers.

**Recommended Minimum Time to Complete:**

See page 13 of *Course Guide*.

# Presentation

**Declarative (What)**

- I. Scene Assessment
  - A. Body substance isolation review
    1. Eye protection if necessary
    2. Gloves if necessary
    3. Mask if necessary
  - B. Scene Safety
    1. Is the scene safe?
      - a. Definition—an assessment of the scene and surroundings that will provide valuable information to the First Aid Provider and will help ensure the well-being of the First Aid Provider
      - b. Personal protection—Is it safe to approach the ill or injured person?
      - c. Protection of the ill or injured person—environmental considerations
      - d. Protection of bystanders—do not let the bystanders become ill or injured
      - e. If the scene is unsafe, do not enter

## Module 3: Assessment

### Lesson 3-1: Ill or Injured Person Assessment

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- C. What is the mechanism of injury or illness/complaint?
    - 1. Mechanism of injury—an evaluation of the forces that caused an injury; may be beneficial in determining the presence of internal injuries
    - 2. Trauma—Mechanism of injury: determine from the injured person, family, or bystanders and inspect the scene—What is the mechanism of injury?
    - 3. Medical—illness/complaint: determine from the ill person, family, or bystanders
  - D. How many ill or injured persons are involved?
  - E. Assure EMS system is activated
- II. Initial Assessment
- A. The initial assessment is completed to assist the First Aid Provider in identifying immediate threats to life
  - B. General Impression of the ill or injured person
    - 1. Based on the First Aid Provider's immediate assessment of the environment and the ill or injured person's chief complaint
    - 2. Determine if ill (medical) or injured (trauma)
      - a. Is this trauma?
      - b. Is this medical?
      - c. Is it unclear?—treat as trauma
  - C. Assess responsiveness—stabilize spine if trauma
    - 1. Begin by speaking to the ill or injured person
      - a. Tell the injured person not to move
      - b. State your name
      - c. Tell the person that you are a First Aid Provider
      - d. Explain that you would like to help
    - 2. Levels of responsiveness
      - a. Responsive
      - b. Unresponsive (activate EMS)
    - 3. Infant and Child\*
      - a. Infants and young children may not respond to methods used to assess responsiveness in adults.
      - b. Parents or caregivers are generally good judges of normal versus abnormal behavior
  - D. Assess the ill or injured person's airway
    - 1. Responsive ill or injured persons
      - a. Can the ill or injured person speak?
      - b. Is the airway open?
    - 2. Unresponsive ill or injured person
      - a. Open the airway
        - (1) Medical—Head-tilt, chin-lift
        - (2) Trauma—Chin-lift without head-tilt
      - b. Check the airway for possible obstructions
      - c. Clear the airway as needed
  - E. Assess the ill or injured person's breathing
    - 1. Assess the effort required to breath
    - 2. Responsive—can the ill or injured person speak?
    - 3. Unresponsive
      - a. Maintain an open airway
      - b. Look, listen, and feel for presence of breathing
    - 4. Ventilate as needed

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\* When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.

## Module 3: Assessment

### Lesson 3-1: Ill or Injured Person Assessment

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- F. Assess the ill or injured person's circulation
  - 1. Assess for the presence of the ill or injured person's pulse
    - a. Adults
      - (1) Responsive—assess radial pulse
      - (2) Unresponsive—assess carotid pulse
    - b. Infants and Children\*
      - (1) Infants—Assess for the presence of the brachial pulse
      - (2) Children
        - (a) Unresponsive—assess for the presence of the carotid pulse
        - (b) Responsive—assess for the presence of the brachial or radial pulse
  - 2. Assess if major bleeding is present—If bleeding is present, control bleeding as described in *Module 5: Illness and Injury, Lesson 5-2 Bleeding, Shock, and Soft Tissue Injuries*
  - 3. Assess the ill or injured person's skin color and temperature
- III. First Aid Provider Physical Assessment
  - A. When EMS is readily available and an initial assessment has been completed, the First Aid Provider may wait for EMS to perform the physical assessment; this is acceptable and may be desirable.
  - B. Physical assessment is not required for simple, isolated injuries (e.g., cut finger)
  - C. The physical assessment is designed to identify signs and symptoms of illness or injury.
  - D. When appropriate, the First Aid Provider may complete a physical assessment on an ill or injured person following the initial assessment
  - E. As the First Aid Provider locates signs and symptoms of illness or injury, there may be other questions that the First Aid Provider might ask. These questions are presented in specific lessons on illness and Injury.
  - F. Physical assessment may be accomplished through simple observation or by palpation. The method selected is dependent on the comfort level of the ill or injured person and First Aid Provider.
  - G. Perform the physical assessment
    - 1. Inspect (look) and palpate (feel) for the following signs of injury:
      - a. **D**eformities
      - b. **O**pen injuries
      - c. **T**enderness
      - d. **S**welling
      - e. The mnemonic **D-O-T-S** is helpful in remembering the signs of injury
    - 2. Briefly assess the body in a logical manner:
      - a. Head
      - b. Neck
      - c. Chest
      - d. Abdomen
      - e. Pelvis
      - f. All four extremities
- IV. Obtain History from the Ill or Injured Person or Bystanders

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\* When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.

## Module 3: Assessment

### Lesson 3-1: Ill or Injured Person Assessment

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- A. Medical identification tags provide beneficial information about allergies, medications, or past medical history
  - B. When EMS is readily available and an initial assessment has been completed, the First Aid Provider may wish to allow EMS to obtain ill or injured person history. This is acceptable and may often be desirable.
  - C. **SAMPLE** History (Optional)
    - 1. **S**igns/Symptoms
    - 2. **A**llergies (to medications, food, environmental)
    - 3. **M**edications (ill or injured person is taking)
    - 4. **P**ertinent past history (of medical problems)
    - 5. **L**ast Oral Intake (liquids or solids)
    - 6. **E**vents (that may have lead to illness/injury)
- V. On-Going Assessment
- A. While waiting for EMS, the First Aid Provider should continue to assess the ill or injured person
  - B. The initial assessment should be repeated frequently
    - 1. Monitor level of responsiveness
    - 2. Maintain an open airway
    - 3. Monitor breathing
    - 4. Monitor pulse
    - 5. Monitor skin color, temperature, and condition
  - C. Repeat First Aid Provider physical assessment as needed
  - D. Check interventions to ensure that they are effective

# Application

## Procedural (How)

Assessment is completed by visually inspecting or physically palpating, and in some cases listening, and verbally communicating with the ill or injured person and bystanders. Information obtained during the assessment may help determine additional first aid needs.

1. Review of scene assessment.
2. Review of the initial assessment.
3. Students should see visual representations of various trauma scenes to help them recognize the mechanism of injury.
4. Demonstrate an initial assessment.
5. Review methods of assessing responsiveness.
6. Review airway assessment.
7. Review breathing assessment.
8. Demonstrate assessing breathing effort.
9. Demonstrate assessing for the presence of radial, carotid, and brachial pulses.
10. Demonstrate assessing pulse.
11. Demonstrate the First Aid Provider physical assessment.
12. Demonstrate on-going assessment.

## **Module 3: Assessment**

### **Lesson 3-1: Ill or Injured Person Assessment**

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#### **Contextual (When, Where, Why)**

Scene assessment represents the beginning of ill or injured person's assessment. It requires the First Aid Provider to evaluate several aspects concerning the situation quickly. It is essential for assuring the safety of the First Aid Provider and the ill or injured person. Scene assessment is an on-going process to ensure the First Aid Providers and ill or injured person's safety.

Only perform initial assessment on ill or injured person after assuring scene and personal safety. Perform the initial assessment before moving the ill or injured person. The initial assessment is a rapid means of determining priorities of care. The physical assessment and questioning of the ill or injured person and bystanders may be done after correcting any immediate threats to life during the initial assessment.

The on-going assessment is completed on all ill or injured persons while awaiting EMS. This assessment allows the First Aid Provider to reassess the ABCs and, at the same time, calm and reassure the ill or injured person and bystanders.

#### **Student Activities**

##### **Auditory (Hearing)**

1. The student should hear descriptions of unsafe scenes.
2. Students should hear presentations of ill or injured persons with abnormal breathing
3. Students should hear a simulated responsive ill or injured person provide information regarding signs/symptoms.
4. The students should hear the components of scene assessment.
5. The students should hear the components of the initial assessment.
6. The students should hear the components of the physical assessment.
7. The students should hear the components of the on-going assessment.

##### **Visual (Seeing)**

1. The student should see simulations of various safe and unsafe scenes.
2. Students should see visual representations of various injuries.
3. Students should see how to observe and palpate simulated ill or injured persons for various injuries.

##### **Kinesthetic (Doing)**

1. Students should role play actions to take at unsafe scenes.
2. Students should practice establishing responsiveness.
3. Students should practice opening the airway on manikins and each other.
4. Students should practice assessing for presence of breathing.
5. Students should practice assessing breathing effort.
6. Students should practice assessing for circulation.
7. Students should practice assessing pulse.
8. Students should practice assessing for major bleeding.
9. Students should practice observing and/or palpating for injuries.



## **Module 3: Assessment**

### **Lesson 3-1: Ill or Injured Person Assessment**

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10. Students should practice scene assessment.
11. Students should practice the initial assessment.
12. Students should practice the physical assessment. (Optional)
13. Students should practice questioning to obtain a SAMPLE history.
14. Students should practice the on-going assessment.

### **Instructor Activities**

1. Facilitate discussion and supervise practice.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.
3. Redirect students having difficulty with content.

## **Evaluation**

Evaluate the actions of First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.

# **Module 4: Circulation**

## **Lesson 4-1 Circulation**

# Objectives

## Objectives Legend

- C=Cognitive A=Affective P=Psychomotor  
1 = Knowledge level  
2 = Application level  
3 = Problem-solving level

### Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 4-1.1 Explain the reasons the heart stops beating. (C-1)
- 4-1.2 Describe the components of basic life support/cardiopulmonary resuscitation (BLS/CPR). (C-1)
- 4-1.3 Describe each link in the Chain of Survival. (C-2)
- 4-1.4 Describe the steps of one-rescuer adult, infant, and child\* BLS/CPR. (C-1)
- 4-1.5 Describe the technique of external chest compression on an adult, infant, and child.\*(C-1)
- 4-1.6 Explain when the First Aid Provider is able to stop BLS/CPR. (C-2)

### Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- 4-1.7 Demonstrate a caring attitude towards persons in cardiac arrest. (A-3)
- 4-1.8 After rescuer safety is assured, place the interests of the ill or injured person in cardiac arrest as the foremost consideration when making emergency care decisions. (A-3)

### Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- 4-1.9 Demonstrate the proper technique of chest compression on an adult, infant, and child.\* (P-1,2)
- 4-1.10 Demonstrate the steps of adult, infant, and child\* one rescuer BLS/CPR. (P-1,2)

# Preparation

## Motivation:

Over 500,000 people die each year from cardiovascular diseases; two-thirds of these deaths occur outside the hospital, with sudden death (collapse) being the first sign. It is now recognized that revival from cardiac arrest depends on a time-sensitive sequence of events. The American Heart Association has used the term *Chain of Survival* to describe these events.

The Chain of Survival has four interdependent links: early access, early basic cardiopulmonary resuscitation (BLS/CPR), early defibrillation, and early advanced life support (ACLS). The First Aid Provider provides the important first two links in the Chain of Survival, early access and early BLS/CPR. This module will cover the elements of the Chain of Survival and the technique of BLS/CPR.

## Prerequisites:

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\* When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.

Preparatory, Airway, Ill or Injured Person Assessment Modules.

## Materials

### AV Equipment:

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

### Equipment:

Manikins, gloves, and/or other barriers.

### Recommended Minimum Time to Complete:

See page 13 of *Course Guide*.

# Presentation

### Declarative (What)

- I. Review of the Circulatory System
  - A. Function
    1. Deliver oxygen and nutrients to the tissues
    2. Remove waste products from the tissues
  - B. Components/Anatomy
    1. Heart
    2. Arteries
      - a. Carotid
      - b. Brachial
    3. Veins—vessels that carry blood back to the heart
    4. Blood—carries oxygen and carbon dioxide
  - C. Physiology
    1. Pulse can be felt anywhere an artery passes near the skin surface and over a bone
      - a. Carotid
      - b. Brachial
    2. A pulse can be felt in the major arteries
    3. If the heart stops contracting, no blood will flow
    4. The body cannot survive when the heart stops
      - a. When the ill or injured person has no pulse, he or she is in cardiac arrest
      - b. Brain damage begins 4 minutes after the ill or injured person suffers cardiac arrest and becomes certain in 10 minutes<sup>i</sup>
      - c. External chest compressions are used to circulate blood any time that the heart is not beating
      - d. External chest compressions are combined with artificial ventilation to oxygenate the blood

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<sup>i</sup>In cases of hypothermia or cold water drowning, the outcome of resuscitation can not be accurately determined until the person has been rewarmed in the hospital. BLS/CPR should not be withheld based upon the observation of a death-like state.

- e. The combination of artificial ventilation (rescue breathing) and external chest compressions is called cardiopulmonary resuscitation (BLS/CPR)
  - 5. General reasons for the heart to stop beating
    - a. Sudden death from heart disease
    - b. Respiratory arrest, especially in infants and children
    - c. Medical emergencies (stroke, epilepsy, diabetes, allergic reactions, electrical shock, poisoning, etc.)
    - d. Drowning, suffocation and hereditary abnormalities
    - e. Trauma and bleeding
    - f. Regardless of the reason, the First Aid Provider's emergency care of cardiac arrest is BLS/CPR
- II. Cardiopulmonary Resuscitation
- A. A combination of artificial ventilation (rescue breathing) and external chest compressions to oxygenate and circulate blood when the ill or injured person is in cardiac arrest
  - B. External chest compressions
    - 1. Depressing the sternum to change the pressure in the chest
    - 2. This causes enough blood to flow to sustain life for a short period of time
  - C. BLS/CPR is only effective for a short period of time
    - 1. Cannot sustain life indefinitely
    - 2. Must be started as early as possible
    - 3. Effectiveness decreases the longer you are doing BLS/CPR
    - 4. In many cases the ill or injured person needs to be defibrillated to survive
    - 5. BLS/CPR increases the amount of time that defibrillation will be effective
  - D. The Chain of Survival and the EMS system
    - 1. Weak links in the chain lower survival rates
    - 2. Early access—Phone first/fast
    - 3. Early BLS/CPR
    - 4. Early defibrillation
    - 5. Early advanced cardiac life support (ACLS)
  - E. The steps of one rescuer adult BLS/CPR
    - See “Adult Basic Life Support” in the most current version of the *Emergency Cardiac Care Committee and Subcommittees, American Heart Association. Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care.***
    - Infants and Children\*—One-rescuer infant and child BLS/CPR
      - See “Pediatric Basic Life Support” in the most current version of the *Emergency Cardiac Care Committee and Subcommittees, American Heart Association. Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care.***

## Application

### Procedural (How)

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\* When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.

## **Module 4: Circulation**

### Lesson 4-1: Circulation

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1. Using a manikin, demonstrate emergency care of a ill or injured person in cardiac arrest.

**Contextual (When, Where, Why)**

1. The First Aid student should prepare to care for ill or injured persons in cardiac arrest. Students should practice Basic Life Support until they reach a level of reasonable proficiency.

**Student Activities**

**Auditory (Hearing)**

1. The student should hear information about the Chain of Survival as it relates to the outcome of resuscitation attempts.

**Visual (Seeing)**

1. The student should see the instructor demonstrate adult, infant, and child BLS/CPR.\*
2. The student should see visual representations of cardiac arrest resuscitation efforts by First Aid Providers.

**Kinesthetic (Doing)**

1. The student should practice BLS/CPR.

**Instructor Activities**

1. Facilitate discussion and supervise practice.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.
3. Redirect students having difficulty with content.

**Evaluation**

Evaluate the actions of First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

**Remediation**

Identify students or groups of students who are having difficulty with this subject content.

**Enrichment**

Address unique student requirements or local area needs concerning this topic.

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# **Module 5: Illness and Injury**

## **Lesson 5-1**

### **Medical Emergencies**

# Objectives

## Objectives Legend

- C=Cognitive A=Affective P=Psychomotor  
1 = Knowledge level  
2 = Application level  
3 = Problem-solving level

### Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 5-1.1 Identify the person who complains of a medical problem. (C-1)
- 5-1.2 Describe the steps in providing first aid to a person who complains of a medical problem. (C-1)
- 5-1.3 Describe the ill or injured person with a decreased level of responsiveness. (C-1)
- 5-1.4 Describe the steps in providing first aid to an ill or injured person with a decreased level of responsiveness. (C-1)
- 5-1.5 Describe a person having a seizure. (C-1)
- 5-1.6 Describe the steps in providing first aid to a person with seizures. (C-1)
- 5-1.7 Describe a person with medical problems resulting from exposure to cold. (C-1)
- 5-1.8 Describe the steps in providing first aid to a person with an exposure to cold. (C-1)
- 5-1.9 Describe a person with medical problems resulting from exposure to heat. (C-1)
- 5-1.10 Describe the steps in providing first aid to a person with an exposure to heat. (C-1)

### Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- 5-1.11 Demonstrate a caring attitude towards a person who complains of a medical problem. (A-3)
- 5-1.12 After rescuer safety is assured, place the interests of the person with a medical problem as the foremost consideration when making emergency care decisions. (A-3)

### Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- 5-1.13 Demonstrate the steps in providing first aid to a person who complains of a medical problem. (P-1,2)
- 5-1.14 Demonstrate the steps in providing first aid to an ill or injured person with a decreased level of responsiveness. (P-1,2)
- 5-1.15 Demonstrate the steps in providing first aid to a person with seizures. (P-1,2)
- 5-1.16 Demonstrate the steps in providing first aid to a person with an exposure to cold/heat. (P-1,2)

# Preparation

### Motivation:

A person may complain of various medical problems. The First Aid Provider must be prepared to provide appropriate first aid to persons with medical problems that they may encounter.

### Prerequisites:

Preparatory, Airway, Ill or Injured Person Assessment, and Circulation Modules.

## Materials

### AV Equipment:

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

### Equipment (Optional):

Personal protective equipment, hot and cold packs, and a blanket.

### Recommended Minimum Time to Complete:

See page 12 of *Course Guide*.

# Presentation

## Declarative (What)

- I. General Medical Problems
  - A. Ill persons may request first aid for a variety of reasons  
The First Aid Provider should assess each ill person to determine the signs and symptoms
  - B. First aid is based on the ill person's signs and symptoms
    1. **Warning Signs and Symptoms when EMS should be called immediately**
      - a. **Pain, severe pressure, or discomfort in the chest**
      - b. **Breathing difficulty or shortness of breath**
      - c. **Abdominal pain**
      - d. **Decreased level of responsiveness**
  - C. Role of the First Aid Provider
    1. Complete the First Aid Provider assessment
      - a. Complete a scene assessment and use appropriate BSI equipment before initiating first aid
      - b. Complete an initial assessment on all ill persons
      - c. Assure that EMS is activated
      - d. Complete the physical assessment (optional)
      - e. Complete on-going assessments
    2. Comfort, calm, and reassure the ill person while awaiting EMS
- II. Specific Medical Problems
  - A. Decreased level of responsiveness  
A sudden or gradual decrease in the ill or injured person's level of responsiveness and understanding, ranging from confusion to unresponsive
    1. There are many reasons for ill or injured persons having a decreased level of responsiveness:
      - a. Heart problems
      - b. Stroke
      - c. Poisoning—including drugs and alcohol
      - d. Low blood sugar or diabetic problem
      - e. Fever
      - f. Head injury

**Module 5: Illness and Injury**  
Lesson 5-1: Medical Emergencies

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- g. Decreased levels of oxygen in the brain
  - h. Psychiatric conditions
  - i. Infections
  - j. Seizures
- 3. Support the ill or injured person; do not worry about determining the cause of the decreased level of responsiveness; maintain scene safety
  - 4. The length of the decreased level of responsiveness may be brief or prolonged
  - 5. Role of the First Aid Provider:
    - a. Complete the First Aid Provider assessment:
      - (1) Complete a scene assessment and use appropriate BSI equipment before initiating first aid
      - (2) Complete an initial assessment on all ill or injured persons
      - (3) Assure that EMS is activated
      - (4) Complete the physical assessment (optional)
      - (5) Complete on-going assessments
    - b. Comfort, calm, and reassure the ill or injured person while awaiting EMS
      - (1) Assure an open airway
      - (2) Place person in the recovery position if no possibility of spine trauma
      - (3) Do not put anything in the ill or injured person's mouth
  - 6. Relationship to airway management
    - a. Often ill or injured persons with decreased level of responsiveness cannot protect their own airway
    - b. The unresponsive, uninjured person should be placed in the recovery position
- B. Seizures**
- 1. A sudden attack, usually related to nervous system failure
  - 2. There are many types of seizures.
  - 3. There are many causes of seizures:
    - a. Chronic medical conditions
    - b. Fever
    - c. Infections
    - d. Poisoning—including drugs and alcohol
    - e. Low blood sugar or diabetic problem
    - f. Head injury
    - g. Decreased levels of oxygen
    - h. Brain tumors
    - i. Complications of pregnancy
    - j. Failure to take medication or inadequate anti-seizure medication
    - k. Unknown causes
  - 4. Support the person; do not worry about determining the cause of the seizure
  - 5. Some seizures produce violent muscle contractions called convulsions
    - a. Most persons are unresponsive and may vomit during the convulsion
    - b. Persons who have had a seizure are typically tired and sleep following the attack
  - 6. Seizures are rarely life-threatening; however, they may indicate a more serious medical condition

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Lesson 5-1: Medical Emergencies

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7. The length of the seizure may be brief (less than 5 minutes) or prolonged
  8. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment
      - (1) Complete a scene assessment and use appropriate BSI before initiating first aid
      - (2) Complete an initial assessment on all ill persons
      - (3) Assure that EMS is activated
      - (4) Complete the physical assessment (optional)
      - (5) Complete on-going assessments
    - b. Comfort, calm, and reassure the person while awaiting EMS
      - (1) Protect the person from the environment and injury
      - (2) Protect modesty—ask bystanders to leave the area
      - (3) Assure an open airway
      - (4) Place person in the recovery position if no possibility of spine trauma
      - (5) Never restrain the person
      - (6) Do not put anything in the person's mouth
      - (7) If the person is bluish following seizure, assure an open airway, assess breathing, and ventilate if the person is not breathing
      - (8) Report assessment findings to EMS
      - (9) Observe and describe the seizure to EMS; this may help EMS determine the cause of seizure
  9. Relationship to airway management
    - a. Often person having a seizure will have airway compromise because of oral secretions
    - b. It is essential that these persons be placed in the recovery position when convulsions have ended
- C. Exposure to cold
1. Generalized cold emergency
    - a. Contributing factors:
      - (1) Cold environment
      - (2) Age (very old/very young)
      - (3) Medical conditions
      - (4) Alcohol/drugs/poisons
    - b. Signs and symptoms of generalized hypothermia:
      - (1) Obvious exposure
      - (2) Non-obvious exposure
      - (3) Cool/cold skin temperature
      - (4) Shivering
      - (5) Decreasing level of responsiveness or motor function—relates to the seriousness of hypothermia.
        - (a) Poor coordination
        - (b) Memory disturbances/confusion
        - (c) Reduced or loss of touch sensation
        - (d) Mood changes
        - (e) Less communicative
        - (f) Dizziness
        - (g) Speech difficulty
      - (6) Poor judgment—person may actually remove clothing
      - (7) Problems of joint/muscle stiffness
  2. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment

**Module 5: Illness and Injury**  
Lesson 5-1: Medical Emergencies

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- (1) Complete a scene assessment and use appropriate BSI equipment before initiating first aid
  - (2) Complete an initial assessment on all ill or injured persons
  - (3) Assure that EMS is activated
  - (4) Complete the physical assessment (optional)
  - (5) Complete on-going assessments
  - b. Comfort, calm, and reassure the person while awaiting EMS
    - (1) Assess pulses for 30–45 seconds before starting CPR
    - (2) Remove the person from the cold environment
    - (3) Protect the ill or injured person from further heat loss
    - (4) Remove any wet clothing and cover the person with a blanket
    - (5) Handle the person very gently
    - (6) The person should not be given anything by mouth
    - (7) Do not massage extremities
- D. Exposure to heat
1. Influencing factors:
    - a. High ambient temperature reduces the body's ability to lose heat by radiation
    - b. High relative humidity reduces the body's ability to lose heat through evaporation
    - c. Exercise and activity—can lose more than 1 liter of sweat per hour
    - d. Age (very old/very young)
    - e. Pre-existing illness and/or conditions
    - f. Drugs/medications
  2. Signs and symptoms
    - a. Skin may be pale, cool, and wet or red, dry, and hot
    - b. Muscular cramps
    - c. Weakness or exhaustion
    - d. Dizziness or faintness
    - e. Rapid heart rate
    - f. Decreased level of responsiveness
  3. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment
      - (1) Complete a scene size-up and use appropriate BSI equipment before initiating first aid
      - (2) Complete an initial assessment on all ill or injured persons
      - (3) Assure that EMS is activated
      - (4) Complete the physical assessment (optional)
      - (5) Complete on-going assessments
    - b. Comfort, calm, and reassure the person while awaiting EMS
      - (1) Remove the person from the hot environment and place in a cool environment (air conditioned)
      - (2) Apply cool packs or wet towels/sheets to the person's neck, groin, and armpits
      - (3) Cool person by fanning, but may be ineffective in high humidity
      - (4) Place in recovery position

## Application

Procedural (How)

**Module 5: Illness and Injury**  
Lesson 5-1: Medical Emergencies

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1. Demonstrate the steps in providing first aid to a person with a general medical problem.
2. Demonstrate the steps in providing first aid to an ill or injured person with a decreased level of responsiveness.
3. Demonstrate the steps in providing first aid to a person with seizures.
4. Demonstrate the steps in providing first aid to a person exposed to cold.
5. Demonstrate the steps in providing first aid to a person exposed to heat.

**Contextual (When, Where, Why)**

1. The First Aid Provider will now be able to provide appropriate emergency care to persons with general and specific medical problems.

**Student Activities**

**Auditory (Hearing)**

1. The student should hear presentations of the signs, symptoms, and first aid for persons with general medical problems.
2. The student should hear presentations of the signs, symptoms, and first aid for ill or injured persons with decreased level of responsiveness.
3. The student should hear presentations of the signs, symptoms, and first aid for persons with seizures.
4. The student should hear presentations of the signs, symptoms, and first aid for persons exposed to cold.
5. The student should hear presentations of the signs, symptoms, and first aid for persons exposed to heat.

**Visual (Seeing)**

1. The students should see visual representations of persons with general medical problems.
2. The students should see visual representations of ill or injured persons with an decreased level of responsiveness.
3. The students should see visual representations of persons with seizures.
4. The students should see visual representations of persons exposed to cold.
5. The students should see visual representations of persons exposed to heat.

**Kinesthetic (Doing)**

1. The students should role play first aid of a person with a general medical problem.
2. The students should role play first aid of an ill or injured person with decreased level of responsiveness.
3. The students should role play first aid of a person with a seizure.
4. The students should role play first aid of a person exposed to cold.
5. The students should role play first aid of a person exposed to heat.

**Instructor Activities**

1. Facilitate discussion and supervise practice.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.
3. Redirect students having difficulty with content.

## Evaluation

Evaluate the actions of First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.



# **Lesson 5-2**

## **Bleeding, Shock, and Soft-Tissue Injuries**

# Objectives

## Objectives Legend

C=Cognitive A=Affective P=Psychomotor

1 = Knowledge level

2 = Application level

3 = Problem-solving level

### Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 5-2.1 Distinguish between minor and major bleeding. (C-3)
- 5-2.2 Describe the first aid for external bleeding. (C-1)
- 5-2.3 Explain the importance of body substance isolation. (C-3)
- 5-2.4 Describe the signs of internal bleeding. (C-1)
- 5-2.5 Describe first aid for an injured person with signs and symptoms of internal bleeding. (C-1)
- 5-2.6 Define shock. (C-1)
- 5-2.7 Describe the first aid for an ill or injured person in shock. (C-1)
- 5-2.8 Describe types of open soft-tissue injuries. (C-1)
- 5-2.9 Describe the first aid for a soft-tissue injury. (C-1)
- 5-2.10 Describe the first aid for a penetrating chest injury. (C-1)
- 5-2.11 Describe the first aid for an impaled object. (C-1)
- 5-2.12 Describe the first aid for an amputation. (C-1)
- 5-2.13 Describe the first aid for burns. (C-1)
- 5-2.14 Describe the functions of dressing and bandaging. (C-1)

### Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- 5-2.15 Describe the reason for body substance isolation when dealing with bleeding and soft-tissue injuries. (A-3)
- 5-2.16 Demonstrate a caring attitude towards injured persons with a soft-tissue injury or bleeding. (A-3)
- 5-2.17 After rescuer safety is assured, place the interests of the person with a soft-tissue injury, bleeding, or shock as the foremost consideration when making emergency care decisions. (A-3)

### Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- 5-2.18 Demonstrate direct pressure for external bleeding. (P-1,2)
- 5-2.19 Demonstrate the use of pressure dressings for external bleeding. (P-1,2)
- 5-2.20 Demonstrate the use of pressure points for external bleeding. (P-1,2)

# Preparation

**Motivation:**

*Trauma* is another word for sudden physical injury. Unexpected injuries are responsible for more than 120,000 deaths annually in the United States. Each year 1 in 3 people will receive an injury requiring medical treatment. More Americans under the age of 34 die from injuries than any other cause. Traumatic injury with external bleeding is a situation that the First Aid Provider may encounter.

Uncontrolled internal or external bleeding reduces the volume of circulating oxygenated blood and results in shock. Shock can also be caused by heart failure, damage to the spinal cord, and system-wide infection. Shock is a complex physiological condition but has a simple outcome: lack of oxygen to body tissues and death if not treated promptly. The early control of major bleeding may limit shock and has great life-saving potential.

Soft-tissue injuries range from simple abrasions to serious full thickness burns. It is necessary for the First Aid Provider to become familiar with the first aid of soft-tissue injuries with emphasis on controlling bleeding, preventing further injury, and reducing contamination.

**Prerequisites:**

Preparatory, Airway, Ill or Injured Person Assessment, and Circulation Module

## Materials

**AV Equipment:**

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

**Equipment:**

Personal protective equipment, dressings, and self-adherent roller bandages.

**Recommended Minimum Time to Complete:**

See page 12 of *Course Guide*.

# Presentation

**Declarative (What)**

- I. Bleeding
  - A. General considerations
    - 1. The First Aid Provider must be aware of the risk of infectious disease from contact with blood or body fluids
    - 2. The body's normal response to bleeding is blood vessel contractions and clotting
    - 3. A serious injury may prevent effective clotting from occurring

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4. Uncontrolled bleeding (internal or external) or significant blood loss leads to shock and possibly death
  5. Internal bleeding often results from blunt and/or penetrating trauma
  6. Recognizing the mechanism of injury (MOI) and early signs of shock may prevent unnecessary death
- B. Types of external bleeding
1. Arterial
    - a. The blood spurts from the wound
    - b. Bright, red, oxygen-rich blood
    - c. Arterial bleeding is the most difficult to control because of the pressure at which arteries bleed
  2. Venous
    - a. The blood flows as a steady stream
    - b. Dark, oxygen-poor blood
    - c. Bleeding from a vein can be profuse; however, in most cases it is easier to control
  3. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment
      - (1) Complete a scene assessment and use appropriate BSI equipment before initiating first aid
      - (2) Complete an initial assessment on all injured persons
      - (3) Assure that EMS is activated (if needed)
      - (4) Complete a physical assessment (optional)
      - (5) Complete on-going assessments
    - b. Comfort, calm, and reassure the ill or injured person while awaiting EMS
      - (1) Recall priorities of care—provide constant and on-going assessment of airway, breathing, and circulation (ABC's)
      - (2) Bleeding control
        - (a) Apply fingertip pressure (use flat part of fingers) directly on the point of bleeding
        - (b) If no injury to the muscle or bone exists, elevation of a bleeding extremity may be used secondary to and in conjunction with direct pressure
        - (c) Large gaping wounds may require clean dressings and direct hand pressure if fingertip pressure fails to control bleeding
        - (d) If bleeding does not stop, or more than one site of bleeding is discovered, apply additional direct pressure and pressure dressings
        - (e) When direct pressure and additional dressings do not control the bleeding, a pressure point may be combined with direct pressure

C. Dressing and bandaging

1. Function
  - a. Stop bleeding
  - b. Protect the wound from further damage
  - c. Prevent further contamination and infection
2. Dressings
  - a. Universal dressing
  - b. Gauze pads
  - c. Adhesive-type
  - d. Airtight
3. Bandages

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- a. Holds dressing in place
  - b. Types
    - (1) Self-adherent bandages
    - (2) Gauze rolls
    - (3) Triangular bandages
    - (4) Adhesive tape
- D. Internal bleeding
- 1. Injured or damaged internal organs commonly lead to extensive bleeding that is hidden  
Painful, swollen, deformed extremities may also lead to serious internal blood loss
  - 2. Signs/symptoms
    - a. Discolored, tender, swollen, or hard tissue
    - b. Increased respiratory and pulse rates
    - c. Pale, cool skin
    - d. Nausea and vomiting
    - e. Thirst
    - f. Changes in level of responsiveness
  - 4. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment
      - (1) Complete a scene assessment and use appropriate BSI before initiating first aid
      - (2) Complete an initial assessment on all injured persons
      - (3) Assure that EMS is activated
      - (4) Complete a physical assessment (optional)
      - (5) Complete on-going assessments
    - b. Comfort, calm, and reassure the injured person while awaiting EMS.
      - (1) Recall priorities of care—provide constant and on-going assessment of airway, breathing, and circulation (ABC's)
      - (2) Manage any external bleeding
      - (3) Reassure the ill or injured person
      - (4) Keep the person calm and in position of comfort
      - (5) Keep the person warm
      - (6) Treat for shock
- II. Shock
- A. Condition resulting from the inadequate delivery of oxygenated blood to body tissues caused by:
    - 1. Failure of the heart to provide oxygenated blood
    - 2. Abnormal dilation of the vessels
    - 3. Blood volume loss
  - B. The First Aid Provider should anticipate that most seriously ill or injured persons will develop shock
    - 1. Maintaining an open airway, assuring adequate breathing, monitoring pulse and controlling bleeding (initial and on-going assessment) is the most effective way a First Aid Provider can manage shock
  - C. Signs and symptoms
    - 1. Restlessness, anxiety
    - 2. Changes in level of responsiveness
    - 3. Pale, cool, moist skin
    - 4. Rapid, shallow breathing
    - 5. Rapid, weak pulse
    - 6. Extreme thirst

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### Lesson 5-2: Bleeding, Shock and Soft Tissue Injuries

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- D. Role of the First Aid Provider
  - 1. Complete the First Aid Provider assessment
    - a. Complete a scene assessment and use appropriate BSI before initiating first aid
    - b. Complete an initial assessment on all ill or injured persons
    - c. Assure that EMS is activated
    - d. Complete a physical assessment (optional)
    - e. Complete on-going assessments
  - 2. Comfort, calm, and reassure the ill or injured person while awaiting EMS
    - a. Recall priorities of care—provide constant and on-going assessment of airway, breathing, and circulation (ABC's)
    - b. Prevent further blood loss
    - c. Keep person calm, in position of comfort
    - d. Keep person warm—attempt to maintain normal body temperature
    - e. Do not give food or drink
    - f. Provide care for specific injuries

The following material in lesson 5-2 is supplemental to the First Aid Provider Core Elements (listed in the Course Guide). This information should be included if it is useful and/or necessary for the First Aid Provider in his or her occupational setting.

- III. Specific Injuries
  - A. Wounds
    - 1. Abrasion
      - a. Outermost layer of skin is damaged by shearing forces
      - b. Painful injury, even though superficial
      - c. No or very little oozing of blood
    - 2. Laceration
      - a. Break in skin of varying depth
      - b. May occur separately or together with other types of soft-tissue injury
      - c. Caused by forceful impact with sharp object
      - d. Bleeding may be severe
    - 3. Penetration/puncture
      - a. Caused by objects such as knives, bullets, nails, etc.
      - b. May be little or no external bleeding
      - c. Internal bleeding may be severe
      - d. Exit wound may be present
    - 4. Role of the First Aid Provider
      - a. Complete the First Aid Provider assessment
        - (1) Complete a scene assessment and use appropriate BSI equipment before initiating first aid
        - (2) Complete an initial assessment on all ill or injured persons
        - (3) Assure that EMS is activated (if needed)
        - (4) Complete a physical assessment (optional)
        - (5) Complete on-going assessments
      - b. Comfort, calm, and reassure the injured person while awaiting EMS

## Module 5: Illness and Injury

### Lesson 5-2: Bleeding, Shock and Soft Tissue Injuries

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- (1) Recall priorities of care—provide constant and on-going assessment of airway, breathing and circulation (ABC's)
  - (2) Expose the wound
  - (3) Control the bleeding
  - (4) Prevent further contamination
  - (5) Apply clean dressing to the wound and bandage securely in place
- B. Special considerations
1. Chest injuries
    - a. An airtight dressing should be applied to open wounds to prevent air from entering the chest<sup>i</sup>
    - b. Position of comfort if no spinal injury suspected
  2. Impaled objects
    - a. Do not remove the impaled object unless it is through the cheek and obstructs breathing
    - b. Manually secure the object
    - c. Expose the wound area
    - d. Control bleeding
    - e. Utilize a bulky dressing to help stabilize the object
  3. Amputations/Avulsions
    - a. Involves the extremities and other body parts
    - b. Massive or minimal bleeding may be present
    - c. Locate and preserve the amputated part
    - d. Place the part in a plastic bag and place on ice
- C. Burns
1. Classification
    - a. According to depth
    - b. Superficial involves only the outer layer of the skin
      - (1) Reddening of the skin
      - (2) Swelling
    - c. Partial thickness involves the outer and middle layers of the skin
      - (1) Deep intense pain
      - (2) Reddening, blisters
    - d. Full thickness extends through all layers of the skin
      - (1) Characteristics of partial thickness
      - (2) Areas of charred skin
  2. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment
      - (1) Complete a scene size-up and use appropriate BSI equipment before initiating first aid
      - (2) Complete an initial assessment on all injured persons
      - (3) Assure that EMS is activated
      - (4) Complete a physical assessment (optional)
      - (5) Complete on-going assessments
    - b. Comfort, calm, and reassure the injured person while awaiting EMS.
      - (1) Recall priorities of care—provide constant and on-going assessment of airway, breathing, and circulation (ABC's)

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<sup>i</sup> Three-sided taping to allow for the release of air from the pleural space (tension pneumothorax) is unnecessary when EMS is readily available. First Aid Providers should prevent further intrusion of air via airtight dressings and continuing support of the ABC's. When EMS is *not* readily available, it may be necessary to present supplemental information on releasing air from the pleural space.

## Module 5: Illness and Injury

### Lesson 5-2: Bleeding, Shock and Soft Tissue Injuries

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- If skin is hot, cool water may be used initially to cool the burn
- (2) To prevent further contamination use clean (or sterile) water and clean dressings to minimize the risk of infection
- (3) Cover the burned area with a dry sterile dressing if available
- (4) Do not use any type of ointment, lotion, or antiseptic
- (5) Do not break blisters
- 3. Special considerations
  - a. Exposure to fire and hot gases
    - (1) Stop the burning process with water
    - (2) Remove smoldering clothing and restrictive jewelry
      - (a) Be aware that some clothing may have melted to the skin
      - (b) If resistance is met when removing the clothing, it should be left in place
    - (3) Continually monitor the airway; it may become obstructed due to swelling from inhalation of smoke or hot gases
  - b. Chemical burns
    - (1) Scene safety
    - (2) Gloves and eye protection
    - (3) Brush off dry powder
    - (4) Flush with copious amounts of water
    - (5) Consider eye burns if splash injury
    - (6) Remove contaminated clothing and jewelry
  - c. Electrical burns
    - (1) Scene safety
    - (2) Severe internal injuries may occur.
    - (3) Monitor the injured person closely for respiratory or cardiac arrest.
    - (4) All persons sustaining contact with electricity should be evaluated by professional health care providers.
  - d. *Optional—Infants and Children*
    - (1) *Burns in infants and children are generally considered more serious than in adults*
    - (2) *Infants and children are more likely to go into shock, develop hypothermia, and experience airway problems*

## Application

### Procedural (How)

1. Review the methods of controlling external bleeding with an emphasis on body substance isolation.
2. Demonstrate first aid for an open, soft-tissue injury.
3. Demonstrate the necessary body substance isolation when dealing with soft-tissue injuries.
4. Demonstrate the proper method for applying an airtight dressing.
5. Demonstrate the proper method for stabilizing an impaled object.
6. Show visual representations of superficial, partial thickness, and full thickness burns.



## **Module 5: Illness and Injury**

### **Lesson 5-2: Bleeding, Shock and Soft Tissue Injuries**

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7. Demonstrate the first aid for a superficial, partial thickness, and full thickness burn.
8. Show the various types of dressings and bandages.
9. Demonstrate the method for applying dressings.
10. Demonstrate the method for applying bandages
11. Demonstrate the method for applying a pressure dressing.
12. Demonstrate the method for applying pressure points.

#### **Contextual (When, Where, Why)**

1. External bleeding is assessed during the initial assessment after securing the scene and ensuring personal safety. After ensuring airway and breathing, control of arterial or venous bleeding will be done upon immediate identification.
2. Soft-tissue injuries, unless life threatening, will be treated after the initial assessment. Failure to treat soft-tissue injuries could lead to continued bleeding, further damage to the injury, or further contamination.

## **Student Activities**

#### **Auditory (Hearing)**

1. Students should hear presentations that identify signs and symptoms of external bleeding.
2. The student should hear presentations that identify signs and symptoms of soft-tissue injuries and procedures for treating soft-tissue injuries.

#### **Visual (Seeing)**

1. The students should see visual representations of the various types of external bleeding.
2. The student should see visual representations of the proper methods to control bleeding.
3. The students should see the application of direct pressure, elevation, and pressure points in the first aid of external bleeding.
4. The student should see visual representations of the various types of soft-tissue injuries.
5. The student should see demonstrations of the treatment of an open, soft-tissue injury.
6. The student should see demonstrations of necessary body substance isolation when dealing with soft-tissue injuries.
7. The student should see demonstrations of the proper method for applying an airtight dressing.
8. The student should see demonstrations of the proper method for stabilizing an impaled object.
9. The student should see visual representations of superficial, partial thickness, and full thickness burns.
10. The student should see visual representations of the first aid for superficial, partial thickness, and full thickness burns.
11. The student should see the various types of dressings and bandages.
12. The student should see demonstrations of the methods for applying a dressing.
13. The student should see demonstrations of the method for applying bandages.

#### **Kinesthetic (Doing)**

## **Module 5: Illness and Injury**

### **Lesson 5-2: Bleeding, Shock and Soft Tissue Injuries**

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1. The student should practice first aid for open, soft-tissue injuries.
2. The student may practice first aid for an impaled object.
3. The student may practice the first aid for burns.
4. The student may practice the first aid for an amputation.
5. The student may practice the first aid for an amputated part.
6. The student may practice the first aid for exposure to fire and hot gases.
7. The student may practice the first aid for a chemical burn.
8. The student may practice the first aid for an electrical burn.

### **Instructor Activities**

1. Facilitate discussion and supervise practice.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.
3. Redirect students having difficulty with content.

## **Evaluation**

Evaluate the actions of First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.

# **Lesson 5-3**

## **Injuries to Muscles and Bones**

# Objectives

## Objectives Legend

- C=Cognitive A=Affective P=Psychomotor  
1 = Knowledge level  
2 = Application level  
3 = Problem-solving level

### Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 5-3.1 Describe the function of the muscles and bones. (C-1)
- 5-3.2 Describe an open and a closed painful, swollen, or deformed extremity. (C-1)
- 5-3.3 Describe the first aid for an injured person with a painful, swollen, or deformed extremity. (C-1)
- 5-3.4 Explain the mechanism of injury as a possible cause of head and spine trauma. (C-3)
- 5-3.5 Describe signs and symptoms of a possible spine injury. (C-1)
- 5-3.6 Describe the first aid for an injured person with a possible spine injury. (C-1)
- 5-3.7 Describe signs and symptoms of head injury. (C-1)
- 5-3.8 Describe the first aid for head injuries. (C-1)

### Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- 5-3.9 Demonstrate a caring attitude towards ill or injured persons with a muscle and/or bone injury. (A-3)
- 5-3.10 After assuring rescuer safety, place the interests of the person with a muscle or bone injury as the foremost consideration when making emergency care decisions. (A-3)

### Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- 5-3.11 Demonstrate first aid for a painful, swollen, or deformed extremity. (P-1,2)
- 5-3.12 Demonstrate opening the airway when spinal cord injury is suspected. (P-1,2)
- 5-3.13 Demonstrate manual stabilization of the cervical spine. (P-1,2)

# Preparation

### Motivation:

Injuries to the bones and muscles are common types of injuries that may be encountered by the First Aid Provider. These injuries are largely non-life-threatening. Prompt recognition and first aid for muscle and bone injuries is important in reducing pain, preventing further injury and minimizing permanent damage.

### Prerequisites:

Preparatory, Airway, Ill or Injured Person Assessment, and Circulation Modules

## Module 5: Illness and Injury

### Lesson 5-3: Injuries to Muscles and Bones

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## Materials

### AV Equipment:

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

### Equipment (optional):

Blanket, pillow, improvised splinting material (e.g., magazines, etc.).

### Recommended Minimum Time to Complete:

See page 12 of *Course Guide*.

## Presentation

### Declarative (What)

- I. Review of Muscles and Bones
  - A. The skeletal system
    1. Function
      - a. Gives the body shape
      - b. Protects vital internal organs
    2. Components
      - a. Skull—contains and protects the brain
      - b. Face
      - c. Spinal Column
      - d. Chest/Abdomen
      - e. Pelvis
      - f. Legs
      - g. Arms
      - h. Joints—where bones connect to other bones
  - B. The muscular system
    1. Function
      - a. Give the body shape
      - b. Protect internal organs
      - c. Provide for movement
- II. Injuries to Bones and Joints
  - A. Mechanism of injury (MOI)
    1. Direct force
    2. Indirect force
    3. Twisting force
  - B. Bone or joint injuries
    1. Types
      - a. Open—break in the continuity of the skin
      - b. Closed—no break in the continuity of the skin
    2. Signs and symptoms
      - a. Deformity
      - b. Pain and tenderness
      - c. Swelling
      - d. Bruising (discoloration)
      - e. Exposed bone ends

## Module 5: Illness and Injury

### Lesson 5-3: Injuries to Muscles and Bones

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- f. Joint locked into position
    3. First aid for bone or joint injuries
      - a. Body substance isolation
      - b. After life threats have been controlled, allow injured person to remain in a position of comfort
      - c. Application of cold pack to area of painful, swollen, or deformed extremity to reduce swelling and pain
      - d. Manual stabilization
        - (1) Support above and below an injury with manual stabilization
        - (2) Cover open wounds with a sterile dressing
        - (3) When in doubt, manually stabilize the injury
- III. Injuries to the Spine
  - A. Mechanism of injury
    1. Motor vehicle crashes
    2. Pedestrian—vehicle collisions
    3. Falls
    4. Blunt trauma
    5. Penetrating trauma to head, neck, or torso
    6. Diving accidents
    7. Unresponsive persons with trauma
  - B. Signs and symptoms
    1. Tenderness in the area of injury
    2. Pain associated with moving
      - a. Do not ask the injured person to move to try to find a pain response
      - b. Do not move the injured person to test for a pain response
    3. Pain independent of movement or palpation
      - a. Along spinal column
      - b. Lower legs
      - c. May be intermittent
    4. Soft-tissue injuries associated with trauma
      - a. Head and neck to cervical spine
      - b. Shoulders, back or abdomen
      - c. Lower extremities
    5. Numbness, weakness, or tingling in the extremities
    6. Loss of sensation or paralysis
    7. Breathing problems
    8. Loss of bladder and/or bowel control
    9. Pain and loss of function usually accompany a spinal injury but the absence of pain does not mean that the ill or injured person has not been significantly injured

## Module 5: Illness and Injury

### Lesson 5-3: Injuries to Muscles and Bones

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- C. Assessing for possible spine injury
    - 1. Responsive ill or injured person
      - a. Mechanism of injury
      - b. Tell the person not to move their head and neck, then ask:
        - (1) What happened?
        - (2) Does your neck or back hurt?
        - (3) Where does it hurt?
    - 2. Unresponsive injured person
      - a. Maintain open airway and assess breathing
      - b. Stabilize head and neck manually in the position found
  - D. Complications
    - a. Inadequate breathing effort
    - b. Paralysis
  - E. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment
      - (1) Complete a scene assessment and use appropriate BSI equipment before initiating first aid
      - (2) Complete an initial assessment on injured person
        - a. Maintain manual stabilization of head and neck
        - b. Maintain open airway and assess breathing
        - c. A single First Aid Provider should stabilize head and neck manually in the position found until EMS arrives
        - d. If additional First Aid Providers are available, they may perform physical and ongoing assessments
        - e. The initial First Aid Provider must continue to maintain manual stabilization of the head and neck
      - (3) Assure that EMS has been activated
      - (4) Comfort, calm, and reassure the injured person while awaiting EMS
- IV. Injuries to the Brain and Skull
- A. Head injuries
    - 1. May be open or closed
      - a. Open injuries may be bleeding
      - b. Closed injury may have swelling or depression of skull
    - 2. Injuries to the scalp
      - a. May bleed more than expected because of the large number of blood vessels in the scalp
      - b. Control bleeding with direct pressure
      - c. Injury to the brain may cause a lowered level of responsiveness
      - d. The level of responsiveness can decrease rapidly and lead to respiratory arrest
    - 3. Role of the First Aid Provider
      - a. Complete the First Aid Provider assessment
        - (1) Complete a scene assessment and use appropriate BSI equipment before initiating first aid
        - (2) Complete an initial assessment on ill or injured person
          - a. Maintain manual stabilization of head and neck
          - b. Maintain open airway and assess breathing

## Module 5: Illness and Injury

### Lesson 5-3: Injuries to Muscles and Bones

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- c. A single First Aid Provider should stabilize head and neck manually in the position found until EMS arrives
- d. If additional First Aid Providers are available, they may perform physical and ongoing assessments
- e. The initial First Aid Provider must continue to maintain manual stabilization of the head and neck and closely monitor the level of responsiveness
- f. Apply enough pressure to control the bleeding, without causing additional injury
- g. If possible, dress and bandage open wound as indicated in the first aid of soft-tissue injuries
- i. Be prepared for changes in condition of ill or injured person
  - (3) Assure that EMS is activated.
  - (4) Comfort, calm, and reassure the ill or injured person while awaiting EMS

## Application

### Procedural (How)

1. Show visual representations of the muscles and bones.
2. Show visual representations of open and closed bone and joint injuries.
3. Demonstrate manual stabilization techniques.

### Contextual (When, Where, Why)

1. Injuries to bones and joints require stabilization unless life-threatening conditions are present. If life-threatening conditions are present, ignore extremity injuries and address the immediate problem.
2. An unstable bone or joint injury can result in: damage to soft tissue, organs, nerves, muscles; increased bleeding associated with the injury; permanent damage or disability; conversion of a closed injury to an open injury; and an increase in pain.

## Student Activities

### Auditory (Hearing)

1. The student should hear simulations involving muscle and bone injuries and the necessary first aid.

### Visual (Seeing)

1. The student should see visual representations of muscles and bones.
2. The student should see visual representations of open and closed bone and joint injuries.
3. The student should see a demonstration of manual stabilization.

### Kinesthetic (Doing)

1. The student should practice manual stabilization.



## **Module 5: Illness and Injury**

### **Lesson 5-3: Injuries to Muscles and Bones**

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#### **Instructor Activities**

1. Facilitate discussion and supervise practice.
2. Reinforce student progress in cognitive, affective, and psychomotor domains.
3. Redirect students having difficulty with content.

#### **Evaluation**

Evaluate the actions of First Aid students during role play, practice, or other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

#### **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

#### **Enrichment**

Address unique student requirements or local area needs concerning this topic.

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# **Module 6: Infants and Children**

## **Lesson 6-1** **Infants and Children**

When infants and/or children are not present or are not anticipated in the First Aid Provider's occupational setting, this information may be omitted.

# Objectives

## Objectives Legend

- C=Cognitive A=Affective P=Psychomotor  
1 = Knowledge level  
2 = Application level  
3 = Problem-solving level

### Cognitive Objectives

At the completion of this lesson, the First Aid Provider student will be able to:

- 6-1.1 Describe differences in anatomy and physiology of the infant and child.(C-1)
- 6-1.2 Describe assessment of the infant and child. (C-1)
- 6-1.3 Describe distressed breathing in the infant and child.(C-1)
- 6-1.4 Describe the causes of seizures in infants and children.(C-1)
- 6-1.5 Describe first aid for infants and children with trauma. (C-1)
- 6-1.6 Describe the signs and symptoms of child abuse. (C-1)

### Affective Objectives

At the completion of this lesson, the First Aid Provider student will be able to:

- 6-1.7 Understand the First Aid Provider's own emotional response to caring for infants and children. (A-1)
- 6-1.8 Demonstrate a caring attitude towards infants and children with illness and injury. (A-3)
- 6-1.9 After rescuer safety is assured, place the interests of the ill or injured infant or child as the foremost consideration when making emergency care decisions. (A-3)

### Psychomotor Objectives

At the completion of this lesson, the First Aid Provider student will be able to:

- 6-1.10 Demonstrate differences in the assessment of infants and children. (P-1,2)

# Preparation

## Motivation:

While first aid for infants and children in a general industry setting is unusual, many First Aid Providers, as a result of their training, will appreciate the potential for using their knowledge and skills on infants or small children. A First Aid Provider who is suddenly confronted with an ill or injured infant or child outside the confines of the occupational environment would be more calm, prepared and skillful when dealing with life-threatening childhood emergencies (as they are often emotionally difficult), were they to be more familiar with the special needs of infants and children.

While this module is an optional portion of these guidelines, being familiar with the special needs of infants and children *may* be viewed as a moral necessity for program developers, instructors and/or employers who are driven not only by occupational regulation, but by the broader *humanitarian* aspects of first aid.

Aside from a general industry setting, certain other persons may be **required** by job description, rule, policy, custom or public perception to receive adequate first aid training for infants and children. These persons may include (but are not necessarily limited to) school teachers, school bus drivers, child care workers, corrections officers, line of duty police officers, firefighters and pool and ocean lifeguards.

**Prerequisites:**

Preparatory, Airway, Patient Assessment Modules

**Materials**

**AV Equipment:**

Utilize various audio-visual materials relating to first aid. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meet the needs of the program. Materials should be edited to ensure that the objectives of these guidelines are met.

**Equipment:**

None.

**Recommended Minimum Time to Complete:**

See Page 13 of *Course Guide*

# Presentation

**Declarative (What)**

- I. Anatomical and Physiological Concerns
    - A. Small airways are easily blocked by secretions and swelling.
    - B. Tongue is large compared to mouth and airway.
    - C. Positioning the airway is different in infants and children. Do not tilt the head back.
    - D. Keep infants and children warm.
  
  - II. Airway
    - A. Essential skills-review Module 2-1, Airway, with emphasis on infants and children.
      - 1. Airway opening.
        - a. Position to open airway is different; Head-neutral, chin-lift.
        - b. Place hand or soft material under shoulders to assist in maintaining airway position (non-trauma).
        - c. Head-neutral with chin-lift. Stabilize the head (trauma).
      - 2. Clearing complete obstructions.
- See “Pediatric Basic Life Support ” in the most current version of the *Emergency Cardiac Care Committee and Subcommittees, American Heart Association. Guidelines for cardiopulmonary resuscitation and emergency cardiac care.***
- III. Assessment
    - A. Be sure to involve the parents or care-giver in your assessment and first aid care of infants and children.
      - 1. Agitated parents equal agitated child.
      - 2. Calm parents equal calm child.
    - B. General impression of well versus sick child can be obtained from overall appearance.
      - 1. Assess level of responsiveness.

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2. Effort of breathing (anxious look, use of accessory muscles, tripod position).
  3. Color (mottled extremities, pale or blue tissue color).
  4. Temperature (cool extremities).
  5. Quality of cry or speech.
  6. Interaction with environment or parents/caregivers.
    - a. Normal behavior for child of this age?
    - b. Playing?
    - c. Moving around?
    - d. Attentive?
    - e. Eye contact?
    - f. Recognizes parents/caregivers?
  6. Emotional state (crying, upset, scared).
  7. Response to the First Aid Provider
- C. Approach to Evaluation
1. Observe as you approach.
    - a. Mechanism of Injury
    - b. Assess surroundings
    - c. Breathing assessment includes;
      - (1) Breathing effort.
      - (2) Noisy breathing.
      - (3) Breathing usually fast or slow.
  2. Infant or child assessment.
    - a. Check brachial pulse in infants and small children.
    - b. Assess skin color, temperature, capillary refill.
- IV. Common problems in infants and children.
- A. Airway Obstructions
1. Partial airway obstruction-infant/child alert.
    - a. Patient can speak, breathe and cough forcefully.
    - b. Pink skin color.
    - c. Sit child upright. Watch for signs of complete obstruction.
  2. Partial airway obstruction with cyanosis (bluish skin color) or complete obstruction
    - a. Patient cannot speak, breathe or cough forcefully.
    - b. Decreased level of responsiveness.
    - c. First aid: **See “Pediatric Basic Life Support ” in the most current version of the *Emergency Cardiac Care Committee and Subcommittees, American Heart Association. Guidelines for cardiopulmonary resuscitation and emergency cardiac care.***
- B. Breathing Problems
1. Respiratory distress/failure may result from a variety of medical diseases or injuries, most commonly;
    - a. Infections (e.g., croup, epiglottitis).
    - b. Asthma
    - c. Drowning or near-drowning.
    - d. Trauma.
  2. Signs and Symptoms
    - a. Increased breathing effort.
    - b. Noisy breathing.
    - c. Increased breathing rate.
    - d. Abnormal color - pale, mottled or blue.
    - e. Decreased level of responsiveness

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3. Respiratory arrest may follow.
4. Role of the First Aid Provider
  - a. Complete the First Aid Provider assessment
    - (1) Complete a scene assessment before initiating emergency medical care.
    - (2) Complete an initial assessment on all ill or injured infants and children.
    - (3) Assure that EMS is activated.
    - (4) Complete the physical assessment (optional).
    - (5) Complete on-going assessments.
  - b. Comfort, calm, and reassure the infant/child while awaiting EMS.
  - c. Allow child to maintain position of comfort.
  - d. Provide ventilations for respiratory arrest.
  - e. Monitor pulse - heart may stop. Be prepared to provide external chest compressions.
- C. Seizures
  1. Seizures, including those caused by fever, should be considered potentially life-threatening.
  2. May be brief or prolonged.
  3. Caused by a variety of conditions;
    - a. Decreased oxygen to the brain.
    - b. Fever
    - c. Infections.
    - d. Poisoning.
    - e. Low blood sugar.
    - f. Trauma.
    - g. Shock.
    - h. Could be unknown cause in children.
  5. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment.
      - (1) Complete a scene assessment and use appropriate BSI before initiating first aid.
      - (2) Complete an initial assessment on all ill or injured infants and children.
      - (3) Assure that EMS is activated.
      - (4) Complete the physical assessment (optional).
      - (5) Complete on-going assessments.
    - b. Comfort, calm, and reassure the infant/child while awaiting EMS.
      - (1) Protect the infant/child from the environment.
      - (2) Protect modesty - ask bystanders to leave the area.
      - (3) Assure an open airway.
      - (4) Assess for injuries that may have occurred during the seizure.
      - (5) Place infant/child in the recovery position if no possibility of spine trauma.
      - (6) Never restrain the person.
      - (7) Do not put anything in the infant/child 's mouth.
      - (8) If the infant/child is bluish following seizure, assure an open airway, assess breathing and ventilate if infant/child is not breathing.
      - (9) Report assessment findings to EMS.
      - (10) Observe and describe the seizure to EMS.

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- (a) First Aid Provider may be the only witness to seizure. This may help EMS determine the cause of seizure.
- D. Decreased level of responsiveness
  - 1. Caused by a variety of conditions.
    - a. Low blood sugar or diabetic problem.
    - b. Poisoning.
    - c. Post-seizure.
    - d. Infection.
    - e. Trauma.
    - f. Shock.
  - 2. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment
      - (1) Complete a scene assessment before initiating emergency medical care.
      - (2) Complete an initial assessment on all ill or injured infants and children.
      - (3) Assure that EMS is activated.
      - (4) Complete the physical assessment (optional).
      - (5) Complete on-going assessments.
    - b. Comfort, calm, and reassure the infant/child while awaiting EMS.
      - (1) Assure an open airway.
      - (2) Be prepared to provide ventilations.
      - (3) If non-trauma, place the infant/child in the recovery position.
- E. Sudden Infant Death Syndrome (SIDS)
  - 1. Signs and symptoms
    - a. Most often occurs in the first six months of life.
    - b. Cause is not clearly understood.
    - c. Baby is most commonly discovered without signs of life after sleeping.
  - 2. Role of the First Aid Provider
    - a. Complete the First Aid Provider assessment
      - (1) Complete a scene assessment before initiating emergency medical care.
      - (2) Complete an initial assessment on all ill or injured infants and children.
      - (3) Assure that EMS is activated.
    - b. Make an effort to comfort, calm, and reassure the parents while awaiting EMS.
      - (1) Even though resuscitation is unlikely, perform CPR.
      - (2) Parents will probably be in great emotional distress.
      - (3) Avoid comments suggesting parental blame.
- IV. Trauma
  - A. Injuries are the leading cause of death in infants and children.
  - B. Blunt trauma is most common.
  - C. There may be significant injuries without external signs.
  - D. Consider the mechanism of injury and suspect internal injuries.
  - E. Role of the First Aid Provider
    - 1. Complete the First Aid Provider assessment
      - a. Complete a scene assessment before initiating emergency medical care.



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- b. Complete an initial assessment on all ill or injured infants and children.
        - c. Assure that EMS is activated.
        - d. Complete the physical assessment (optional).
        - e. Complete on-going assessments.
      2. Comfort, calm, and reassure the infant/child while awaiting EMS.
        - a. Assure an open airway and stabilize head and spine.
        - b. Manually stabilize limb injuries if possible.
- V. Child Abuse
  - A. Abuse: Improper or excessive action causing injury or harm.
  - B. Neglect: Insufficient attention or respect resulting in negative effects on the infant's/child's well-being.
  - C. Some First Aid Providers (e.g., law enforcement officers, daycare workers), may have a *legal* responsibility to report abuse/neglect to appropriate authorities. Considering the devastating and life-long consequences of child abuse, one may consider it a *moral* obligation to report suspected abusers to authorities.
  - D. Sign and symptoms of abuse.
    1. Signs of repetitive injuries such as multiple bruises in various stages of healing.
    2. Injury inconsistent with mechanism described.
    3. Cigarette burns, whip marks and hand prints on infant/child's body.
    4. Injuries inconsistent with developmental stage.
    5. Changing story.
    6. Unexplained injury.
  - F. Sign and symptoms of neglect.
    1. Lack of adult supervision.
    2. Malnourishment.
    3. Unsafe or unhealthy living environment.
    4. Untreated injury/illness.
  - E. Role of the First Aid Provider
    1. Complete the First Aid Provider assessment
      - a. Complete a scene assessment before initiating emergency medical care.
      - b. Complete an initial assessment on all ill or injured infants and children (if allowed).
      - c. Assure that EMS is activated.
      - d. Complete the physical assessment (optional, if allowed).
      - e. Complete on-going assessments (if allowed).
    2. Comfort, calm, and reassure the infant/child while awaiting EMS.
      - a. Avoid confronting or accusing parents or care-giver.
      - b. Provide emergency care as indicated and allowed.
      - c. Follow occupational policies or regulations for reporting suspected child abuse.
- VI. Debriefing
  - A. Serious injury or death of infant or child is usually emotionally difficult.
  - B. Early recognition and consultation with an appropriately licensed mental health professional may prevent more serious emotional/psychological difficulties for First Aid Providers in these painful situations.

# Application

## Procedural (How)

1. Using a manikin, demonstrate the techniques of opening the airway in infants and children.
2. Demonstrate ventilating infants and children.
3. Demonstrate assessment of infants and children.
4. Demonstrate the first aid for partial and complete airway obstructions in infants and children.
5. Demonstrate the first aid for breathing problems in infants and children.
6. Demonstrate the first aid for seizures and decreased level of responsiveness.

## Contextual (When, Where, Why)

The First Aid Provider must have an understanding of the unique needs of infants and children. Since a child cannot be isolated from parents/care-givers, the emotions involved will probably make providing first aid more stressful and/or difficult. A calm, caring attitude is essential.

## Student Activities

### Auditory (Hearing)

1. The student should hear information on the special needs of infants and children.

### Visual (Seeing)

1. The student should see visual representations of infants and children with injury/illness.
2. The student should see resuscitation barriers appropriate for infants and children.

### Kinesthetic (Doing)

1. The student should practice opening the airway in infants and children.
2. The student should practice ventilating infants and children.
3. The student should practice assessment of infants and children.
4. The student should practice the first aid for partial and complete airway obstructions in infants and children.
5. The student should practice the first aid for breathing problems in infants and children.
6. The student should practice the first aid for seizures and decreased level of responsiveness.

## Instructor Activities

Facilitate discussion and supervise practice.  
Reinforce student progress in cognitive, affective, and psychomotor domains.  
Redirect students having difficulty with content.

# Evaluation

Evaluate the actions of the First Aid Provider students during role play, practice or other skill stations to determine their comprehension of the cognitive and affective

objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.

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# **Appendix A**

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**Washington State First Aid Training  
Task Force**

**Guidelines Development Group**

# Washington State First Aid Training Task Force

## Guidelines Development Group

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# **Appendix B**

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## **Washington State First Aid Training Task Force**

### **Peer Reviewers**

# Washington State First Aid Training Task Force

## Peer Reviewers

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# Guidelines for an Automated External Defibrillation Enrichment Program

A course development guideline containing the essential elements of automated external defibrillator (AED) training program for use in occupational settings. Intended for use by first aid program developers, institutions teaching first aid courses, regulatory agency personnel who review and/or approve first aid courses and the consumers of these courses.

These guidelines are an addition to the *National Guidelines for First Aid Training in Occupational Settings* document (NGFATOS). Both the NGFATOS document and these *Guidelines for an Automated External Defibrillation Enrichment Program* are non-proprietary, public domain material. They are not the property of any individual or organization. The document was produced through a voluntary consensus process including expert and public peer-review. These documents are not the product of any individual National Advisory Board (NAB) participant or Investigator. There are no trademarks, license agreements or copyrights associated with the documents. **Each NAB participant and organization served the project in an advisory fashion. Their representation does not necessarily constitute endorsement.**

It is important to understand that these guidelines are not stand-alone documents. They must be read and understood in the context of the entire NGFATOS document. The First Aid Provider Core Elements established by NGFATOS are the minimum knowledge and skills necessary for the individual to provide first aid with a limited amount of equipment. These guidelines are designed to expand on, not replace the First Aid Provider's minimum knowledge, skills and equipment.

These *Guidelines for an Automated External Defibrillation Enrichment Program* have been conceived with the sole purpose of fostering safe, helpful and proper training programs in automated external defibrillation. The Project Management Team, National Advisory Board or Peer Reviewers do not collectively endorse Automated External Defibrillation Enrichment Programs, products, or manufacturers and assume no liability for its contents or the use thereof.

These guidelines for *Guidelines for an Automated External Defibrillation Enrichment Program* do not provide medical direction or control.

**Example form of reference for authors citing this publication:**

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**November 1998**

# Objectives

## Objectives Legend

C=Cognitive A=Affective P=Psychomotor

1=Knowledge

2=Application level

3=Problem-solving level

## Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- S-2.1 Describe the signs of Sudden Cardiac Arrest (C-1)
- S-2.2 Explain the relationship between sudden cardiac arrest and ventricular fibrillation. (C-1)
- S-2.3 Describe the components of an automated external defibrillation program. (C-1)
- S-2.4 Explain the role of CPR when delivering emergency care with an AED. (C-2)
- S-2.5 Identify the age/weight requirements for using an AED on a person in cardiac arrest. (C-1)
- S-2.6 Describe the basic steps of emergency care with an AED. (C-1)
- S-2.7 List the four steps for operating an AED. (C-1)
- S-2.8 Describe how an AED is integrated into basic life support. (C-3)
- S-2.9 Differentiate between single rescuer and multi-rescuer emergency care with an AED. (C-3)
- S-2.10 Discuss the maintenance required for AEDs. (C-1)

## Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- S-2.11 Understand the importance of rescuer safety and teamwork when providing emergency care with an AED. (A-3)
- S-2.12 Demonstrate a caring attitude towards persons in cardiac arrest. (A-3)
- S-2.13 After rescuer safety is assured, place the interests of the person in cardiac arrest as the foremost consideration when making emergency care decisions. (A-3)

## Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- S-2.14 Demonstrate the steps for verifying a person is in cardiac arrest. (P-1, 2)
- S-1.15 Demonstrate preparation of the chest and proper electrode pad placement. (P-1, 2)
- S-1.16 Demonstrate the application and operation of the AED. (P-1, 2)
- S-1.17 Demonstrate a periodic maintenance check for an AED. (P-1, 2)

# Preparation

## Motivation:

In the United States, sudden cardiac arrest claims more than 350,000 lives each year. As the single leading cause of death in the U.S., it is a major public health problem. Ventricular fibrillation, an abnormal, chaotic heart rhythm that prevents the heart from pumping blood, is the most common cause of sudden cardiac arrest. Defibrillation, an electric shock delivered to the heart, is the definitive treatment for ventricular fibrillation. Recent technological advances in defibrillator design now make it possible for rescuers with limited training to provide defibrillation using an automated external defibrillator (AED).

The American Heart Association® advocates wide spread deployment of AEDs to targeted responders such as firefighters, police officers, lifeguards and emergency response teams. Public access defibrillation implies expanding the routine use of AEDs within the community to the broadest possible number of rescuers. This concept includes laypersons in occupational settings who may be designated or expected by their employer to provide care until EMS arrives, even though they have *no legal duty to act*. These non-traditional responders include (but are by no means limited to) occupational emergency response teams, volunteer first aid providers, and airline flight attendants. First Aid Providers in occupational settings, trained to provide emergency care with an AED, greatly improve a victim of sudden cardiac arrest's chance for survival.

### **Prerequisites**

Modules 1-4

### **Materials**

#### **AV Equipment**

Utilize various audio-visual materials relating to automated external defibrillation. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meets the needs of the program. Materials should be edited to assure the objectives of these guidelines are met.

#### **Equipment:**

Automated external defibrillator or AED trainer, defibrillator training electrode pads, CPR mannequin.

#### **Recommended Minimum Time to Complete:**

The time to complete each lesson will vary according to factors such as instructional design, the varying nature of adult learners, and their number in a given class. The recommended time to complete the lesson and present cognitive, affective, and psychomotor objectives 2 to 3 hours.

## **Presentation**

- I. Introduction to Sudden Cardiac Arrest and Defibrillation
  - A. The Problem of Sudden Cardiac Arrest (SCA)
    1. Strikes over 1000 people per day in the United States
    2. Single leading cause of death in the U.S.
    3. Often strikes with little or no warning
    4. Strikes adults of all ages
    5. Major public health problem
  - B. Sudden Cardiac Arrest and Ventricular Fibrillation (VF)
    1. VF most common cause of SCA
      - a. Chaotic electrical activity
      - b. Heart like bag of worms
      - c. No pumping action - no blood flow
    2. Victim collapses and loses consciousness without warning
    3. Unless normal heart rhythm is restored, death follows in a matter of minutes
  - C. Defibrillation - The Treatment for Ventricular Fibrillation
    1. Defibrillation stops VF
      - a. Electric shock through the heart
      - b. Stops all electrical activity
      - c. Allows heart's own pacemaker to take over and restore a normal rhythm

2. High survival rates if defibrillation provided in first few minutes of SCA
    - a. Within first ten minutes of SCA, chance for survival improves 10% with each minute saved in getting defibrillator to the patient.
  3. Traditionally, early defibrillation provided by EMS personnel (paramedics and EMTs)
    - a. Use manual defibrillators or early generation AEDs
    - b. Required extensive training
    - c. Survival rates often low because of response times longer than 8-10 minutes
  4. New AED technology allows defibrillation to occur earlier in the Cardiac arrest event.
    - a. AED interprets heart rhythm and makes “shock” or “no shock decision
    - b. Minimum amount of training required to use
    - c. Broad group of rescuers now available to deliver defibrillation
      - (1) Police officers
      - (2) Firefighters
      - (3) Flight attendants
      - (4) Security Guards
      - (5) Lifeguards
      - (6) Occupational emergency response teams
      - (7) Others
    - d. Allows defibrillation to be moved further up the chain of survival, greatly increasing the cardiac arrest victim’s chance for survival
  5. The American Heart Association® recommends all persons required to know CPR for their job learn to provide automated external defibrillation
- D. Review of the “Chain of Survival”
1. The links in the “Chain of Survival”
    - a. Early access to the EMS system
    - b. Early CPR
    - c. Early defibrillation
    - e. Early ACLS
  2. Early defibrillation recognized as most effective link in reversing SCA
  3. All the links are necessary to assure to assure SCA victim the best chance of surviving
  4. A weak link or links in the chain will adversely effect the other links and result in poor outcome
- E. CPR and AED
1. AED does not eliminate need for CPR.
  2. If AED is immediately available, it should be attached instead of CPR
  3. CPR is still vital to emergency care with an AED
    - a. Until AED arrives
    - b. After three consecutive shocks
    - c. After a no shock advisory
    - d. If device fails
- II. Elements of an AED Program
- A. Emergency response plan
    1. Organizes response
    2. Assures activation of in-house responders and EMS
  - B. Strategic location of AEDs and basic life support equipment
  - C. Training in CPR and AED use
  - D. Physician Medical Director
    1. Authorizes use of the AED

2. Provides medical oversight (off line)
  3. Develops standing order (protocol)
  4. Reviews training program content
  5. Participates in quality assurance and review
  - E. Formal quality assurance and review of actual uses
- III. Emergency Care with an AED
- A. ABCD Approach
    1. Same initial assessment as CPR.
    2. After assuring scene safety, establishing unresponsiveness and activating EMS or occupational emergency response plan;
      - a. **A**irway – Open the airway using appropriate maneuver
      - b. **B**reathing – look, listen and feel for breathing. If absent provide two rescue breaths
      - c. **C**irculation – Check carotid pulse.
      - d. If pulse is absent - **D**efibrillate
  - B. Indications for AED use
    1. Verified cardiac arrest.
      - a. Unresponsive
      - b. Breathing absent
      - c. Pulse absent
    2. SCA victim 8 years or older and/or weighs at least 55-66 pounds (25-30 kg)<sup>1</sup>
  - C. AED operation
    1. After verifying cardiac arrest;<sup>2</sup>
      - a. Turn on the power
      - b. Attach the device
      - c. Initiate rhythm analysis
      - d. Deliver the shock if indicated and safe
    2. Specific operation varies with AED brand and model
    3. Operators should be familiar with the operation steps for the AED they will use
  - D. Defibrillation pad placement
    - a. Bare the person's chest (cut away clothing such as T-shirts and bras as necessary)
    - b. May be necessary to shave or wipe dry the chest
    - c. Apply the pads firmly to chest.
      - (1) Place right pad along upper right sternal border, below collar bone.
      - (2) Place left pad on lower left ribs just below breast.
  - E. AED treatment
    1. Following initial rhythm analysis, AED will deliver a “shock” or “no shock decision”
      - a. Up to three consecutive shocks may be delivered, followed by a pulse check and one minute of CPR if pulse is absent. Sequence of three shocks and CPR continues until no shock advisory or EMS arrives.
      - b. After no shock advisory, check the pulse. If pulse is absent, perform CPR for one minute and reanalyze. If pulse is present, support airway and breathing and assess pulse frequently.
  - F. Safety Considerations
    1. Attach device only to persons verified to be in cardiac arrest
      - a. Unresponsive
      - b. No breathing
      - c. No pulse
    2. Do not touch the patient during analysis or during shock delivery
    3. Before delivering a shock verbally and visually clear the patient

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<sup>1</sup> *Basic Life Support for Healthcare Providers*. Dallas, TX: American Heart Association®; ©1997;9:8

<sup>2</sup> *Ibid*;9:7

4. See manufacturer's recommendations for other safety considerations
    - a. Metal surfaces
    - b. Wet surfaces
  - G. Other Considerations
    1. Pacemakers
      - a. Do not place pads over pacemaker
      - b. See manufacturer instructions about AED use with a pacemaker.
    2. Internal automated cardiac defibrillators (IACD)
      - a. If the implanted device is delivering shocks (muscles contracting like external defibrillation), allow 30 to 60 seconds for IACD to complete the treatment cycle.<sup>3</sup>
      - b. Do not place pads over IACD.
  - H. Troubleshooting
    1. Most AEDs will give prompts as to the nature of the problem and directions to fix problem.
    2. Stay calm and listen to voice prompts
    3. Most frequent problems are pad related.
      - a. Poor contact due to hair – shave chest area where pad is placed
      - b. Wet skin – dry chest with a towel or cloth before applying pads.
      - c. Electrode pad adhesive dried out due to age or open package – use a new set of pads.
    4. Medication patches – remove patch and wipe chest before applying pads.
    5. Refer to device operation manual for additional troubleshooting information
- IV. Turnover to EMS
- A. Continue emergency care until EMS arrives and take over
    1. Leave AED on the patient until EMS arrives
    2. Provide a brief report
      - a. Initial condition
      - b. Care delivered
      - c. Current condition
      - d. Estimated down time
    3. Assist EMS providers as requested
- V. Role of the First Aid Provider
- A. Complete the First Aid Provider assessment
    1. Complete a scene assessment and use appropriate BSI equipment before initiating first aid
    2. Complete an initial assessment
      - a. Establish unresponsiveness
      - b. If unresponsive, activate EMS or occupational emergency plan
      - c. Open the Airway
      - d. Assess breathing - Look, listen and feel for breathing. If absent provide two rescue breaths
      - e. Assess circulation – Check carotid pulse
      - f. If pulse is absent defibrillate
        - (1) Turn on power
        - (2) Attach the device
        - (3) Initiate rhythm analysis
        - (4) Deliver the shock if indicated and safe
    3. Continue to deliver care with the AED as indicated by voice and screen prompts.
    4. If the patient becomes responsive; comfort, calm, and reassure the person while awaiting EMS.

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<sup>3</sup> *Basic Life Support for Healthcare Providers*. Dallas, TX: American Heart Association®; ©1997;9:10

- VI. AED Maintenance
  - A. Minimal maintenance required for new generation AEDs.
  - B. Specific maintenance should be performed according to organization's policy and manufacturers recommendations.
  
- VII. Regulatory Issues
  - A. State regulations
    - 1. Most states require AED operators to work under the license of a physician medical director.
    - 2. Some states provide Good Samaritan protection to AED operators.
    - 4. AED providers should be familiar with regulations in their state
  - B. Food and Drug Administration (FDA) regulations apply mostly to manufacturers. However, AED users are required to report any device problems.

## Application

### Procedural (How)

1. Demonstrate how to verify cardiac arrest.
2. Demonstrate the steps for operating an AED.
3. Demonstrate the care delivered after three consecutive shocks.
4. Demonstrate the care delivered after a no shock advisory.
5. Demonstrate the approach for a single rescuer with an AED.
6. Demonstrate the approach for multiple rescuers with an AED.

### Contextual (When, Where, Why)

The First Aid Provider should be prepared to care for victims in cardiac arrest. When an AED is available and rescuers are trained, defibrillation should be provided as soon as the AED is at the side of the person in cardiac arrest. First Aid Providers who can provide defibrillation give the victim of cardiac arrest the best possible chance at survival.

## Student Activities

### Auditory (Hearing)

1. Students should hear about the role of the chain of survival and early defibrillation in the emergency care provided for cardiac arrest.
2. Students should hear about the use of AEDs by targeted responders.
3. Students should hear the indications for use of an AED.
4. Students should hear AED voice prompts.
5. Students should hear an example of a turnover report to EMS.

### Visual (Seeing)

1. Students should see actual AEDs.
2. Students should see how to attach and operate the AED.
3. Students should see how two or more First Aid Providers provide care with an AED.
4. Students should see how a single First Aid Provider provides care with an AED.

### Kinesthetic (Doing)

1. Students should practice attaching and operating an AED.
2. Students should practice single rescuer scenarios with an AED.
3. Students should practice multiple rescuer scenarios with an AED.



4. Students should practice providing turnover reports to EMS.
5. Students should practice troubleshooting scenarios.
6. Students should practice performing maintenance checks on the AED.

### **Instructor Activities**

Facilitate discussion and supervise practice.  
Reinforce student progress in cognitive, affective and psychomotor domains.  
Redirect students having difficulty with content.

## **Evaluation**

Evaluate the actions of First Aid students during role-play, practice and other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.

# Guidelines for a First Aid Oxygen Administration Enrichment Program

A course development guideline containing the essential elements of a first aid oxygen administration training program for use in occupational settings. Intended for use by first aid program developers, institutions teaching first aid courses, regulatory agency personnel who review and/or approve first aid courses and the consumers of these courses.

These guidelines are an addition to the National Guidelines for First Aid Training in Occupational Settings document (NGFATOS). Both the NGFATOS document and these *Guidelines for a First Aid Oxygen Administration Enrichment Program* are non-proprietary, public domain material. They are not the property of any individual or organization. The document was produced through a voluntary consensus process including expert and public peer-review. These documents are not the product of any individual National Advisory Board (NAB) participant or Investigator. There are no trademarks, license agreements or copyrights associated with the documents. **Each NAB participant and organization served the project in an advisory fashion. Their representation does not necessarily constitute endorsement.**

It is important to understand that these guidelines are not stand-alone documents. They must be read and understood in the context of the entire NGFATOS document. The First Aid Provider Core Elements established by NGFATOS are the minimum knowledge and skills necessary for the individual to provide first aid with a limited amount of equipment. These guidelines are designed to expand on, not replace the First Aid Provider's minimum knowledge, skills and equipment.

These *Guidelines for First Aid Oxygen Administration Enrichment Programs* have been conceived with the sole purpose of fostering safe, helpful and proper training programs for administering emergency oxygen in occupational settings. The Project Management Team, National Advisory Board or Peer Reviewers do not collectively endorse First Aid Oxygen Administration Enrichment Programs, products, or manufacturers and assume no liability for its contents or the use thereof.

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**November 1998**

# Objectives

## Objectives Legend

- C=Cognitive A=Affective P=Psychomotor
- 1=Knowledge
- 2=Application level
- 3=Problem-solving level

## Cognitive Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1.1 Describe the importance of oxygen delivery by the First Aid Provider. (C-1)
- 1.2 Describe the indications for using portable oxygen. (C-1)
- 1.3 List the components and functions of a portable oxygen device and delivery system. (C-1, 2)
- 1.4 Describe the use of a nasal cannula. (C-1)
- 1.5 Describe use of a simple mask. (C-1)
- 1.6 Describe the use of a non-rebreather mask. (C-1, 2)
- 1.7 Describe the use of a demand inhalator valve. (C-1,2)\*
- 1.8 Describe the components of a barrier mask with oxygen inlet. (C-1)
- 1.9 Describe how to ventilate an ill or injured person with a barrier mask. (C-1, 2)
- 1.10 Discuss the important first aid issues associated with the use of oxygen in an emergency. (C-1, 2, 3)
- 1.11 Discuss the important issues associated with the regulatory labeling, safe handling, maintenance and storage of oxygen. (C-1, 2, 3)

## Affective Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1.11 Explain the value of providing emergency oxygen to breathing ill or injured persons. (A-2)
- 1.12 Explain the value of providing emergency oxygen during rescue breathing. (A-2)
- 1.13 Demonstrate a caring attitude towards ill or injured persons who require emergency oxygen and request emergency medical services. (A-3)
- 1.14 After rescuer safety is assured, place the interests of the ill or injured person as the foremost consideration when making any and all emergency care decisions. (A-3)

## Psychomotor Objectives

At the completion of this lesson, the First Aid student will be able to:

- 1.15 Demonstrate the proper safe handling and storage procedures associated with oxygen cylinders and other components. (P-1, 2)
- 1.16 Demonstrate the assembly and set-up of a portable oxygen device. (P-1, 2)
- 1.17 Demonstrate how to connect and use oxygen delivery systems in conjunction with oxygen regulators and flow controllers. (P-1, 2)
- 1.18 Demonstrate the administration of emergency oxygen using a nasal cannula and/or a simple mask. (P-1, 2)
- 1.19 Demonstrate the administration of emergency oxygen using a non-rebreather mask. (P-1, 2)
- 1.20 Demonstrate the administration of emergency oxygen using a demand inhalator valve (P-1,2)\*
- 1.21 Demonstrate the administration of emergency oxygen using a barrier mask. (P-1, 2)

\*Optional: The demand inhalator valve is not commonly used. However, it provides 100% inspired oxygen – the highest oxygen concentration available.

# Preparation

## Motivation:

Oxygen is essential for life. When the oxygen supply to the body is reduced due to illness or injury, permanent damage to the brain and other vital organs may result. Unresponsive persons in respiratory or cardiac arrest have a critical need for emergency oxygen to help prevent damage to the brain and heart. Emergency (or supplemental) oxygen should be used during cardiopulmonary emergencies such as respiratory or cardiac arrest, as soon as it is available.<sup>1</sup>

First Aid Providers trained in the use of emergency oxygen should provide it to seriously ill or injured persons, responsive or unresponsive, after assuring the person has a clear and open airway.

**Withholding oxygen for fear of causing respiratory arrest in responsive ill persons with chronic obstructive pulmonary disease (COPD) is of no demonstrated relevance and may cause harm.**<sup>2</sup>

Emergency oxygen is necessary and should never be withheld from anyone with a potentially life-threatening illness or injury.

Emergency oxygen and its related components may be acquired without a prescription to personnel properly trained in oxygen administration.<sup>3</sup> First Aid Providers in occupational settings trained to provide care with emergency oxygen would enhance the likelihood of a better outcome for all suddenly ill or injured persons if used. A successful enrichment program in first aid oxygen administration should create an attitude in the First Aid Provider to administer, without hesitation, emergency oxygen for all suddenly ill or injured persons.

## Prerequisites

Modules 1-5 and Module 6 if children are present or reasonably anticipated in the workplace.

## Materials

### AV Equipment

Utilize various audio-visual materials relating to first aid and oxygen administration. The continuous development of new audio-visual materials relating to first aid requires careful review to determine which best meets the needs of the program. Materials should be edited to assure the objectives of these guidelines are met.

### Equipment:

Barrier mask, oxygen cylinder, nasal cannula, simple mask, non-rebreather mask, demand inhalator valve, regulator, flow meter/controller, oxygen tubing, oxygen device cases and carts, CPR mannequin. Service and maintenance schedules, storage, refilling and safe handling signs.

### Recommended Minimum Time to Complete:

The time to complete each lesson will vary according to factors such as instructional design, the varying nature of adult learners, and their number in a given class. The recommended time to complete the lesson and present cognitive, affective, and psychomotor objectives is 2 to 3 hours.

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<sup>1</sup>Emergency Cardiac Care Committee and Subcommittees, American Heart Association, Guidelines for cardiopulmonary resuscitation and emergency cardiac care. *JAMA* 1992; 268:2199.

<sup>2</sup>Schmidt GA, Hall JB Danger in the patient with COPD? *Intensive & Critical Care Digest*, Vol.8, No. 3 Dec 1989

<sup>3</sup> Food and Drug Administration (FDA) response to Compressed Gas Association (CGA) Citizens Petition # 87P-0167/CP1 regarding Precautionary Labeling of Compressed Medical Gases: Letter dated September 19, 1996.

# Presentation

- I. Importance of emergency oxygen
  - A. Oxygen is essential for life
  - B. Decreased amount of oxygen in the blood (hypoxia) as a result of life-threatening illness or injury is most often a result of hypoperfusion (shock)
  - C. Decreased oxygen in the blood may also result from over-exposure to an atmosphere which contains an inadequate amount of available oxygen
  - D. Shock results from the inadequate delivery of oxygenated blood to body tissues caused by:
    - 1. Failure of the heart to provide oxygenated blood
    - 2. Abnormal dilation of the vessels
    - 3. Blood volume loss
  - E. Shock is a complex physiological condition but has a simple outcome: lack of oxygen to body tissues and death if not treated promptly.
  - F. Responsive persons with life-threatening illness or injury will benefit from emergency oxygen
  - G. Unresponsive persons in respiratory or cardiac arrest have a critical need for emergency oxygen to help reduce the probability of damage to the brain, heart and other organs
- II. Indications for Emergency Oxygen Use
  - A. Responsive persons with serious bleeding
  - B. Responsive persons with warning signs and symptoms of serious illness
  - C. Responsive persons with obvious or suspected head/neck/spine injuries
  - D. Unresponsive ill or injured persons (in combination with care of the airway, breathing and circulation).
  - E. Unresponsive ill or injured persons in respiratory or cardiac arrest (in combination with external chest compressions and ventilations with a barrier mask and oxygen inlet)
  - F. When First Aid Provider is in doubt about the severity of illness or injury, emergency oxygen should be given
  - G. Basic emergency care for the ill or injured person should not be delayed to obtain or apply emergency oxygen when it is not immediately available
- III. Oxygen System Components and Use<sup>4</sup>
  - A. Oxygen cylinders
    - 1. Aluminum or steel
    - 2. Different sizes and volumes range from 76 liters (B cylinder) to more than 7000 liters (H cylinder). Most are between 300-650 liters
    - 3. Important to handle carefully since contents are under pressure
    - 4. Tanks should be secured to prevent falling in use or in transport
    - 5. Pressure regulators and flow controllers
      - 1. Controls and measures pressure and flow rate of oxygen. Full tank should read Up to 2200 psi, but varies with ambient temperature.
      - 2. "Dry" oxygen appropriate for short term emergency care
      - 3. Regulators reduce cylinder pressure to safe delivery pressure
        - a. Settings may be preset or variable
      - 4. Flow devices measure or control flow /concentration of oxygen delivered in liters per minute (L/min). Settings may range up to 25 L/min
      - 5. Many "emergency oxygen" regulators pre-set to deliver minimum of 6L/min.
  - B. Oxygen delivery Systems
    - 1. Tubing: clear, opaque (colored green), kinkable, unkinkable, length

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<sup>4</sup> Oxygen systems should provide the highest oxygen concentration possible to both a breathing and non-breathing person. The type of delivery device used should be based on the ease of use and its ability to provide high concentrations of oxygen.

2. Masks: Preferred prehospital method of delivering oxygen.
  3. Nasal cannula
    - a. Should only be used only on responsive ill or injured persons who will not tolerate a mask
    - b. Limits concentration of oxygen delivered
    - c. May cause drying of nasal passages
    - d. Flow rate should be a maximum of 6 liters per minute
  4. Simple mask
    - a. Common in portable emergency oxygen units
    - b. Used only for breathing persons
    - c. Mixes ambient air with oxygen to deliver increased oxygen
    - d. concentration
    - e. Flow rate of 6 – 10 liters per minute
  5. Non-rebreather mask
    - a. Improved method of giving oxygen in emergency care of breathing persons
    - b. Used only for breathing persons
    - c. High oxygen concentration delivered
    - d. Non-rebreather bag must be full/primed before mask is placed on the ill or injured person and bag must remain inflated during oxygen delivery
    - e. Flow rate should be set to 15 liters per minute
- C. Demand inhalator valve (optional)
1. Provides 100% inspired oxygen
  2. Provides 100% of respiratory needs
  3. Used only for breathing persons
  4. Commonly used for first aid of scuba diving injuries
  5. Must be used with demand regulator
  6. Demand inhalator valve should not be confused with flow restricted oxygen powered ventilators (FROPV) which may also be used on a non-breathing person.
- D. Barrier mask (pocket mask) with oxygen inlet
1. Used to provide ventilations during rescue breathing or CPR
  1. Provides enhanced oxygen concentration
  2. Flow rate should be highest available
  3. Flow Rates of 6 –10 liters per minute are beneficial
- E. Oxygen system assembly procedures
1. Remove protective seal on cylinder post valve
  2. Connect handle
  3. Quickly open and close the valve to test and clean. Be sure exit port is directed away from user
  4. Check to assure sealing mechanism (gasket or washer) is in place on regulator or at connection to tank stem
  5. Attach regulator/flow controller to cylinder post valve
  6. Attach oxygen delivery system (tubing and mask/cannula) to oxygen outlet port.
  7. Adjust flow control to desired setting
  8. Test for oxygen flow and then administer to the patient
  9. When complete, remove delivery system (mask/cannula) from patient, then turn off valve and release excess gas from the regulator and delivery system
- IV. Oxygen Administration to the Non-breathing Patient
- A. Mouth –to-barrier mask with oxygen inlet
1. Review technique for ventilating a non-breathing person in Module 2: Airway
  2. Connect the barrier mask to oxygen tubing
  3. The oxygen flow should be set at the highest available setting
  4. Techniques for use
    - a. Release flow from oxygen device and be sure oxygen is being delivered to the barrier mask
    - b. Open airway using appropriate method

- c. Place apex of mask over bridge of nose, then lower mask over mouth and upper chin. If mask has large round cuff surrounding a ventilation port, center port over mouth
  - d. Use ring and little fingers to bring jaw up to mask
  - e. Ventilate (blow oxygenated air into the patient's lungs) slowly – 1.5-2 second duration until the chest rises
  - f. Repeat every 5 seconds for adults and every 3 seconds for children and infants
5. Oxygen administration for persons with stomas or tracheostomy tubes (As Required)
- a. Definition of tracheostomy – an artificial permanent opening in the
  - b. Trachea
  - c. A breathing tube may be present. If it is obstructed, wipe clean as much as possible
  - d. Release flow from oxygen device and be sure oxygen is being
  - e. delivered to the mask
  - f. Use infant and child mask to seal around stoma
  - g. Ventilate (blow oxygenated air into the patient's lungs) slowly – 1.5-2 second duration until the chest rises
  - h. Repeat every 5 seconds for adults and every 3 seconds for children and infants
  - i. If unable to ventilate:
    - 1) Clean around stoma area
    - 2) Attempt to ventilate through mouth and nose
    - 3) Sealing stoma may improve ability to ventilate from above or may clear
    - 4) Masks come in different sizes for adults, children and infants. Be sure to select the correct size mask
    - 5) Some persons have partial laryngectomies. If upon ventilating stoma air escapes from the mouth or nose, close the mouth and pinch the nostrils during ventilation
- B. Role of the First Aid Provider
- 1. Complete the First Aid Provider assessment
    - a. Complete a scene assessment and use appropriate BSI equipment before initiating first aid
  - 2. Complete an initial assessment
    - a. Establish unresponsiveness
    - b. If unresponsive, activate EMS or occupational emergency plan
    - c. Open the Airway
    - d. Assess breathing - Look, listen and feel for breathing. If absent provide two rescue breaths
    - e. Assess circulation – Check carotid pulse
    - f. If pulse is absent provide chest compressions (and defibrillation, if indicated)
    - g. If pulse is present, provide rescue breathing
  - 3. As soon as possible, perform all ventilation with oxygen supply connected to barrier mask.<sup>5</sup>
  - 4. Continue to deliver care as indicated
  - 6. If the ill or injured person becomes responsive; comfort, calm, and reassure the person. Continue to supply emergency oxygen to person with barrier mask while awaiting EMS.
- V. Oxygen Administration for the Breathing Ill or Injured Person
- A. Assure ill or injured person has an open airway and is breathing

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<sup>5</sup> A single First Aid Provider should not delay ventilations, chest compressions or attaching an AED to provide emergency oxygen. Two or more rescuers should provide emergency oxygen as soon as it is available.



- B. Assure control of external bleeding
  - C. Ill or injured person may be responsive or unresponsive
    - 1. Unresponsive person without obvious or suspected head/spine injury may be placed in recovery position
    - 2. Unresponsive or responsive person with obvious or suspected head/spine injury should not be moved unless threat to life exists
    - 3. Responsive person without obvious or suspected head/spine injury may be placed in a position of comfort
  - D. Assemble and set-up oxygen device
    - 1. Place in close proximity to the patient's airway
    - 2. Secure equipment to prevent accidental falling
  - E. Release oxygen at appropriate flow for device used
    - 1. Nasal cannula – Maximum 6 liters per minute
    - 2. Simple Mask – 6-10 liters per minute
    - 3. Non-rebreather – 15 liters per minute
    - 4. Demand inhalator valve – does not require flow rate as device is activated by respiratory demand
  - E. Be sure oxygen is flowing into delivery device
    - 1. Describe to ill or injured person that oxygen is being delivered and that it is colorless, odorless, tasteless, and will help to support breathing.
    - 2. Tell ill or injured person to breath normally
  - F. Bring delivery device to person's face, and cover nose and mouth with mask or place cannula in nose
    - 1. If responsive, ill or injured person may assist in placing device on face
    - 2. Adjust strap to hold device securely to head
  - G. Provide on-going assessment to ensure open airway and continued breathing
    - 1. If at any time breathing stops, switch to barrier mask and ventilate as described in Section IV A.
    - 2. Repeat ventilations every 5 seconds for adults and every 3 seconds for children and infants
    - 3. If chest won't rise after repositioning airway, treat as foreign body airway obstruction.
  - H. Monitor oxygen flow to ensure continued operation and delivery.
    - 1. When tank is empty (200 psi), prepare to change tank if a replacement is available.
    - 2. If an additional tank is not available, prepare to remove the delivery device.
  - I. Role of the First Aid Provider
    - 1. Complete the First Aid Provider assessment
      - a. Complete a scene assessment and use appropriate BSI equipment before initiating first aid
      - b. Complete an initial assessment on all ill or injured persons
      - c. Assure that EMS is activated
      - d. As soon as possible, provide emergency oxygen.
      - e. Complete the physical assessment (optional)
      - f. Complete on-going assessments
    - 2. Comfort, calm and reassure the ill or injured person while awaiting EMS
- VI. Regulatory Issues
- A. Food and Drug Administration (FDA) regulatory issues
    - 1. Emergency versus prescription oxygen devices
    - 2. FDA requirements apply mostly to manufacturers. However, oxygen device users are required to report any device problems.
  - B. Some states regulate oxygen use. Oxygen providers should be familiar with regulations in their state

VII. Safe Use and Handling

- A. Proper instruction means safe use and safe handling
  - 1. Set-up at emergency scene
    - a. Transport and positioning of equipment
    - b. Connecting parts, testing for flow, determining contents
  - 2. Hazards
    - a. Oxygen is nonflammable, but supports combustion
    - b. Cylinder is under pressure
    - c. Avoid storage above 125 F (51.7 C), or use above 120 F (48.9 C) \*\*
    - d. Avoid contact with any flammable or combustible material including storage or use in close proximity to cylinders containing flammable gas\*\*.
    - e. Maintain clean and secure connections between post valve of tank and regulator
- B. Service, maintenance and safe handling
  - 1. Cylinder refilling or replacement
  - 2. Regulator and component service and maintenance (test accuracy, cleanliness)
  - 3. Scheduled examination for delivery system component maintenance (test for damage, contaminants)
  - 4. Written directions and procedures for proper storage and safe handling of components
  - 5. Written directions and procedures for compliance with FDA labeling, refilling, storage, DOT (shipping and package labeling) regulations, and CGA safe handling and storage guidelines.
  - 6. Written directions and procedures for proper disposal and replacement of oxygen components following use

\*\* Oxygen. CGA Document CGA G-4, Compressed Gas Association, Inc., Arlington, VA, 1996.

## Application

### Procedural (How)

- 1. Demonstrate the safe use and handling of oxygen system components.
- 2. Demonstrate how to assemble oxygen system components.
- 3. Demonstrate how to operate a portable oxygen device.
- 4. Demonstrate how to operate a demand inhalator valve (optional).
- 5. Demonstrate how to provide emergency oxygen to a breathing ill or injured person using a non-rebreather mask, simple mask or nasal cannula.
- 6. Demonstrate how to provide emergency oxygen while ventilating a non-breathing ill or injured person with a barrier mask with oxygen inlet.

### Contextual (When, Where, Why)

Most ill or injured persons will benefit from the administration of emergency oxygen during emergency care. Emergency oxygen increases oxygen in the blood, which reduces the chance of permanent damage to vital organs. The First Aid Provider will use emergency oxygen during emergency care of a breathing or non-breathing ill or injured person. Because emergency oxygen is used as an adjunct to other first aid maneuvers, its priority and relationship to other emergency care procedures must be understood. First Aid Providers must not delay other life-supporting care such as rescue breathing or CPR while oxygen equipment is being prepared. First Aid Providers must be familiar with the devices used in their organization as well as the federal, state and local laws that govern the use of oxygen equipment in their area.

## Student Activities

### Auditory (Hearing)

- 1. Students should hear about safe handling and use of emergency oxygen equipment.

2. Students should hear about legal issues associated with providing supplemental oxygen.
3. Students should hear the benefits of providing supplemental oxygen.
4. Students hear the indications for use of various oxygen delivery devices.

### **Visual (Seeing)**

1. Students should see the components of an oxygen delivery system.
2. Students should see how to assemble the components of an oxygen delivery system.
3. Students should see how to operate the valve and flow control of an oxygen delivery device.
4. Students should see how to operate a demand inhalator valve (optional).
5. Students should see how emergency oxygen is administered to a breathing injured or ill person using a nasal cannula, simple mask or non-rebreather mask.
6. Students should see how emergency oxygen is provided while ventilating a non-breathing person with a barrier mask with oxygen inlet.

### **Kinesthetic (Doing)**

1. Students should practice assembling the components of an oxygen delivery system.
2. Students should practice operating the valve and flow control of an oxygen delivery device.
3. Students should practice administering emergency oxygen to a breathing injured or ill person (simulated) using a nasal cannula, simple mask or non-rebreather mask.
4. Students should practice operating a demand inhalator valve (optional).
5. Students should practice providing emergency oxygen while ventilating a CPR mannequin with a barrier mask with oxygen inlet.

### **Instructor Activities**

- Facilitate discussion and supervise practice.
- Reinforce student progress in cognitive, affective and psychomotor domains.
- Redirect students having difficulty with content.

## **Evaluation**

Evaluate the actions of First Aid students during role play, practice and other skill stations to determine their comprehension of the cognitive and affective objectives and reasonable proficiency with the psychomotor objectives.

## **Remediation**

Identify students or groups of students who are having difficulty with this subject content.

## **Enrichment**

Address unique student requirements or local area needs concerning this topic.