

Diving First Aid for Professional Divers



Instructor
Guide

Version 3.0

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Diving First Aid for Professional Divers

Overview

The Diving First Aid for Professional Divers provider (DFA Pro) course is designed to teach the knowledge and skills needed to provide the range of care that may be required for divers in an occupational dive setting.

The first part of the course provides background information and theoretical knowledge to support the following sections. The sequencing of topics follows a “most likely” scenario to more urgent care. Secondary care is covered in the latter part of the course.

This course structure allows for a modular presentation with associated skill completion. DFA Pro can also be offered as a continuous course. Note that the material presented assumes the injured person is out of the water and all gear has been removed. Training for removing injured divers from the water is available from other agencies. Follow institution/company policies for extrication procedures.

The individual skills are outlined for easy delivery based on the skill presentation outline from the CORE Instructor Manual. This includes skill objective, rationale and key points. Key points to be addressed during each skill are referenced in bold, blue text in the Talk Through Demonstration Skill Description and then itemized at the end of each skill to facilitate the debriefing after the skill practice.

This course includes CPR instruction for delivery to adult, child, and infant using one and two rescuers.

Scenarios included in each skill are only suggestions and may be altered to more closely reflect the environment where the course is conducted and to meet the needs of course participants.

The time needed to teach the course varies and depends on many factors including the number of students and their ability to process the educational components of the program. Instructors who want to include subjects or training beyond the course requirements may do so only before or following

the course. Any additional training must not be required for completion of course requirements.

Standards and Procedures

This *Instructor Guide* is for instructors who are authorized to conduct the *Diving First Aid for Professional Divers* course. It is to be used in conjunction with the General Standards and Procedures section of the *Instructor Manual*, which will provide general course guidelines, equipment-configuration descriptions and ratios. The appendix of the Instructor Manual provides additional information about teaching courses.

This course is intended for anyone whose diving activities are part of work-related responsibilities or as a volunteer in a variety of settings. It can also be used as part of the training required for individuals who provide surface support for divers and their diving activities. This course is written to meet the 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.

STANDARDS SUMMARY

Course prerequisites: None

Age: No minimum age requirement.

Note:

Some countries, states and local municipalities may have minimum age stipulations

Student-to-instructor ratio: 12:1 during skill-development sessions

If teaching for United States Coast Guard credentials, the Student-to-Instructor ratio becomes 6:1 for skill-development sessions.

Recommended course hours: Nine to twelve (12-16) hours

- Review Question Discussion = 3 - 4 hours
- Skill Development (practice) hours = 9 - 16 hours

Required student materials:

- *Diving First Aid for the Professional Diver* Provider Student Handbook
- Oronasal resuscitation mask with oxygen inlet (one for each student)
- Non-Rebreather mask (one for each student)
- **Neurological Assessment** Slate and pencil (one for each student)

Required instructor materials:

- *Core Instructor Manual*
- *Diving First Aid for Professional Divers Instructor Guide*
- *DFA Pro* student handbook (print or digital format)
- *CPR, First Aid, Emergency Oxygen, Neurological Assessment, and HMLI* Provider Slates
- Pencil or other non-permanent/no smear writing implement

Required audiovisual materials:

- *Diving First Aid for Professional Divers* Online Module
 - To be completed by student before attending class

Required equipment and supplies:

- DAN Oxygen system or equivalent as noted in *Instructor Core Manual General Standards and Procedures*
- Adult CPR manikin
- Infant manikin
- Non-latex medical gloves
- MTV &/or BVM (both preferred)
- AED Trainer
- Manual vacuum pump (MVP)
- Bulb syringe
- Pencils or other non-permanent/no smear writing implements for use with slates
- Pen and Paper or Dive accident management slate
- First-aid supplies including tweezers, irrigation device, dressing and bandaging materials, splints (commercial &/or improvised)
- Commercial tourniquet &/or supplies for an improvised tourniquet
- Epinephrine Auto-injector trainer &/or naloxone auto-injector trainer

Recommended equipment:

- *CPR, First Aid, Emergency Oxygen, and HMLI Provider Slates*
- *DAN Dive Accident Summary Slate*
- Moulage supplies to create mock injuries

Skill evaluations:

- Students must meet the performance requirements as noted for each skill.
 - There is no time requirement to meet skill competencies. Instructors are encouraged to work with students as may be required to achieve performance objectives.

Final assessment:

A minimum score of 80% (80 questions correct) or above on the final written assessment is required to pass.

The instructor must review with each participant any missed questions on the assessment or any information that is unclear with each participant to ensure 100 percent understanding of the material.

USCG documentation requirements:

To be retained by the instructor

- Student Registration and Statement of Understanding
- All student written examination scores and skill assessment results
- Copies of retests and/or additional evaluations
- A record of class attendance
- The number of students who started each course
- The number of students who successfully completed the course
- The number of students who were required to retest
- The number of students who were required to retake the entire course
- The number of students who were required to retake a portion of the course

All items on this list will be made available to DAN Training upon request without delay.

To be retained at DAN Headquarters

- A copy of each student's course completion certificate
- Summary of course changes or modifications since last submission
- Course Rosters with instructor name and number, names of all qualified assistants utilized for each specific course, location where the course was presented.

Retraining required: 24 months

Curriculum Subject Areas and Objectives

Students participating in this course will be able to answer the following questions at the end of the knowledge development section.

DUTY OF CARE AND EMOTIONAL RESPONSE

- Define duty of care and its application to the first-aid provider.
- Describe why it is important to ask permission before rendering care.
- List the options to aid a rescuer in dealing with emotional stress.

BASIC SCIENCE

Respiration and Circulation

- Define hypoxia.
- Describe the role of oxygen in sustaining life.
- Identify the body structures involved with gas exchange in the body.
- List the body structures in the respiratory system.
- List the body structures in the cardiovascular system.

Nervous System

- List the primary components of the nervous system.
- Identify the functional unit of the nervous system.
- Name the possible causes of interruptions along neural pathways.

Atmospheric Gases

- Describe the physical characteristics of oxygen (O_2)
- Identify the percentage of oxygen in both inhaled and exhaled air as we breathe.
- Describe how oxygen is transported to body tissues.
- Describe carbon dioxide and how it is eliminated from the body
- Describe the physiological nature of nitrogen gas in the human body.
- Describe how carbon monoxide interferes with oxygen uptake and how it can be dangerous in breathing gases for use under pressure.

Decompression Illness

- Identify the initial actions in responding to diving accidents.
- Identify the two processes encompassed under decompression illness (DCI).
- Identify the primary cause of decompression sickness (DCS).
- List the primary symptoms of DCS.
- Describe arterial gas embolism (AGE).
- Identify the primary risk factor for AGE.
- List the reasons medical evaluation should be sought when DCI is suspected.
- Identify the most prevalent symptoms of DCI.
- Provide the typical onset times of DCS and AGE symptoms.

DIVE EMERGENCY PREPARATION

Bloodborne Pathogens

- Describe the purpose of the OSHA Blood Borne Pathogen Standard.
- List the four things that must be present for disease transmission to occur.
- List strategies to prevent disease transmission.
- List the steps you should take if you think you may have been exposed to a blood borne pathogen.
- Define zoonosis.
- Identify the specific requirement for diving in contaminated water.

Emergency Action Plans

- List the elements included in an Emergency Action Plan.
- Describe why transport to a medical facility instead of a hyperbaric chamber is the best course of action in a dive emergency.
- List the emergency equipment that should be readily available as part of an emergency action plan.

Lifting and Moving

- List the general considerations for a rescuer when attempting to move an injured or ill person.
- Identify circumstances when an injured or ill person should be moved.

RESPONSE AND ASSESSMENT

Scene Safety Assessment and Universal Precautions

- Describe the elements of S-A-F-E
- Identify hazards that may need to be assessed before attempting to provide first aid.
- Describe the role of exposure protection for rescuers.
- List four examples of personal exposure protection equipment.

Initial Assessment and positioning for care

- List the three steps in the assessment sequence.
- Describe the technique that assists a rescuer in placing an unresponsive person on their back.
- Describe agonal breathing.
- Describe when the recovery position should be used.
- Describe when the recovery position should not be used.

Neurological Assessment

- Describe the action that can help prevent permanent disability.
- Describe the assessments of a F-A-S-T exam.

Conducting a Neurological Assessment

- Describe why collecting an individual's history can be essential to the assessment.

- List and describe the mnemonic elements that assist in taking an injured diver's history.

The Four Functional Areas of a Neurological Assessment

- List the four functional areas of a neurological assessment.
- Describe how the "cranial nerves" are evaluated in a neurological assessment.
- List the tasks used to evaluate 'mental function' section in the neurological assessment.
- List the designations used for motor function assessment.
- List in sequence of application the coordination and balance evaluations.

OXYGEN FIRST AID in SCUBA DIVING INJURIES

Oxygen and Diving Injuries

- List four benefits of providing a high concentration of oxygen to an injured diver.
- List the two actions of oxygen partial pressure gas gradient that aids in diving injuries.
- Describe the primary goal of emergency oxygen for injured divers.
- List the two critical factors that impact the percentage of oxygen delivery when using a demand valve.
- Identify the initial flow rate for constant-flow oxygen delivery systems.
- Describe the priority for oxygen delivery in remote areas.
- Describe the circumstances where there may be concerns about oxygen toxicity.
- List five symptoms of nonfatal drowning.
- List the three actions of a first responder in a nonfatal drowning.

Handling Oxygen Safely

- List the three elements of the fire triangle.
- Identify two steps to be implemented to reduce the risks of handling oxygen.
- Explain the safety precautions that should be implemented when using oxygen equipment.
- Identify the grade of oxygen to be utilized for diving first aid.
- List the documentation options to obtain an oxygen fill.
- Describe how an oxygen unit should be stored.
- Identify when an oxygen unit's components and cylinder pressure should be checked.
- Describe how to clean reusable oxygen masks and removable plastic parts of the oxygen system.

Oxygen Delivery Systems and Components

- List the components of an oxygen delivery system.
- State the hydrostatic testing requirements of an oxygen cylinder.
- List the two factors influencing the selection of oxygen cylinder size.
- Identify when the oxygen cylinder should be switched.
- Identify the preferred oxygen regulator for diving first aid and why it is preferred.
- Identify how often and by whom an oxygen regulator should be serviced.
- Explain why a demand valve is the first choice for delivering oxygen to an injured diver.

CARDIOPULMONARY RESUSCITATION

Cardiopulmonary Resuscitation (CPR)

- Describe the goal of CPR.
- Itemize the five links in the chain of survival in their proper sequence.
- Identify the first step for a single rescuer once unresponsiveness has been established for an injured or ill adult.
- Distinguish the first step for a rescuer if the injured person is a child or the victim of a drowning incident vs. an adult.
- Describe the CPR protocol used for drowning victims.

Starting CPR – Supporting Circulation

- Identify the recommended depth and rate for compressions on an adult during CPR.
- Identify the recommended depth and rate for CPR compressions on a child.
- Identify the recommended depth and rate for CPR compressions on an infant.
- Describe the circumstance when full CPR always recommended.
- Differentiate the roles of rescuers when more than one rescuer is available.

Continuing CPR – Supporting Respiration

- Describe the barrier devices (exposure protection) options for providing rescue breathing.
- Describe how long should rescue breaths last.
- Identify the compression/ventilation ratio for single rescuers on an adult. For two rescuers.
- Identify the compression/ventilation ratio for a child.
- Describe how often rescue breaths should be delivered for an adult when providing ventilations only. For a child. For an infant.
- Compare the advantages and disadvantages of the following:
 - Manually triggered ventilator
 - Bag valve mask

Use of AEDs during CPR

- Describe why AEDs are recommended as part of CPR.
- Describe the considerations for using an AED on children or infants.

Foreign Body Airway Obstruction

- Identify the most common cause of choking in adults.
- Explain how a partial airway obstruction can be identified.
- Describe how a rescuer should respond to a partial airway obstruction.
- Explain how a complete airway obstruction can be identified.
- Describe the action that should be taken if a choking victim becomes unconscious.
- Describe when a finger sweep may be used.
- Identify the maximum time suctioning may be used on an adult. On an Infant.

SECONDARY CARE

General Assessments and Medical Emergencies

- Differentiate first-aid care from basic life support.
- Describe the purpose of a secondary assessment.
- Define asthma.
- Describe the signs and symptoms of heart attack.
- Compare and contrast hypoglycemia and hyperglycemia.
- Describe the primary first aid for seizures.
- Identify the primary first-aid action for poisoning.
- Name the preferred first aid for exertional dehydration.
- List restrictions that should be observed by an individual who has suffered a concussion.
- List the options for protecting an avulsed tooth.

Temperature-Related Injuries

- Define hypothermia.
- Describe the first-aid response to hypothermia.
- Identify the special consideration that must be taken into account for hypothermia.
- Define hyperthermia.
- Differentiate between the four methods of heat conduction, and how they can benefit the hyperthermic individual?
- Compare and contrast the signs and symptoms of heat exhaustion and heat stroke.
- Describe the first-aid response to hyperthermia.

Slips, Falls, Secondary Assessment: Fractures and Splinting

- Describe two tactics to prevent slips and falls.
- List the steps in a secondary assessment.
- Describe the general guidelines to be used when conducting a secondary assessment.
- Describe the purpose of a splint.

Burns

- Identify how burns are categorized.
- Describe a superficial burn.
- Describe a second-degree burn.
- Describe a third-degree burn.
- Outline the general first-aid treatment for burns.
- Explain the first-aid acre for chemical burns.

HAZARDOUS MARINE LIFE INJURIES/FIRST AID

Hazardous Marine Life Injuries

- List the three general categories of marine life injuries.
- Define envenomation.
- Identify the usual trigger for marine animal bites.
- Identify the primary cause of seafood poisoning.
- Describe the protective measures a first-aid provider should utilize when treating for a marine life injury.

Envenomations and Toxins

- Describe the mechanisms of envenomations.
- Identify the reason most envenomations occur.
- List the three factors that may impact an individual's response to envenomations.
- Describe the first-aid steps for venomous fish injuries.
- Identify the three injuries when the pressure immobilization technique is recommended.
- List the four general first-aid guidelines in appropriate sequence for jellyfish stings.
- List the four general first-aid guidelines for treating injuries resulting from contact with marine life.

Traumatic Injuries

- List the three reason marine animals bite.
- Describe the body's mechanisms to stop bleeding.
- Identify the particular concern of marine animal bites.

- Identify the primary method to control most external bleeding.
- Describe the presentation of a wound where a tourniquet should be utilized.
- State how long a tourniquet should be left in place
- List the signs and symptoms of infection.

Seafood Poisoning

- Identify the primary cause of seafood poisoning.
- List four contaminants that can trigger seafood poisoning.
- Name the three well-established types of seafood poisoning.
- Describe how the risk of seafood poisoning can be minimized.

Life-Threatening Complications

- List the signs and symptoms of an allergic reaction.
- Describe the steps to be taken if an allergic reaction occurs.
- List the signs and symptoms of cardiogenic shock.
- Describe the steps that should be taken if cardiogenic shock occurs.
- List the signs and symptoms of hypovolemic shock.

Avoiding Hazardous Marine Life Injuries

- List three likely causes of injuries by marine life.
- List eight dive practices can reduce the risk of injuries by marine life.

Provider Skills Objectives and Development

Students who have participated in the skill-development portion of this course will be able to:

Scene Safety Assessment

- List the four steps in performing a scene safety assessment.
- Perform a scene safety assessment in a scenario.
- Use appropriate first-aid barrier devices in a scenario.

Donning and Doffing Gloves

- Demonstrate donning of gloves without tearing or compromising the glove integrity.
- Demonstrate removal of gloves without contaminating exposed skin.

Initial Assessment

- Demonstrate the technique for establishing unresponsiveness in an adult or child.
- Demonstrate the technique for establishing unresponsiveness in an infant
- Demonstrate the technique for determining the presence of a pulse in an adult or child.
- Demonstrate technique for determining the presence of a pulse in an infant.

Recovery Position

- Demonstrate rolling simulated injured or ill person from their back into the recovery position, keeping the spine aligned.

F-A-S-T

- Conduct a F-A-S-T assessment on a simulated ill person suspected of having a neurological impairment.

Taking a History

- Interview a person in a simulated scenario using the S-A-M-P-L-E mnemonic to identify previous medical history and determine where he might have acute problems or feel discomfort. Record findings in a usable format.

Taking Vital Signs

- Demonstrate proper technique to determine a person's pulse rate and breaths per minute by counting each for 30 seconds then multiply by two.

Mental Function

- Determine an individual's level of consciousness in a scenario with a simulated injury.
- Utilizing interview techniques, assess an individual's
 - speech and language abilities

- orientation to person, place, time, and event
- short-term memory
- Assess an individual's ability to do calculations utilizing a standardized protocol.

Cranial Nerves

- Assess control of eyes and facial muscles using standardized commands.
- Assess an individual's ability to hear by rubbing or snapping fingers 1 foot/30 cm from the ear.

Motor Function (Strength)

- Assess strength of muscle groups using muscle isolation and resistance.

Coordination and Balance

- Assess an individual's coordination with a finger-nose-finger exercise
- Determine presence of functional balance using a straight walk and a Romberg test.

Oxygen Equipment Disassembly and Assembly

- Identify the component parts of the DAN oxygen unit.
- Disassemble and reassemble the DAN oxygen unit or equivalent with minimal assistance.

Demand Valve

- Provide emergency oxygen to a simulated responsive breathing injured diver using the demand inhalator valve and oronasal mask.

Nonrebreather Mask

- Provide emergency oxygen to an simulated unresponsive breathing injured diver using the nonrebreather mask.
- Discern when options for oxygen delivery are not working adequately, and switch to another delivery method as may be appropriate.

Chest Compressions for CPR

- Demonstrate proper hand positioning for chest compressions on a manikin for both an adult and a child.
- Utilize proper body mechanics to accomplish chest compressions consistently to a depth of 2-2 ½ inches (5-6 cm) on an adult CPR manikin at a rate of 100-120 compressions per minute.
- Utilize proper body mechanics to accomplish chest compressions consistently to one-third the chest depth for a child, using one hand on a CPR manikin (adult or child) at a rate of 100-120 compressions per minute.
- Demonstrate proper finger/thumb placement for infant chest compressions.

- Utilize proper body mechanics to accomplish chest compressions consistently to one-third the chest depth on an infant CPR manikin at a rate of 100-120 compressions per minute.

Rescue Breathing

- Demonstrate the proper rescue-breathing technique for an adult and child on a CPR manikin.
- Demonstrate the proper rescue-breathing technique on an infant manikin.

Resuscitation with a BVM

- Provide emergency oxygen as part of a team to a non-breathing or inadequately breathing injured diver using a bag valve mask. Student must perform both team roles.

Using an MTV

- Provide emergency oxygen as part of a team to a non-breathing or inadequately breathing injured diver using an MTV and oronasal mask. Student must perform both team roles.

Full CPR

- Perform two minutes of full CPR as a single rescuer on adult and infant CPR manikins, completing at least five cycles of 30:2 compressions/ventilations.
- Perform four minutes of full CPR as a two-person rescue team on an adult CPR manikin, completing at least 10 cycles of 30:2 compressions/ventilations switching roles half-way through.
- Perform four minutes of full CPR as a two-person rescue team on an infant CPR manikin, completing at least 20 cycles of 15:2 compressions/ventilations switching roles half-way through.

Using and AED

- Demonstrate proper AED pad placement for adults, and on children and infants using CPR manikins.
- Follow the prompts of an AED training unit to simulate care for a unresponsive person on an adult CPR manikin.
- Utilize an AED training unit as part of CPR on an adult CPR manikin.

Foreign Body Airway Obstruction

- Demonstrate proper abdominal thrust, chest thrust, and back blow techniques for management of an obstructed airway in an adult or child.
- Demonstrate proper back blow/chest compression technique for management of an obstructed airway in an infant.

Suctioning

- Demonstrate the appropriate technique and duration for suctioning on an adult or child manikin and an infant manikin.

Secondary Assessment

- Demonstrate technique for head to foot secondary assessment using a gentle touch and caring manner.

Splinting

- Apply a splint to a simulated injured limb, immobilizing the joints on either side of the injury. Use of either a professional splint or improvised splint is acceptable.

Injury Management

- Demonstrate the proper technique for managing at least one of the following:
 - spiny envenomations
 - stinging envenomations
 - contact injuries

Pressure Immobilization Technique

- Demonstrate the proper technique for applying a pressure immobilization bandage.

Traumatic Injuries (Control of External Bleeding)

- Demonstrate applying direct pressure to control bleeding on a simulated injured person.
- Demonstrate bandaging to secure a dressing in place once bleeding has stopped on simulated injured person.

Applying a Tourniquet

- Demonstrate applying a tourniquet to control bleeding on a simulated injured person.

Severe Allergic Reactions

- Demonstrate the proper technique for assisting with an epinephrine auto-injector in a scenario.

Shock Management

- Demonstrate proper technique for managing shock by placing the victim on their back or in a position of comfort and taking steps to maintain normal body temperature in a scenario.

Combined Skill Scenarios (at least three scenarios must be completed as part of a team)

- Provide care to a simulated injured person using multiple skills acquired during the **Diving First Aid for Professional Divers** course.

INSTRUCTOR NOTE:

There is no skill objective for Emergency Action Plans. However, course participants should be encouraged to work with their company managers to develop one suitable for their operational needs **OR** review the company's established EAP for their personal familiarity and thorough understanding.

INSTRUCTOR NOTE:

Skill sequence and practice throughout this course is accomplished in conjunction with related course content. Assist students in recognizing skills that may be used in conjunction with each other, even simultaneously. Example: Injury Management techniques and Control of External Bleeding skills will often be paired in providing care.

Notes:

Skill: Scene Safety Assessment

Equipment:

1. Non-latex medical gloves
2. Oronasal resuscitation mask

Objectives:

The student will be able to

1. List the steps in performing a scene safety assessment.
2. Perform the four step scene safety assessment in a scenario.
3. Use appropriate first-aid barrier devices in a scenario.

Rationale:

Protecting yourself is always your first responsibility. You can't help anyone else if you are injured. You should decide if the scene is safe for you to enter and determine if there are any threats that may cause an injury/illness to you, bystanders, or the individual while preparing yourself to lend assistance.

Conduct Real Time Demonstration

Talk Through Demonstration Skill Description:

The rescuer should go through the following steps, observing the environment and assessing the safety of the situation.

Use the mnemonic S-A-F-E to address each concern.

S A F E

S — Stop.

- Stop.
- Think.
- Act.

A — Assess scene.

- Is the scene safe?
- Is it safe to approach the injured diver?
- Is the ventilation adequate for oxygen?
- Any other hazards present?

F — Find and secure oxygen, first-aid kit and AED unit.

- First-aid kits contain critical supplies such as barriers.

E — Exposure protection.

- Use barriers such as gloves and mouth-to-mask barrier devices.



Set up practice groups, and provide scenario.

SCENARIO

You are providing surface support for a dive team. You hear a call for help as one of the team members surfaces unexpectedly. You respond.

Instructor: What is the first thing you should do?

Students: Perform a scene safety assessment

Debrief skill.

Scene Safety Assessment Key Points

1. Stop, think then act for personal safety as well as for others in the area
2. Use the mnemonic S-A-F-E to remember all the steps

Stop

Assess

Find

Exposure protection

Skill: Donning and Doffing Gloves

Equipment:

1. Non-latex gloves

Objective:

1. Demonstrate donning of gloves without tearing or compromising the glove integrity
2. Demonstrate removal of gloves without contaminating exposed skin

Rationale:

Rescuer safety does not end once care has been rendered. Exposure to blood borne pathogens is still possible until all the clean-up and disposal has occurred.

Conduct Real Time Demonstration

Talk Through Demonstration Skill Description:

- Before donning gloves, **remove rings or other jewelry** that may puncture gloves during use.
- To doff gloves, grasp the first glove at the outside of the wrist, and pull the glove toward the fingers of that hand while pulling the first gloved hand out of the glove.
 - **Avoid touching the outside of the gloves with your unprotected hand** as you remove it, whether you can see contaminants or not.
 - **Avoid snapping off the glove.** The dual action should facilitate smooth removal.
- Turn the glove inside out.
- Use your protected hand to crumple the glove into a ball (making a fist with the gloved hand).
- When the removed glove is in the palm of the still-protected hand (fist), place an “unprotected” finger inside the second glove (between wrist and glove), and pull the glove toward the fingers as before.
- This glove will also turn inside out, and the first glove will be inside the second. **Ball the gloves together for disposal.**
- **Place the gloves in a hazardous waste bag** to avoid others having contact with the gloves. This bag can also be used for the disposal of all other infected materials after use.

Set up practice groups, and provide scenario.

SCENARIO

You have just finished assisting the injured diver with a scrape that was bleeding. You were wearing protective gloves to avoid personal contact with the blood. The bleeding has now been stopped and a bandage placed. You have finished cleaning up and are ready to remove your gloves.

Instructor: How should your gloves be removed?

Students: Remove gloves without contaminating exposed skin

Teaching tip:

Place a little canned shaving or whipped cream in each student's gloved hands. Ask them to work it over their hands a little. Once they have removed the gloves, have them check their hands and finger tips for 'contamination'.

Debrief skill.

Donning and Removing Gloves Key Points:

1. Remove jewelry that may puncture gloves and place in a secure place for retrieval later.
2. Do not touch the outside of the gloves whether or not you can see contaminates.
3. Avoid snapping the gloves off. Use smooth dual action motion to remove gloves
4. Ball the gloves up together once removed and dispose of them in a hazardous waste bag.

Skill: Initial Assessment

Equipment:

1. Non-latex medical gloves

Objectives:

1. Demonstrate technique for establishing unresponsiveness in an adult or child.
2. Demonstrate technique for establishing unresponsiveness in an infant.
3. Demonstrate appropriate technique for determining the presence of a pulse in an adult or child.
4. Demonstrate appropriate technique for determining the presence of a pulse in an infant.

Rationale:

Determining an individual's level of responsiveness and the presence of a pulse dictates subsequent care.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- **Remember S-A-F-E**
- **Assess Responsiveness (Adult or Child)**
- State your name, training and desire to help
- **Ask permission to help**
- **Tap the person on the collar bone and speak or shout, "Are you all right?"**
 - **If they respond:**
 - Have them remain where they are unless urgent evacuation to avoid further danger is necessary
 - Try to find out what is wrong; activate EMS if indicated.
 - Reassess frequently until circumstance resolves or EMS arrives.
 - Place the individual in recovery position if there is no reason to suspect, neck, spine or pelvic injury.
 - **If they do not respond:**
 - Shout for help; activate EMS
 - Turn the individual on their back if not already supine.
 - **Check for a pulse and normal breathing**
 - Place tips of index and middle fingers on the person's "Adam's apple"
 - Slide finger towards you and slightly upward into the groove

- between the muscles of the neck
- Apply gentle pressure
- Adjust position of your fingers slightly if necessary to access the pulse.
- **Check for at least 5 seconds but not more than 10 seconds.**

NOTE:

Normal adult pulse rates are between 60-100 beats per minute. Athletes may have lower rates.

- If the person does not have a pulse or is not breathing normally, send someone for help. If you are alone, leave them and alert emergency medical services; return and start CPR.

Assess Responsiveness (Infant)

- State your name, training
- **Ask for the parent or guardian's permission to help**
- **Tap or rub the infant's feet and speak or shout, "Are you all right?"**

If they respond:

- Move the infant to safety if required
- Try to find out from the parent or guardian what is wrong, and get help if needed
- Monitor for changes.

If they do not respond:

- Shout for help
- **Check for a pulse and normal breathing**
 - Place tips of index and middle fingers in the groove between the muscles of the inner arm just below the armpit
 - Apply gentle pressure
 - Adjust position of your fingers slightly if necessary to access the pulse.
 - **Check for at least 5 seconds but not more than 10 seconds.**

NOTE:

Normal infant pulse rates are between 100-120 beats per minute.

- If the infant does not have a pulse or is not breathing normally and someone else is available, send them immediately to call EMS. If you are alone, conduct CPR for two (2) minutes then go to call EMS.

Set up practice groups and provide scenario

SCENARIO

Infants

A mother visiting the aquarium with her children checked on her infant son who had been sleeping in their stroller. She couldn't get him to respond and called for help.

Instructor: What is your next step?

Students: Identify yourself as a first-aid provider and ask the mother if you may help. Tap the infant on their feet and ask if they are OK.

Instructor: The infant does not respond. What should you do?

Student: Check for a pulse while doing a quick visual assessment for normal breathing.

SCENARIO

Adults

You have assured the scene is safe and approach the group who assisted getting the dive team member out of the water and removed their gear. They are lying still on the deck.

Instructor: What is your next step?

Students: Identify yourself as part of the response team, tap the man on the collarbone and ask if they are OK. Ask "may I help you?"

Instructor: The man does not respond. What should you do?

Student: Check for a pulse while doing a quick visual assessment for normal breathing.

Teaching Tip Reminder:

The entire process of initial assessment including checking for a pulse and normal breathing should take no more than 10 seconds.

Teaching Tip:

When checking for the carotid pulse, it may help to slide the finger slightly upward in the groove on the neck towards the corner of the jaw.

Debrief skill.

Key points are on next page.

Initial Assessment Key Points:

1. Always ask permission to assist
2. Tap and shout to establish unresponsiveness
 - o Tap collarbone on adults and children
 - o Tap bottom of feet for infants
3. Activate EMS
4. Visually assess for normal breathing while checking for a pulse
 - o Use carotid pulse for adults and children
 - o Use brachial pulse for infants
5. Initial assessment should last no longer than 10 seconds.

Skill: Recovery Position

Equipment:

1. Non-latex gloves

Objective:

1. Demonstrate rolling a simulated injured or ill person from their back into the recovery position, keeping the spine aligned.

Rationale:

Placing an unconscious, breathing person in the recovery position maintains an open airway and prevents vomit or other body fluids from obstructing the airway. Gravity will make sure fluids will leave the mouth and are not inhaled.

Conduct Real Time Demonstration

Talk Through Demonstration Skill Description:

- Kneel beside the individual and make sure **that both the person's legs are straight.**
- Place the arm nearest to you at right angles to the body, elbow bent and palm facing upward
- Bring the far arm across the chest, and place their hand against the person's cheek nearest to you. **Hold their hand in place with your hand.**
 - ✓ With your other hand, pull the knee up by either placing your hand under the leg just above the knee or grab the pant leg of the individual's clothing keeping the foot on the ground.
- **Keeping the hand pressed against the cheek, gently press on the far leg at the knee to roll the individual toward you onto their side.**
- **Adjust the top leg so 90° angles are formed at both the hip and knee.**
- Tilt the head back to ensure the airway remains open.
- **Adjust the hand under the cheek, if necessary, to keep the head tilted.**
- Check breathing regularly.
- **Continually monitor the person** for any other changes.



Teaching tip: The order in which the individual's hand is secured against their cheek and the far leg is raised into a bent position is not critical. Individuals with a short reach may find one easier to do first than the other.

Teaching tip: Pairing the class up so a larger student is with a smaller student emphasizes the ease of this technique

Set up practice groups and provide scenario

SCENARIO

You determine the diver has a pulse and is breathing on their own.

Instructor: What steps should you take?

Students: Place them in the recovery position.

Debrief skill.

Recovery Position Key Points:

1. Straightening the individual's limbs initially facilitates actions
2. Adjust the arm and leg farthest from the rescuer into position to facilitate the body roll.
3. The rescuer should keep their hand on the individual's hand holding it against their face.
4. Gentle pressure on the knee is typically all that is required to roll the person into the recovery position
5. The recovery position should not be used on individuals with suspected neck, spine or pelvic injuries.
6. Continually monitor the individual for changes while waiting on EMS.

Notes:

Skill: F-A-S-T

Equipment:

1. Neurological Assessment slate
2. Pencil
3. Chair for the simulated ill person.

Objective:

1. Conduct a F-A-S-T assessment on a simulated ill person suspected of having a neurological impairment

Rationale:

Rapid intervention for neurological illnesses increases the chance of recovery. By first performing the FAST assessment, EMS can be activated and on the way while additional information is being gathered.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

F Ask the individual to smile, and observe their face for asymmetry. Is one side drooping? side drooping? Is the smile equal on both sides?

A Ask the individual to extend and raise both arms straight out in front. Can the individual raise both arms? If so, do both arms remain up, or does one drift down?

S Ask the individual to repeat a simple phrase. Are all the words clear? Is there any slurring? Is the speech garbled?

T If any abnormal signs are present, call 911 or your local EMS number immediately. **Time is of the essence.**



Set up practice groups, and provide scenario.

SCENARIO

The diver begins to regain consciousness but had a confused vacant look on their face. You ask if they are OK but they cannot answer.

Instructor: What should you do?

Students: Conduct a F-A-S-T assessment.

Debrief skill.

F-A-S-T Key Points:

F: Face – look for symmetry

A: Arms – can they hold both arms up equally and sustain the position

S: Speech – is speech clear or impaired

T: Time – call 911 immediately if signs are present

Skill: Taking a History

Equipment:

1. Neurological assessment or accident management slate and pencil
2. Since an additional person is required for this skill, discuss with them in advance how this skill is to be presented and establish some guidelines for the simulation.

Objective:

1. Interview a person in a simulated scenario utilizing the S-A-M-P-L-E mnemonic to identify any previous medical history and determine where he might have problems or feel discomfort.
2. Record findings in a usable format.

Rationale:

Understanding an injured or ill person's history can be useful in identifying any pre-existing conditions which may confuse findings. It will also help avoid inappropriately associating signs and symptoms with the current event. Getting baseline information, including vital signs, will assist in determining the extent of injury or illness and if changes are occurring during care.

Conduct Real Time Demonstration.

Teaching Tip:

If using an assistant, discuss with them in advance how to conduct this skill demonstration, and develop the scenario details.

Talk Through Demonstration Skill Description:

- Interview a simulated injured individual **using open-ended questions** to identify any preexisting conditions that may influence any neurological findings.

Use the **SAMPLE** mnemonic to conduct the interview.

- S** Signs/symptoms
- A** Allergies
- M** Medications
- P** Pertinent medical history
- L** Last oral intake
- E** Events leading to the current situation

- While talking to the person, **observe their skin color for flushing or paleness. Note the effort they are making to breathe.** Is it relaxed and easy, or are they struggling?
- **Record their answers and your observations** in a usable manner for use by EMS or other health-care providers.

Set up practice groups, and provide scenario.

SCENARIO

An older man with a family visiting the aquarium is suddenly not feeling well. There is no indication of injury or illness but he does not feel well. their complaints are not specific so you are not sure how to respond.

Instructor: What can you do to determine if assistance should be called?

Students: Interview the person utilizing S-A-M-P-L-E and take vital signs

Debrief skill.

Taking a History Key Points:

1. Utilize S-A-M-P-L-E to conduct the interview to avoid missing key elements.
 - Ask open ended questions to avoid leading the individual to give answers that may not reflect their actual condition
2. Observe the individual's coloring and efforts to breathe. Note anything that appears abnormal.
3. Record your findings where indicated on the Neurological Assessment or other slate so they can be referred to later, possibly by health care providers.

Skill: Vital Signs

Required Equipment:

1. Neurological Assessment Slate
2. Pencil

Objective:

1. Demonstrate proper technique to determine a person's pulse rate and breaths per minute by counting each for 30 seconds then multiply by two.

Rationale:

Determining basic vital signs are the first step in a neurological assessment. Vital signs should be monitored periodically until EMS arrives.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- To take a pulse:
 - **Ask permission to touch the individual** so you may take their pulse.
 - Locate the groove on the inside of the wrist between the bone and tendon at the base of the thumb.
 - Place the **fingertips of one hand** into the groove. (**Do not use your thumb.**)
 - Use light pressure to feel the heartbeat via the pulse.
 - **Count for 30 seconds, then multiply by 2** for beats per minute (heart rate).
- To determine the respiration rate:
 - Continue to hold the injured person's wrist as if you are still taking a pulse so they will not alter their breathing pattern.
 - Observe the chest rise and fall, or watch abdominal movement with breathing.
 - Count for 30 seconds, then multiply by 2 for breaths per minute.
 - **Avoid staring at the injured person's chest**, especially if the person is female, while observing respirations.
- Record your findings on the neurological assessment slate.

Set up practice groups, and provide scenario.

SCENARIO

You have used **S-A-M-P-L-E** to guide questions to your neighbor. You have not yet checked their pulse and respirations.

Instructor: What is the next step?

Students: Take pulse and respirations.

Teaching Tips:

To take a pulse, sometimes it helps to have the injured person bend their wrist slightly. It is difficult to feel a pulse on some individuals, so if students are unable to find a pulse, have them practice on other students. Encourage them to practice on family and friends at home.

For counting respirations, hold the injured person's wrist against their stomach as an aid in detecting breathing action.

Determining actual pulse and respiration is not critical. Recognizing whether an individual is in distress, however, is critical so interventions can be utilized if necessary. Sometimes it is useful to take vital signs before getting a person's history. The order for these two skills is not critical.

Debrief skill.

Vital Signs Key Points

1. Ask permission to touch the individual, explaining you are going to take their pulse.
2. To take a pulse, use your fingertips. The thumb will provide false information because it has a strong pulse itself.
3. While counting respirations, avoid staring at the individual's chest (especially with females).
4. Count both pulse and respirations for 30 seconds, then multiply by two.

Skill: Mental Function

Equipment:

1. Neurological Assessment Slate
2. Pencil

Objectives:

1. Determine an individual's level of consciousness in a scenario with a simulated injury.
2. Utilizing interview techniques, assess an individual's
 - o speech and language abilities
 - o orientation to person, place, date and time and event
 - o short term memory
3. Assess an individual's ability to do calculations utilizing a standardized protocol.

Rationale:

Fortunately, most injured individuals exhibit normal mental function. However, even if the individual appears normal, do not omit these questions, as they may reveal confusion that is an indication of a serious problem.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

1. Level of consciousness
 - While taking the person's history, you should have noticed the individual's responsiveness. Continue **this observation throughout the assessment, and immediately note any changes** in responsiveness and the time the change occurred. On the Neurological Assessment slate, indicate the level of consciousness as follows:
A – Alert
V – Responds to verbal stimuli
P – Responds to painful stimuli
U – Unresponsive
2. Orientation to person, place, time and event
 - Ask the injured person to state their name, where they are, the day/ date, the approximate time and if they know what happened.
3. Speech and language
 - Ask the injured person to follow a command such as "close your eyes and stick out your tongue."

- Ask the person to repeat a simple phrase such as “no ifs, ands, or buts.”
- Point out **three easily identifiable, common objects**, and ask the individual to name them (e.g., pencil, glass, coat).

4. Abstract reasoning
 - Ask the injured person to explain how two things are related (e.g., cat and mouse, father and son; school and classroom).
5. Calculations
 - Ask the person to count backward from 100 by sevens.
 - **Calculations do not have to be exact**, but they should be consistent in pattern without loss of focus on task.
 - Alternately, if the person’s phone number is known, have them repeat it backwards.
6. Short-term memory
 - Ask the person to name the three objects they identified earlier.
 - **Perform this evaluation last.**

Note your findings as you progress through each section.

Any inability to complete a task — whether due to the individual’s impairment or the environment — should also be noted on the slate.

Always treat an injured person (as well as their family or friends) with compassion and respect.

Note any inability to complete a task on your slate.

Set up practice groups, and provide scenario.

SCENARIO

While waiting on EMS, the gentleman seems to become confused about some things.

Instructor: What else can you do while waiting on EMS?

Students: Complete mental function assessment.

Debrief skill.

Mental Function Key Points

1. Level of consciousness can be assessed any time you are interacting with the injured person.
2. Objects selected for identification and recall should be simple, common items.
3. Calculations do not have to be exact. Evaluate if the person can follow a steady pattern or if they are skipping around or forgetting what they are doing.
4. Conduct the recall of objects identified after all other mental function tasks have been completed.
5. Remember to note findings on the slate as you complete each task rather than depending on your own memory.
6. Treat the injured person gently and with empathy if they have difficulty with any portion of the assessment.

Notes:

Skill: Cranial Nerves

Required Equipment:

1. Neurological Assessment Slate
2. Pencil

Objectives:

1. Assess control of eyes and facial muscles utilizing standardized commands
2. Assess an individual's ability to hear

Rationale:

Neurological injuries can manifest in a number of ways. Some are very subtle and must be evaluated. Injuries affecting the cranial nerves are serious and must be treated immediately.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

1. Eye control
 - **Hold your finger about 3 feet (1 meter) in front of the injured person's face.** Instruct them to hold their head still and to follow your finger by moving only their eyes.
 - Move your finger up and down as well as left and right **at a moderate pace.**
 - Note any direction in which the eyes do not track or track together.
2. Facial control
 - Ask the injured person to close their eyes and smile. Movement and skin creases should be equal on both sides. (This action is a repeat of the F step in the FAST assessment.)
 - **Note asymmetry.**
3. Hearing
 - **Hold your hand about 1 foot (.3 meters) away from the injured person's ears.**
 - Snap or rub your fingers together at each ear individually. Have the person identify with which ear they are hearing the sound and if it is equal on both sides.
 - Standing behind the injured person when possible eliminates cues that may influence their answers.

- This test may be difficult or impractical in a noisy environment such as a moving boat. **If you are unable to perform the test, note your reason on the slate.**

Set up practice groups, and provide scenario.

SCENARIO

The gentleman is calm but does not seem to be tracking well with their eyes when they look at you nor do they always seem to realize you are talking to them.

Instructor: What is the next step?

Students: Assess cranial nerves.

Debrief skill.

Cranial Nerves Key Points:

1. Hold your finger about 3 feet from the individual's face to assess eye movement.
 - Keep motions at a moderate pace when checking eye control.
2. Snap or rub your fingers about 1 foot from the individual's ears.
3. Note all findings as you progress through the assessment.
4. Note any areas that were not completed and why.

Skill: Motor Function (Strength)

Required Equipment:

1. Neurological Assessment Slate
2. Pencil

Objective:

1. Assess strength of muscle groups utilizing muscle isolation and resistance

Rationale:

Neurological injuries affecting the spinal cord can manifest itself as weakness or paralysis in the extremities.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

Remember to **ask for permission to touch the person**. Advise them you will be providing resistance for different muscle groups as you go through the assessment.

Each group of **muscles must be isolated and assessed independently**. Use your hand to provide resistance while both pushing and pulling for most muscle groups.

Note the strength of each side (left and right). Comparing one side to the other may help determine the presence of weakness, but remember the *dominant side will naturally have some increased strength* for most people.

Record muscle strength as normal, weak or paralysis.

Make notations as you finish each muscle group rather than waiting until you have evaluated all groups.

1. Shoulders

- Have the injured person bring their arms up to shoulder level with their hands not quite together in front of their chest.

2. Hands should not touch.

3. Instruct the individual to push up against your hands as you push down on their elbows then as you push up from underneath the elbows.



2. Biceps and triceps

- Ask the injured person to curl up their arms so their hands are in front of them.

3. Testing one arm at a time, support the person's elbow with one hand, and then both push and pull against their hand with your other hand.

4. Instruct the individual to resist your pressure as you push and pull.

3. Finger spread

- Have the injured person spread apart their fingers.
 - Ask them to keep their fingers apart as you try to gently squeeze them together.
- Squeeze two fingers at a time (i.e., first finger and middle finger, middle finger and ring finger, ring finger and little finger).
- You can test both hands simultaneously.



4. Grip strength

- Have the injured person grasp your extended first and middle fingers together with their hands.
 - Ask them to squeeze firmly but not hard.
- You can test both hands simultaneously.



5. Hip flexors

- Have the injured person lift one leg so their foot is off the ground.
 - Repeat for the other side.



6. Hamstrings and quadriceps

- Place one of your hands underneath the knee of their leg to support the foot off the ground.
 - Use the other hand to provide resistance to the calf just above the ankle.
- Have the individual press against your hand at the ankle while you provide resistance.
- Test each leg with resistance from both the front of the leg and behind



7. Feet

- Place your hand under the individual's foot. Ask them to press down against your hand.
- Place your hand on top of the foot, and ask them to press up against your hand.
- Repeat on the other foot.



Set up practice groups, and provide scenario.

SCENARIO

The gentleman is doing OK while you wait on EMS to get to your location, but you still have some concerns.

Instructor: What is the next step?

Students: Evaluate motor strength.

Debrief skill.

Key points on next page.

Motor Function Key Points:

1. Ask permission to touch the person and explain that you will be providing resistance.
2. Isolating the muscle groups prevents the injured person from using other muscle groups to conceal a weakness.
3. Remember that for most people one side will be stronger than the other.
4. Mark the slate as you complete each muscle group to ensure accuracy of your notations.

Skill: Coordination and Balance

Required Equipment:

1. Neurological Assessment Slate
2. Pencil

Objective:

1. Assess an individual's coordination with a finger-nose-finger exercise
2. Determine presence of functional balance utilizing a straight walk and a Romberg test

Rationale:

Neurological injuries can affect the inner ear and the brain in ways that affect coordination and may make it difficult to stand, balance or walk. These tests will help determine if those areas have been affected.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

1. Finger-nose-finger exercise
 - **The individual should be seated.**
 - **Hold your finger about 18 inches (45 centimeters) from the injured person's face.**
 - Have them touch your finger with the index finger of one hand and then touch their nose. Repeat this action several times.
 - Ask the individual to close their eyes and continue moving their finger between your finger and their nose.
 - **Repeat the sequence with the other hand.**
 - Minor differences between the left and right sides are normal. Note any significant variations.

2. Walking

- Ask the individual to look straight ahead and walk about 10 feet (3 meters).
- **Stay close beside the individual, and be prepared to provide support** should they lose their balance. Note if movements are uneven and/or require support.

Teaching Tip:

Intention is only to assess. If an individual is unable to complete the coordination assessment or if other signs are evident that make walking questionable, skip this assessment and note the reason on the slate.

3. Romberg

- If the individual was able to walk smoothly and without assistance and you are in a stable environment (not on a boat), complete the Romberg test.
- Have the individual stand with their feet together and arms raised out to the side.
- Ask them to close their eyes and remain in that position for 60 seconds.
- Be prepared to support or catch them if they show signs of falling.

Teaching Tip:

The Sharpened Romberg is not a required skill. If you or a student volunteer would like to demonstrate it, provide close assistance in case the individual loses their balance. Wobbling during this assessment is normal, even for neurologically normal individuals. Don't allow the wobbling to progress to falling.

Set up practice groups, and provide scenario.

SCENARIO

EMS has not arrived but should be there any minute now. The gentleman is getting restless and wants to get up.

Instructor: What can you do?

Students: Do a coordination assessment then walk across the room and back with them.

Debrief skill.

Coordination and Balance Key Points:

1. Perform the finger-nose-finger test with the individual seated.
 - a. Hold your finger about 18 inches from the individual's face.
 - b. Conduct the test using each hand.
2. Stay close to the individual while they are walking, and be prepared to provide assistance.
 - a. If they start to should fall, assist them gently to the floor. Do not try to catch them because it may cause injury to one or both of you.

Skill: Oxygen Equipment Identification, Disassembly and Assembly

Required Equipment:

1. DAN Oxygen Unit (or equivalent)
2. Clean sheet or towel

Objective:

1. Identify the component parts of the Oxygen Unit.
2. Disassemble and reassemble with minimal assistance the emergency oxygen unit or equivalent.

Rationale:

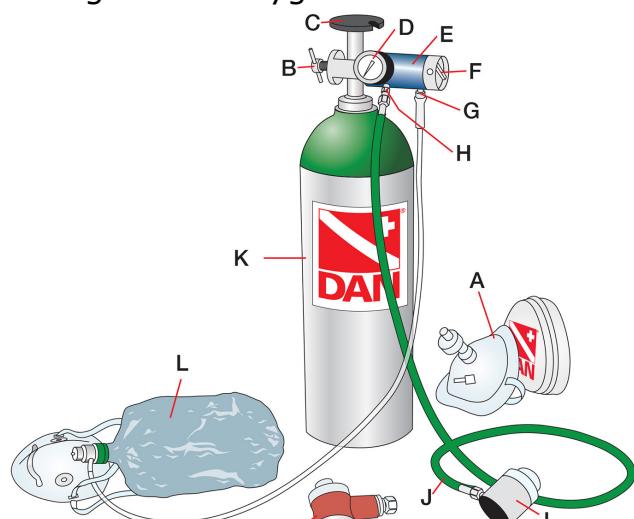
Once the Emergency Oxygen Unit is used to assist an injured diver, some of its components must be cleaned after each use. The equipment must then be reassembled to ensure that the equipment is ready for use before the next dive.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

1. Identify standard oxygen unit components.

- Oronasal resuscitation mask with oxygen inlet
- T-handle
- Handwheel wrench or mechanism for turning on the oxygen unit
- Pressure gauge
- Multifunction regulator
- Constant-flow controller
- Barbed constant-flow outlet
- DISS threaded outlet
- Demand inhalator valve or MTV
- Intermediate pressure hose
- Oxygen cylinder and valve
- Nonrebreather mask



2. Disassemble and assemble emergency oxygen kit.

- **Ensure the oxygen unit is depressurized and vented** by opening the constant-flow controller.
- Check pressure gauge.
- Remove multifunction regulator from the oxygen cylinder valve.

- Secure oxygen cylinder.
- Remove oxygen washer from multifunction regulator. **Discard and replace if damaged.**

Note: This washer is different from a standard scuba O-ring.
- Remove oxygen hose from multifunction regulator.
- If the fitting is too tight, use handwheel/wrench to unscrew the hose.

Note: Check valves; ensure oxygen does not flow from threaded ports.
- Remove oxygen hose from demand inhalator valve.

Note: Both ends of the oxygen hose are identical.
- Unscrew the plastic mask adapter from the demand inhalator valve.
- Remove diaphragm.
- Following actual use, **disinfect diaphragm and plastic mask adapter by soaking for in 1:10 bleach solution for 10 minutes**, rinse thoroughly, and air dry before reassembly.
- To assemble, repeat steps in reverse.
- Yoke and hoses should **be tightened only finger tight**. (Do not use the handwheel wrench to tighten any fittings.)
- Once reassembled, test the system for leaks.
 - Constant flow setting should be in the off position.
 - **Turn the pressure gauge away from people** before turning on the system.
 - **Turn system on slowly** one complete turn.

Set up practice groups, and provide scenario.

SCENARIO

Your team has just finished scheduled training exercises in which you used the oxygen unit. You must now disassemble the Oxygen Unit for cleaning then reassemble before returning it to its protective case.

Instructor: Demonstrate one full disassembly / assembly cycle

Student: Disassemble and reassemble Oxygen Unit.

Each student must disassemble and reassemble the unit, identifying each part during the process.

Debrief skill.

Oxygen Equipment Identification, Disassembly and Assembly Key Points:

1. Verify that the pressure has been vented from the system before attempting disassembly.
2. Replace oxygen washer if it is damaged.
3. Disinfect diaphragm and plastic mask adapter by soaking it in a 1:10 bleach solution for 10 minutes. Rinse thoroughly, and air dry before reassembly.
4. Tighten regulator yoke and hoses only finger tight.
5. Turn pressure gauge away from yourself or bystanders when turning on the unit.

Notes:

Skill: Demand Inhalator Valve

Required Equipment:

1. Oxygen Unit or equivalent
2. Oronasal mask
3. Non-latex medical gloves

Objective:

1. Provide oxygen to a responsive breathing injured diver using the demand inhalator valve and oronasal mask.

Rationale:

Most injured divers are responsive and able to assist in their care. When it is determined a responsive diver may benefit from oxygen first aid, the demand valve provides the highest concentration of oxygen available and is the most efficient delivery system for this circumstance.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- **Remember S-A-F-E.**
 - Identify yourself, and **ask permission to** assist.
 - Activate EMS if indicated.
- Deploy the oxygen unit as completed earlier.
- Place the oronasal mask on the demand valve by gently rocking it into position on the plastic adapter.
- **Take a breath from the mask/demand inhalator valve, and exhale away from it.**
- Inform the injured diver that oxygen may help. **State: "This is oxygen, and it may make you feel better. May I help you?"** (This statement may be offered at any point in the process, but it must be said before placing the mask on the injured diver.)
 - If the diver is unresponsive, permission to help is assumed.
- **Place the mask over the injured diver's mouth and nose, ensuring a snug fit.**
 - Tighten the elastic strap.
 - **Check the mask for any leaks** around the injured diver's face.
 - Instruct the injured diver to hold the mask to help maintain a tight seal.

- **Instruct the injured diver to breathe normally** from the mask.
 - Reassure and comfort the injured diver.
 - **Place injured/ill diver in position appropriate** for their level of consciousness.
- **Monitor the injured diver for changes** in level of consciousness.
 - Listen for the demand inhalator valve to open during inspiration.
 - Watch for the mask to fog during exhalation and clear with inhalation.
 - Watch the chest rise during inhalation and fall with exhalation.
- **Monitor the oxygen pressure gauge.**
 - Be prepared to switch oxygen cylinders if the pressure falls below 200 psi.
- **Activate emergency action plan.**
 - Call EMS or other appropriate medical facility.
Contact DAN for consultation and coordination of hyperbaric treatment

Set up practice groups, and provide scenario.

SCENARIO

A member of your underwater team has surfaced and is completing post-dive duties according to your company's SOP. You see them rubbing their arm and trying to stretch it like it is uncomfortable

Instructor: What should you do?

Student: Approach the diver discreetly to inquire how they are doing.
Discuss the need for and benefits of oxygen

Instructor: After a few minutes the injured diver begins to feel better and wants to remove the oxygen mask. How long should the injured diver continue breathing emergency oxygen? What position should you place the injured diver in? Why? Can the injured diver refuse the rescuer's assistance?

Students: Discuss answers.

Debrief skill.

Key point are on the next page.

Demand Inhalator Valve Key Points:

1. Always ask permission before putting an injured/ill diver on oxygen:
State: "This is oxygen, and it may make you feel better. May I help you?"
2. Inhale from the mask, then exhale away from it to be sure it is functioning properly.
3. Ensure a snug fit and that there are no leaks around the mask.
4. Ask the injured diver to breathe normally.
5. Place the injured diver in the appropriate position.
6. Monitor the injured diver for changes in condition.
7. Monitor the pressure of the oxygen cylinder to avoid running out of oxygen while the diver is breathing from it. Know when to switch tanks if more oxygen is available.
8. Activate EMS, and call DAN.

Notes:

Skill: Non-Rebreather Mask

Required Equipment:

1. Oxygen Unit or equivalent
2. Non-latex medical gloves
3. Oronasal mask with demand valve
4. Non-rebreather mask

Objective:

1. Provide oxygen to an unresponsive breathing injured diver using the non-rebreather mask.
2. Discern when options for oxygen delivery are not working adequately and switch to another delivery method as may be appropriate.

Rationale:

Not every breathing diver can activate the demand valve or will tolerate it on their face. The non-rebreather mask is the second choice for delivery of oxygen to an injured diver. Although it does not provide as high a concentration of oxygen, it provides a higher concentration than air alone and facilitates the delivery of oxygen that might otherwise not be provided to the injured diver. It can also be used when you have two injured divers

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- Remember S-A-F-E.
- Ensure airway and breathing.
- Deploy the oxygen unit as completed previously.
- Inform the injured diver that oxygen may help.
 - **State: "This is oxygen, and it may make you feel better. May I help you?"**
- If the diver is unresponsive, permission to help is assumed.
- Remove nonrebreather mask from bag.
 - **Stretch oxygen tubing to avoid kinks.**
 - Attach oxygen tubing to barbed constant-flow outlet on the multifunction regulator.
- **Set the constant-flow control to an initial flow rate of 10 liters per minute (lpm).**
- **Prime the mask reservoir bag.**
 - Place a thumb or finger inside the nosepiece, closing the nonreturn valve until the reservoir bag fully inflates.

- Place the mask over the injured diver's mouth and nose.
 - Adjust the elastic band around the head to **ensure a snug fit**.
 - Check the mask for any leaks around the injured diver's face.
 - Squeeze the metal clip over the nose to improve the seal and minimize oxygen leakage.
- **Instruct the injured diver to breathe normally.**
 - Ensure that the reservoir bag remains inflated. **Adjust flow** as required.
 - If needed, **increase the flow rate incrementally** using the controller until the reservoir bag shows gentle inflation/deflation with the diver's breathing.
 - Flow may be decreased if the reservoir bag remains fully inflated during inhalation.
 - Look for the reservoir bag to slightly inflate and deflate and for movement of the nonreturn valves.
 - Reassure and comfort the injured diver.
 - Place the injured diver in the appropriate position.
- **Monitor the injured diver and the oxygen pressure gauge.**
- Observe the mask fogging during exhalation and clearing with inhalation.
- **Activate the emergency action plan, and call EMS.**

Delivery Device	Flow Rate	Inspired Fraction*
Oronasal mask (pocket mask)	10 lpm	≤ 0.5–0.6 (50%–60%)*
Nonrebreather mask	10-15 lpm	≤ 0.8 (80%)**
Bag valve mask	15 lpm	≤ 0.9–0.95 (90%–95%)
Demand valve (MTV)	N/A	≤ 0.9–0.95 (90%–95%)

* May vary with respiratory rate **Less variation with changes in respiratory rate

+Delivery fractions vary with the equipment and techniques used. This table summarizes various oxygen-delivery systems and potential values of inspired oxygen with their use.

Set up practice groups, and provide scenario.

SCENARIO

Just after surfacing, a diver in the water suddenly loses consciousness. After getting the diver on board the dive deck, you notice they are still breathing.

Instructor: What should you do?

Student: Provide emergency oxygen using the demand valve.

After 30 seconds, you realize the diver isn't breathing deeply enough and switch to the non-rebreather mask and check the mask for leaks. After a few minutes, the injured diver begins breathing deeply, deflating the reservoir bag of the mask.

Instructor: What should you do?

Student: Increase the flow rate on the regulator and continue monitoring the injured diver.

Instructor: What other options do you have if the reservoir bag continues to deflate at a higher flow rate?

Student: Increase flow to a maximum of 25 lpm or switch to the demand valve.

Debrief skill.

Nonrebreather Mask Key Points:

1. Ask permission from the injured diver to administer oxygen.
2. Stretch tubing to remove kinks before attaching to oxygen regulator.
3. Set constant-flow control with an initial flow rate of 10 lpm for the nonrebreather mask.
4. Prime mask reservoir bag before securing it to the injured/ill diver's face, ensuring a snug fit.
5. Instruct the injured diver to breathe normally.
 - Increase flow as needed.
6. Monitor the following:
 - injured diver for changes
 - adequate inflation of the reservoir bag is maintained
 - cylinder pressure
7. Activate EMS.

Notes:

Skill: Chest Compressions for CPR - Adults

Required equipment:

1. Non-latex medical gloves
2. Adult CPR manikin

Objectives:

1. Demonstrate proper hand positioning for chest compressions on a manikin for an adult.
2. Utilize proper body mechanics to accomplish chest compressions consistently to a minimum depth of 2-2 1/2"/5-6 cm on an adult CPR manikin at a rate of 100-120 compressions per minute.

Rationale:

Hand placement and depth are critical to the effectiveness of CPR. While CPR will not restart a heart, effective compressions can sustain life until advanced care is available.

Conduct Real Time Demonstration

Talk Through Demonstration Skill Descriptions:

Adult CPR

- Kneel by the side of the person
- Place heel of one hand in the **center of the chest between the nipples**
- Place the heel of your other hand on top of the first hand interlocking the fingers of your hands.
 - Do not apply pressure on the bottom end of the sternum (breastbone) or the upper abdomen
- **Position yourself vertically over the chest with your arms straight and shoulders directly above elbows and hands**
- Using your hips as a pivot point and the weight of your whole body, forcefully but smoothly **press down vertically on the sternum at least 2-2 1/2 inches/5-6 cm**

- After each compression, release all the pressure on the chest without losing contact between your hands and the sternum; repeat at a **rate of 100-120/minute**
 - **Do not lean on chest during recoil.**
- ✓ Compression and release should take equal amounts of time

NOTE:

The same technique for chest compressions on adults and children is used for both one- and two-person CPR.

Set up practice groups and provide scenario.

SCENARIO

The gentleman at the aquarium with their family has now quit breathing. You can no longer detect a pulse.

Instructor: What should you do?

Students: Place them on their back and begin chest compressions.

Teaching Tip Reminder:

Continuous chest compressions are critical to the effectiveness of CPR. Compressions should not be interrupted unnecessarily except when an AED is in use.

Debrief skill.

Chest Compressions Key Points:

1. Hand positions:
 - For adult CPR, stack hands on top of each other in the center of the chest along the nipple line
2. Use vertical pressure to compress chest
 - For adults, compress 2-2.5 inches/5-6 cm
3. Use body weight for effective depth.
 - Arms should remain straight when performing CPR on adults
 - Do not allow hands/fingers to lose contact with chest wall between compressions but do allow for full recoil of the chest.
 - Do not lean on chest during recoil.
4. Rate of compressions for all ages is 100-120 per minute.
5. Techniques do not change for adults and children when two rescuers are available.

Skill: Chest Compressions for CPR - Children

Required equipment:

1. Non-latex medical gloves
2. Child CPR manikin

Objectives:

1. Demonstrate proper hand positioning for chest compressions on a manikin for a child. (up to puberty)
2. Utilize proper body mechanics to accomplish chest compressions consistently to 1/3 the chest depth for a child using one hand on a CPR manikin at a rate of 100-120 compressions per minute.

Rationale:

Hand placement and depth are critical to the effectiveness of CPR. While CPR will not restart a heart, effective compressions can sustain life until advanced care is available.

Conduct Real Time Demonstration

Talk Through Demonstration Skill Descriptions:

Adult CPR

- Kneel by the side of the person
- Place heel of one hand in the **center of the chest between the nipples**
 - Do not apply pressure on the bottom end of the sternum (breastbone) or the upper abdomen
- **Position yourself vertically over the chest with your arms straight and shoulders directly above elbows and hands**
- Using your hips as a pivot point and the weight of your whole body, forcefully but smoothly **press down vertically on the sternum about 1/3 the chest depth.**

- After each compression, release all the pressure on the chest without losing contact between your hands and the sternum; repeat at a **rate of 100-120/minute**
 - **Do not lean on chest during recoil.**
- ✓ Compression and release should take equal amounts of time

NOTE:

The same technique for chest compressions on adults and children is used for both one- and two-person CPR.

NOTE:

The size of the child (not their age) and the rescuer's ability to achieve adequate compression depth should guide the decision to use one or two hands for CPR.

Set up practice groups and provide scenario.

SCENARIO

A child is playing and suddenly collapses. After an initial assessment you determine they have no pulse.

Instructor: What is your next step?

Students: Activate EMS and begin chest compressions.

Teaching Tip Reminder:

The size of the child (not their age) and the rescuer's ability to achieve adequate compression depth should guide the decision to use one or two hands for CPR.

Teaching Tip Reminder:

Continuous chest compressions are critical to the effectiveness of CPR. Compressions should not be interrupted unnecessarily except when an AED is in use.

Debrief skill.

Chest Compressions Key Points:

1. Hand positions:
 - o For child CRP, use one hand in the center of the chest along the nipple line
2. Use vertical pressure to compress chest
 - o For children, compress about 1/3 of the chest depth
3. Use body weight for effective depth.
 - o Arms should remain straight when performing CPR on adults and children
 - Do not lean on chest during recoil.
4. Rate of compressions for all ages is 100-120 per minute.
5. Techniques do not change for adults and children when two rescuers are available.

Notes:

Skill: Chest Compressions for CPR - Infants

Required equipment:

1. Non-latex medical gloves
2. Infant CPR manikin

Objectives:

1. Demonstrate proper finger/thumb placement for infant chest compressions
2. Utilize proper body mechanics to accomplish chest compressions consistently to 1/3 the chest depth on an infant CPR manikin at a rate of 100-120 compression per minute.

Rationale:

Hand placement and depth are critical to the effectiveness of CPR. While CPR will not restart a heart, effective compressions can sustain life until advanced care is available.

Conduct Real Time Demonstration

Talk Through Demonstration Skill Descriptions:

Infant CPR Single Rescuer

- Position yourself to the side of the infant
- Place **two or three fingers side by side in the center of the infant's chest** perpendicular to the nipple line.
- **Using vertical force from your shoulder through your fingertips, compress the chest 1/3 the depth of the infant's chest.**
- After each compression, release all the pressure on the chest without losing contact between your fingers and the sternum; repeat at a **rate of 100-120 per minute.**
- Compression and release should take equal amounts of time.

Two Rescuers

- Position yourself at the infant's feet
- Circle the infant's chest with both hands placing the thumbs in the center of the chest at the nipple line.
 - **Thumbs may be side by side or stacked on top of each other.**
 - Use the fingers to support the infant's back.
- Forcefully but smoothly squeeze the infant's chest compressing it to 1/3 the depth of the chest being careful to not squeeze the sides of the chest wall.
- After each compression, release all the pressure on the chest without losing contact between your thumbs and the sternum; repeat at a rate of at least 100 per minute.
- Compression and release should take equal amounts of time.



Set up practice groups and provide scenario.

SCENARIO

The infant in the stroller noted earlier is not breathing nor can you detect a pulse.

Instructor: What should you do?

Students: Begin chest compressions

EMS has been called and a second rescuer is available.

Instructor: What should you do?

Students: Adjust position to accommodate the second rescuer.

Teaching Tip Reminder:

Continuous chest compressions are critical to the effectiveness of CPR. Compressions should not be interrupted unnecessarily except when an AED is in use.

Debrief skill.

Chest Compressions Key Points:

1. Hand positions:
 - o For infants, use 2-3 fingers in the center of the chest along the nipple line
2. Use vertical pressure to compress chest
 - o For children and infants, compress about 1/3 of the chest depth
3. Use body weight for effective depth.
 - o Do not allow hands/fingers to lose contact with chest wall between compressions but do allow for full recoil of the chest.
 - Do not lean on chest during recoil.
4. Rate of compressions for all ages is 100-120 per minute.
5. Rescuer position shifts for two-person CPR on an infant.

Notes:

Skill: Ventilations

Required Equipment:

1. Non-latex medical gloves
2. Adult CPR Manikin
3. Infant CPR manikin
4. Oronasal resuscitation mask (one for each student or clean chimney for each student to use on a circulating mask)

Recommended equipment:

1. Child CPR manikin

Objectives:

1. Demonstrate proper rescue-breathing technique for an adult and child on a CPR manikin. (Adult manikin may be used for both adult and child although a child manikin is preferred.)
2. Demonstrate proper rescue-breathing technique on an infant manikin

Rationale:

Proper rescue breathing technique is an integral part of full CPR. In addition, ventilations may be all that is required in some situations. The heart continues to beat for a short while after breathing ceases. Providing rescue breaths may pre-empt the need for CPR.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

Adult and Child

- Remain at the side of the person.
- Place the face shield or resuscitation mask on the person's face using the bridge of the nose as a guide for correct positioning.
- Seal the mask by placing your index finger and thumb of the hand closest to the top of the person's head along the border of the mask.
- Use the thumb and first finger of the other hand to pinch the lower border of the mask to the chin. (Other techniques are acceptable just **avoid pressing on the soft tissue under the chin.**)
- **Press firmly and completely around the outside margin of the mask to form a tight seal.**



- **Tip the head back and pull the chin up into the mask so the chin is pointing up. (head tilt-chin lift)**
 - **Keep fingers on bony structures of the jaw.**
- Seal your lips around the one-way valve and blow through it. **Each breath should last about one second.** Watch for the chest to rise.
- Take your mouth away from the mask and watch for the chest to fall as the breath is exhaled. (about 1 second)
- Deliver a second breath as before:
- If rescue breaths do not make the chest rise,
 - reposition the head using a head tilt-chin lift technique and reattempt to ventilate
 - check the person's mouth and remove any obstruction
 - **do not attempt more than two breaths each time before returning to chest compressions**

NOTE:

When in doubt, do not keep trying to ventilate. Compressions should not be interrupted for more than 10 seconds.

Infants

- When using an oronasal mask on an infant, place the mask on the infant's face so the narrow portion of the mask covers the chin (placement is 180° to placement on an adult.)
 - For infant rescue breathing, use of an oronasal mask is optional. When using mouth to mouth resuscitation on an infant, it may be necessary to cover both the mouth and nose.
- Seal the mask tightly with downward pressure along all edges and gently tipping the infant's head back, simulating a 'sniffing' position.
 - **Avoid overextending the head and collapsing the airway**
- **Use gentle puffs of air from your cheeks to ventilate an infant.**
 - Allow the chest to fall with the exhale before ventilating again.



Set up practice groups and provide scenario.

SCENARIO

As a single rescuer, you have completed 30 chest compressions.

Instructor: What is your next step?

Students: Rescue breathing

Debrief skill.

Rescue Breathing Key Points:

1. Open the airway by tipping the head back with the head tilt chin lift technique
 - Avoid overextending an infant's head as their airway is easily collapsed.
2. Secure a tight mask seal against the person's face.
 - Avoid contact with the soft tissue under the chin.
 - Keep fingers and hands on the face and bony features
3. Blow into the ventilation barrier just enough to make the chest rise
 - For infants, light puffs of air from the rescuers cheeks are usually sufficient.
4. Allow 1 second for each breath with one second in between
5. Do not attempt more than 2 breaths before returning to chest compressions

Notes:

Skill: Resuscitation with a Bag Valve Mask (BVM)

Required Equipment:

1. Oxygen System or equivalent
2. CPR manikin
3. Non-latex medical gloves
4. Bag valve mask (BVM)

Objective:

1. Provide emergency oxygen as part of a team to a non-breathing or inadequately breathing injured diver using a bag valve mask. Student must perform both team roles.

Rationale:

The BVM provides a higher concentration of oxygen when resuscitating a non-breathing diver. It is also less fatiguing than mouth to mask resuscitation efforts.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- Remember S-A-F-E.
- **Two rescuers are required** for this skill.
 - The first rescuer **begins single-rescuer CPR as soon as possible.**
 - The second rescuer should do the following:
 - **Prepare the oxygen equipment**, and connect BVM tubing to the constant-flow barb on the oxygen regulator.
 - Turn on constant flow to initial setting of 15 lpm, and allow the reservoir bag to inflate.
 - Seal the mask in place using head-tilt, chin-lift method, pulling the diver's jaw up and into the mask.
 - **Maintain the airway.**
 - **Monitor the oxygen supply.**
 - The first rescuer should do the following:
 - **Compress the bag about one-third of the bag volume** to ventilate the injured diver.
 - Bag compressions should be slow and gentle, lasting about one second for the ventilation phase.
 - Allow the chest to fall completely before beginning each new ventilation. Deliver two ventilations.

- **Watch the stomach for signs of expansion** to prevent regurgitation.
- Continues to deliver chest compressions between ventilations.
- **Call EMS and DAN.**

Set up practice groups, and provide scenario.

SCENARIO

You hear somebody shouting for help. When you get to this person you see that a diver is lying on the ground. After performing SAFE, you determine the injured diver is not breathing.

Instructor: What is your next step?

Students: Begin CPR and provide oxygen with the BVM, by compressing the bag.

Instructor: After three minutes of resuscitation, you notice that the injured diver's stomach is distended. The injured diver begins vomiting.

Student: Clear, re-establish and maintain the airway and ventilations, using the BVM.

Instructor: A minute later the diver begins to cough and resumes breathing.

Student: Provide oxygen via a demand valve

Debrief skill.

Key points are on the next page.

Resuscitation with a Bag Valve Mask Key Points:

1. The BVM requires two rescuers.
2. Rescuer One performs chest compressions and compresses the ventilation bulb of the BVM during ventilations.
3. Rescuer Two sets up and monitors the oxygen equipment and maintains the airway and the seal of the resuscitation mask.
4. Use about one-third of the reservoir bag's volume to ventilate the injured diver.
 - o Watch the stomach for signs of distension and to prevent regurgitation.
5. Monitor the oxygen supply.
6. Activate EMS.

NOTE:

A BVM should not be used on infants and children unless an appropriately sized unit is available.

Notes:

Skill: Resuscitation with a Mechanically Triggered Ventilator (MTV)

Required Equipment:

1. Oxygen system (or equivalent)
2. CPR manikin
3. Non-latex medical gloves
4. Manually triggered ventilator valve
5. Oronasal mask

Objective:

1. Provide emergency oxygen as part of a team to a non-breathing or inadequately breathing injured diver using an MTV and oronasal mask. Student must perform both team roles.

Rationale:

A manually triggered ventilator valve can provide almost 100 percent (provided that a perfect seal is obtained with the mask). It is also less fatiguing than mouth to mask resuscitation efforts.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- Remember S-A-F-E.
- **Two rescuers are required** for this skill.
 - The first rescuer **begins single-rescuer CPR as soon as possible.**
 - The second rescuer should do the following:
 - **Prepare the oxygen equipment.**
 - **Test the MTV** by depressing the ventilation button, then **cover the oxygen outlet** with the palm of their hand to verify that the safety mechanism is functioning.
 - **If the oxygen flow does not shut off, do not use** the MTV.
 - Connect the oronasal mask to the MTV adapter.
 - Position the mask over the nonbreathing diver's mouth and nose, sealing the mask in place by using the head-tilt, chin-lift method, pulling the diver's jaw up and into the mask.
 - **Maintain the airway, and seal** the mask in place.
 - **Monitor the oxygen supply**, and be prepared to resume rescue breathing if the supply is exhausted.

- The first rescuer should do the following:
 - **Press the button on the MTV** to ventilate the injured diver.
 - **Ventilations should only** last about **one second**.
 - Allow the chest to fall completely before beginning the second ventilation. Deliver two ventilations.
 - Leaving one hand gently on the center of the chest can help to assess if ventilations are adequate and not excessive.
 - **Watch the stomach** for signs of distension to prevent regurgitation.
 - Deliver chest compressions between ventilations.
- Activate your emergency action plan.
- **Call EMS** and DAN.

Set up practice groups, and provide scenario.

SCENARIO

You just finished your dive when you notice a diver towing their buddy to the boat. As you go through S A F E, you grab your rescue equipment and assist the divers. The injured diver is not breathing and their face has a bluish color.

Instructor: What is your next step?

Students: Provide care by performing CPR with oxygen using the MTV

Instructor: After three minutes of resuscitation, you notice that the injured diver's stomach is distended. The injured diver begins vomiting.

Students: Clear, re-establish and maintain the airway and ventilations, using the manually triggered ventilator

Instructor: A minute later the diver begins to cough and resumes breathing.

Students: Continue to provide emergency oxygen via the MTV valve without using the button this time. You don't need to change masks.

Debrief skill.

Using a Manually Triggered Ventilator Key Points:

1. The MTV requires two rescuers.
2. Rescuer One performs chest compressions and presses the button of the MTV to ventilate the injured diver
3. Rescuer Two sets up and monitors the oxygen equipment and tests the MTV for function before using.
 - **REMINDER:** if the valve does not shut off when tested, do not use it.
4. Rescuer Two maintains the airway and the seal of the resuscitation mask.
5. Ventilations should only last one second.
 - Watch the stomach for signs of distension and to prevent regurgitation.
6. Monitor the oxygen supply.
7. Activate EMS.



Notes:

Skill: Full CPR

Required Equipment:

1. Non-latex medical gloves
2. Adult CPR Manikin
3. Infant CPR manikin
4. Oronasal resuscitation mask (one for each student or clean chimney for each student to use on a shared mask)

Recommended equipment:

1. Child CPR manikin

Objectives:

1. Perform two minutes of full CPR as a single rescuer on adult and infant CPR manikins, completing at least five cycles of 30:2 compressions/ventilations.
2. Perform four minutes of full CPR as a two person rescue team on an adult CPR manikin, completing at least ten cycles of 30:2 compressions/ventilations.
3. Perform four minutes of full CPR as a two person rescue team on an infant CPR manikin, completing at least 20 cycles of 15:2 compressions/ventilations.

Rationale:

Full CPR is strongly recommended for incidents involving scuba diving injuries or immersion (drowning).

Conduct Real Time demonstrations.

Talk through demonstration Skill Description:

Once unresponsiveness in adults has been established, immediately call EMS.

Adult

- **Activate EMS upon establishing unresponsiveness**

Single Rescuer:

- Using the compression and rescue breathing techniques from the previous skills, deliver chest compressions at **a rate of 100-120 per minute to a depth of 2-2 ½ inches/5-6 cm** followed by rescue breaths using a ratio **of 30:2 as a single rescuer** for a minimum of 5 cycles/two minutes.

Two Rescuers:

- Using the compression and rescue breathing techniques from the previous skills, deliver chest compressions at a rate of 100-120 per minute to a depth of 2-2½ inches/5-6 cm followed by breaths using a ratio of **30:2 as a two rescuer team for two minutes.**
- **Switch roles and re-assess. Continue for an additional 2 minutes of CPR.**

Children and Infants

- **Perform 2 minutes of CPR before activating EMS if alone.**

Single Rescuers:

- Using the compression and rescue breathing techniques from the previous skills, **deliver chest compressions at a rate of 100-120 per minute to 1/3 the chest depth** followed by breaths using a **ratio of 30:2 as a single rescuer** for a minimum of two minutes.

Two Rescuers:

- Using the compression and rescue breathing techniques from the previous skills, deliver chest compressions at a rate of 100-120 per minute to 1/3 the chest depth followed by breaths using a **ratio of 15:2 as a two rescuer team for two minutes.**
- **Switch roles and re-assess. Continue for an additional 2 minutes of CPR.**

NOTE:

Reassess the individual at the end of every two minute cycle.

Set up practice groups and provide scenario.

SCENARIO

You continue to provide care for the man who has collapsed and they do not have a pulse nor are they breathing on their own.

Instructor: What care should be provided?

Students: Provide 2 minutes of continuous CPR

Teaching Tip:

Demonstrate 2 full minutes of CPR to illustrate initial care and reassessment.

Teaching Tip Reminder:

After the 2-minute reassessment, CPR should not be interrupted until the individual's condition obviously changes or EMS takes over care. CPR should not be interrupted unnecessarily.

Debrief skill.**Full CPR Key Points:**

1. Call for assistance (EMS) immediately upon determining unresponsiveness for adults.
2. For infants and children, provide two minutes of CPR (if alone) before calling EMS.
3. Compression rate is at least 100 per minute and at least 2" deep for adults and children, 1/3 the chest depth for infants.
4. Ventilation ratio is 2 for every 30 compressions for a single rescuer in all cases.
 - o Ratio for infants and children with 2 rescuers is 15:2
 - o Ventilations should only last about 1 second each and should make the chest visibly rise.
 - o If ventilations do not make the chest rise, reposition the head to open the airway. If that does not help, check the mouth for visible obstructions. Remove any you may find. If you are unable to accomplish ventilations due to an obstruction, return to chest compressions
5. Continue CPR for 2 minutes then reassess the individual.
6. For 2 person CPR, switch roles every 2 minutes, reassessing the individual as part of the process.

Notes:

Skill: Use of an Automated External Defibrillator (AED)

Equipment:

1. Adult CPR Manikin
2. Non-latex medical gloves
3. Oronasal resuscitation mask or other face shield intended for rescue breathing
4. AED Trainer (select scenario to be used from AED Trainer program before beginning this skill.)
5. Infant Manikin

Objectives:

1. Demonstrate proper AED pad placement for adults, and on children and infants using CPR manikins.
2. Follow the prompts of an automatic external defibrillator (AED) training unit to simulate care for a non-breathing person on an adult CPR manikin.
3. Utilize an AED training unit as part of CPR on an adult CPR manikin.

Rationale:

Early access to defibrillators greatly increases an individual's chances of survival if the heart is in fibrillation. AEDs are the only method available to reset a fibrillating heart. With every minute that passes until defibrillation, there is a 7-10 percent decrease in the likelihood of survival from sudden cardiac arrest.

Conduct Real Time Demonstration

Talk Through Demonstration Skill Description:

Remember S-A-F-E

If unresponsive

- Shout for help or call EMS

If not breathing normally

- Send someone or go for an AED
 - **Do not delay CPR waiting for an AED.**
- Perform CPR 30:2 continuously until AED begins analysis.
- **Turn on the AED and follow the prompts of the specific unit**
- Attach the defibrillator pads to the individual's bare chest as illustrated on the pads and plug the cord into the AED (this order may be reversed on some units)
 - For adults and children, pads should be placed on the upper right chest wall below the shoulder and on the lower left chest extending onto the lateral surface.

- For infants, pads should be placed in the center of the chest and in the center of the back.

NOTE:

Use pediatric AED pads for children and infants if available. If they are not available, adult pads may be used without harm. Pediatric pads however should not be used on adults.

- **Water and heavy chest hair may need to be removed before pad placement to assure good contact.**
- Allow the AED to analyze the heart rhythm. Do not touch the person during this analysis.
- **Do not touch the person during this analysis**

If shock required: Follow the AED unit's prompts.

- **Visually and physically clear the individual**
- State: **"I'm clear, you're clear, all clear".**
- Administer shock
- Immediately resume CPR beginning with chest compressions for 2 minutes

If no shock required, resume CPR (30:2) until the person starts to breathe normally or EMS arrives.

Set up practice groups, and provide scenario.

SCENARIO

An AED has been brought to the scene.

Instructor: What should you do?

Students: Perform CPR until the AED is set up and ready then follow the prompts of the AED after it has been turned on.

Instructor: An AED shock has been delivered to the individual. What is your next step?

Students: Resume CPR after the shock, beginning with compressions, for 2 minutes or until the AED prompts to reassess the person.

Teaching Tips:

1. Choose a scenario from your AED trainer in advance for your role model demonstration. Perform CPR while waiting on the AED to be provided. Demonstrate proper use of an AED following the unit's prompts.
2. Continue demonstration for 2 minutes after the shock allowing for the full cycle of care. At this time, the AED trainer should be prompting a reassessment. Follow AED scenario prompts
3. Vary scenarios between students so they are exposed to a variety of circumstances. Understanding that not all situations are identical will be helpful should the student be presented with the need to respond.

Debrief skill.

Use of an AED Key Points:

1. Do not delay or interrupt CPR while waiting on an AED unit to arrive at the scene or for it to be set up by another rescuer
2. Turn the unit on and follow the specific unit's prompts
 - Pads are marked for placement but can be switched and still work.
 - Water on the skin and chest hair may need to be removed to facilitate good pad contact.
3. Verbally and physically (wave arms) clear every one of the individual during analysis and shock delivery.
 - Do not touch the person during analysis or shock.
4. Resume CPR immediately once the shock has been delivered beginning with compressions.

Notes:

Skill: Foreign-Body Airway Obstruction - Adults and Children

Equipment:

1. Non-latex medical gloves
2. Adult CPR manikin

Objectives:

1. Demonstrate proper abdominal thrust, chest thrust and back blow techniques for management of an obstructed airway in adults and children

Rationale:

In just a few minutes a blocked airway can cause a person to lose consciousness. It can also cause cardiac arrest from hypoxia as the body tissues become starved of oxygen.

Back Blows

Conduct Real Time Demonstration

Talk Through Demonstration Skill Description:

Adult

In the case of a **mild airway obstruction, encourage the choking victim to cough, but do nothing else.**



If the person shows signs of a **severe airway obstruction** and is conscious, **ask permission to assist**. Perform abdominal thrusts if permission is granted.

- Stand behind and slightly behind the victim.
- Support the chest with one hand and lean the victim forward.
- Give up to five sharp blows between the shoulder blades with the heel of your other hand.
- Check to see if each back blow has relieved the airway obstruction.

Abdominal Thrusts

Conduct Real Time Demonstration

Talk Through Demonstration Skill Description:

Adult

In the case of a **mild airway obstruction**, encourage the choking victim to cough, but do nothing else.



If the person shows signs of a **severe airway obstruction** and is conscious, **ask permission to assist**. Perform abdominal thrusts if permission is granted.

- Stand behind the person and put both arms around the upper part of the abdomen.
- With one hand locate the person's navel
- Clench your other hand into a fist and place it just above your first hand between the navel and bottom tip of the sternum with the thumb end of your fist against the choking victim's abdomen.
- Grasp it with your other hand and **pull forcefully inward and upward repeatedly**.
 - **Keep your hands off the person's rib cage.**
 - **Thrusts should be into the soft abdominal tissue.**
- Repeat until the object is expelled or the person loses consciousness.
- If you cannot reach around the person's abdomen or the choking victim is a pregnant woman, do chest thrusts instead.

Chest Thrusts

Conduct Real Time Demonstration

Talk Through Demonstration Skill Description:

Adult

In the case of a **mild airway obstruction**, encourage the choking victim to cough, but do nothing else.



If the person shows signs of a **severe airway obstruction** and is conscious, **ask permission to assist**. Perform abdominal thrusts if permission is granted.

- Stand behind the person and encircle their chest, placing your arms directly under their armpits.
- Form a fist and place the thumb side of your fist on the middle of the breastbone (avoid the xiphoid process and the margins of the ribcage)
- Grasp it with your other hand and **pull forcefully inward repeatedly**.
- Repeat until the object is expelled or the person loses consciousness.

If the person becomes unconscious:

- Lower the individual carefully to the ground
- Activate EMS
- Begin CPR (chest compressions followed by rescue breaths)
- Look in the mouth for the obstruction before giving rescue breaths
 - Remove object with a finger sweep only if visible

Across all techniques:

Continue to apply the various techniques until the obstruction is relieved.

Rotating Techniques is acceptable.

If the person becomes unconscious:

- Lower the individual carefully to the ground
- Activate EMS
- Begin CPR (chest compressions followed by rescue breaths)
- Look in the mouth for the obstruction before giving rescue breaths
 - Remove object with a finger sweep only if visible

Always encourage the person who was choking to seek medical evaluation afterwards.

Set up practice groups and provide scenario.

SCENARIO

You and the entire dive team are relaxing over snacks and beverages after a long day when one member of the team stands up from the table grasping their throat.

Instructor: What is your first action?

Students: Ask if they are OK, can they speak?

Instructor: If they can't answer, what should you do?

Student: Perform abdominal thrusts, chest thrusts and/or back blows until the object is dislodged.

Instructor: What should you do if your cousin becomes

unconscious? **Students:** Assist them to the floor gently. Begin CPR

Teaching tip:

1. Demonstrate these techniques on an assistant or student. **Do NOT** use full force but simulate force during the demonstration.
2. Have students practice self-rescue by using a chair to remove an airway obstruction. Have them lean over a chair from behind placing the area between their navel and rib cage on the chair back. They should then grasp either the chair arms or seat and pull themselves into the chair back with simulated force.

Debrief skill.

Foreign-Body Airway Obstruction - Key Points:

1. Do not interfere with person's attempts to clear their airway if they can cough but do stay ready to assist if they need help.
2. Ask permission to assist
3. **Place your hands in the appropriate spot for each technique**
4. Pull forcefully inwards repeatedly with abdominal and chest thrusts, or sharp blows between the shoulder blades to assist with releasing the obstruction.
5. If you cannot reach around the person's abdomen, perform chest thrusts
6. If the individual becomes unconscious, assist them to the ground as gently as possible and begin CPR (chest compressions).

Notes:

Skill: Foreign-Body Airway Obstruction - Infants

Equipment:

1. Non-latex medical gloves
2. Infant CPR manikin

Objectives:

1. Demonstrate proper back blow/chest compression technique for management of an obstructed airway in an infant.

Rationale:

In just a few minutes a blocked airway can cause a person to lose consciousness. It can also cause cardiac arrest from hypoxia as the body tissues become starved of oxygen.

Conduct Real Time Demonstration

Talk Through Demonstration Skill

Description:

In the case of a **mild airway obstruction**, **encourage the choking victim to cough, but do nothing else.**

If the infant shows signs of a **severe airway obstruction**, **ask permission to assist.**

Proceed after permission is granted



- Hold the infant face down on your lower arm with your hand **supporting the infant's head** and the infant's legs straddling your arm. **The head should be lower than the body.**
 - Use your thigh to help support your arm with the infant if desired
- **Deliver five back blows between the infant's shoulder blades.**
- Place your other forearm over the infant along its back cupping its head with your hand, "sandwiching" the infant between your arms.
- **Turn the infant over and quickly check for the obstruction.** If visible, remove with a finger sweep.
- If the obstruction is not visible, **deliver five chest compressions using the same technique as for CPR.**
- Check for the obstruction. If visible, remove with a finger sweep.
- **Repeat steps as necessary until obstruction is relieved.**
- **If infant becomes unconscious, begin CPR**

Set up practice groups and provide scenario.

SCENARIO

You are at a family gathering and your cousin's infant begins to choke on an object. In a panic your cousin freezes up and doesn't know what to do.

Instructor: What is your first action?

Students: Ask if they are OK, can they speak?

Instructor: If they can't answer, what should you do?

Student: Perform abdominal thrusts, chest thrusts and/or back blows until the object is dislodged.

Instructor: What should you do if your cousin becomes unconscious?

Students: Assist them to the floor gently. Begin CPR

Debrief skill.

Foreign-Body Airway Obstruction Key Points:

1. Do not interfere with person's attempts to clear their airway if they can cough but do stay ready to assist if they need help.
2. Ask permission to assist
3. support the infant's head with the head lower than the body
4. Deliver five back blows between the infant's shoulder blades
5. "sandwich" the infant, turn the infant over and check for the obstruction
6. if the obstruction is visible, remove it. If it isn't deliver 5 chest thrusts using the same technique as for CPR
7. For infants, assure that the head is constantly supported and lower than the rest of their body.

Skill: Suctioning

Equipment:

1. Non-latex gloves
2. Manual vacuum pump
3. Suction bulb
4. Adult CPR manikin
5. Infant CPR manikin

Objective:

1. Demonstrate appropriate technique and duration for suctioning on an adult or child manikin and an infant manikin.

Rationale:

When fluids or soft solids are present in the upper airway, suctioning may aid in clearing the airway so effective ventilations can be accomplished.

Conduct Real Time demonstration.

Talk through Demonstration Skill Description:

Adult or Child

Use a manual vacuum pump with a size appropriate, rigid suction catheter for adults and children.

- Place person on their side
- Estimate the distance from the front of the mouth to the throat
 - Hold the catheter along the side of the face from corner of mouth to ear lobe. Tip of the catheter should be towards the ear lobe.
 - Use fingers to mark the catheter at the corner of the mouth. This is the maximum allowable distance for insertion.
- Use a cross finger technique to open the person's mouth if needed.
 - Using one hand, place one or more fingers on the front teeth of one jaw and the thumb on the front teeth of the other jaw.
 - Push the teeth apart with a scissor-like action.
 - Hold the mouth open with this method while suctioning takes place



- Insert the suction tip along the roof of the mouth to the back of the mouth/top of the throat.
 - **Insert no farther than estimated previously determined**
- Activate suctioning mechanism
 - **Limit suctioning to no more than 15 seconds for adults**
 - **Limit suctioning on children to more than 10 seconds**
- Visually inspect mouth/airway for visible obstructions
- **Remove visible obstructions with gloved finger or repeat suctioning.**
- **Attempt to ventilate the person.**

Infant

Use a suction bulb for infants.

- Open the infant's mouth with a similar technique as for adults and children or use a jaw thrust as with two-person infant CPR
- Depress the suction bulb before inserting in the infant's mouth.
 - Suction mouth then nose
 - **Limit suctioning to no more than 5 seconds**
- Remove suction bulb from mouth/nose and depress away from infant to clear it
- Visually inspect mouth/airway for visible obstructions
 - Removed visible obstructions with gloved finger or repeat suctioning
- **Attempt to ventilate infant**



Set up practice groups, and provide scenario.

SCENARIO

While performing CPR, the individual in the previous scenario vomits.

Instructor: What steps should you take?

Students: Roll the person onto their side and clear the airway using an appropriate suctioning device.

Debrief skill.

Suctioning Key Points:

1. Choose an appropriate size and length of suction tip when suctioning an adult or child. Avoid over insertion of the tip.
 - o Use a suction bulb for infants
2. Limit time of suctioning to 15 seconds for adults, 10 seconds for children and 5 seconds for infants
3. Remove visible obstructions not removed by the suction device with a finger sweep.
4. Attempt rescue breaths.

Notes:

Skill: Secondary Assessment

Equipment:

1. Pencil and paper or accident management slate

Objectives:

1. Demonstrate technique for head to foot secondary assessment using a gentle touch and a caring manner.

Rationale:

When an individual has been injured or is ill, they may not be able to readily identify where problems may be located. By talking to the individual and doing area specific exams, potential problems can be identified and appropriate treatment sought.

Conduct Real Time Demonstration.

Teaching Tip:

Since an additional person is required for this skill, discuss with them in advance how this skill is to be presented and establish some guidelines for the simulation.

Talk Through Demonstration Skill Description:

- Remember to be **S-A-F-E**.
- **Ask permission** to conduct an assessment.
- Perform a secondary assessment **only on an injured person who is conscious and can respond**.
- Use your eyes and hands to find any abnormalities or possible problems.
Be systematic in the assessment to avoid missing any areas.
- **Use a gentle touch** because injuries can be quite painful.
 - **If the individual experiences pain, address the complaint and deal with life-threatening conditions then continue the assessment, and call EMS.**
 - Start at the person's head, and look for signs of injury or blood. Note any areas that cause pain or are uncomfortable to the individual. Gently palpate (touch) the entire scalp and face.
 - Watch for any fluids or blood.



- Visually inspect the person's nose and ears for blood or fluid.
- Palpate the person's neck. The mechanism of injury will give you a good idea about whether a head or neck injury is likely.
- Shade the person's eyes from the sun or lights, then remove your hands while observing the pupils for reaction to the changing light exposure. Do this one eye at a time to see if the eyes dilate in response to the shade.
- If the injury is related to scuba diving, gently palpate the front of the neck for air bubbles and a crackling sound coming from underneath the skin. This would indicate subcutaneous emphysema, which is caused by air bubbles escaping from the lungs and chest cavity.

This can be an indication of a lung-overexpansion injury.



- Inspect the person's collarbone for injuries or discoloration. Gently slide the fingertips of your index and middle fingers along each collarbone individually to check for movement or reaction to your examination.



- Examine the chest by placing both hands on either side of the rib cage, and ask the individual to take a deep breath. Note any open wounds. If you see bubbling, apply direct pressure to the wound to stop air from moving in and out.



- Divide the abdomen into four quadrants using the navel as the center point. Gently press on each quadrant in turn, and note any areas that are sensitive, stiffened, hard or painful.



- Place a hand on either side of the individual's pelvis, and gently push straight down and then in from both sides. Note any instability or painful responses.
- Secure wrist/ankle on each limb then palpate the arms and legs individually, gently squeezing to feel if bones beneath the skin and muscle are displaced. Ask the person to wiggle their fingers and toes.



- **Record findings in a usable manner.**

Set up practice groups, and provide scenario.

SCENARIO

One of your team members fell down the last few steps of the deck ladder. They are conscious but doesn't feel well and hurt all over.

Instructor: What action should be taken?

Students: Do a secondary assessment.

Debrief Skill.

Key points are on the next page.

Secondary Assessment Key Points:

1. Perform a secondary assessment only on individuals who can respond with feedback to your touch and/or inquiries.
2. Be systematic in your assessment to avoid missing any areas.
3. Use a gentle touch when applying pressure because injuries can be quite painful.
4. If the person experiences pain, stop the assessment.
5. Record your findings in an organized manner so they can be referred to later if necessary.

Skill: Splinting

Equipment:

1. Non-latex gloves
2. Dressing and bandaging materials
3. Various splints (commercial or improvised)
4. Elastic bandages

Objective:

1. Apply a splint to a simulated injured limb immobilizing the joints on either side of the injury. Use of either a professional splint or improvised splint is acceptable.

Rationale:

In some settings where EMS is more than 10 minutes away, you may find it helpful to splint a limb to prevent further injury while the injured person is being moved to emergency medical care.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- **Preform the splint to adapt it to the injured area.** Shaping it during placement may be painful to the injured person.
- Apply a splint, keeping the injured limb in the position it was found. Do not attempt to straighten it.
- Place splinting material either along or on each side of the injured limb.
- Place the splint so the **joints both above and below the site of the injury are immobilized.**
- **Use padding** (gauze, towels, clothing, etc.) **to fill in voids under the splint** and provide additional support to the injured limb.



- **Check for adequate circulation** by pressing the nail beds with enough gentle pressure to cause them to blanch, then observe capillary refill. Adjust bandaging if necessary to ensure adequate circulation.
- Remove jewelry or constricting clothing on the injured appendage.
- Continually reassess the injured person, and monitor for signs of shock.
- Activate EMS if not already done.

Set up practice groups, and provide scenario.

SCENARIO

The team member in the previous scenario has a swollen wrist and they can't move it.

Instructor: How should you handle the injury?

Students: Apply splint padding the injured site for comfort and to aid in restricting movement

Debrief skill.

Splinting Key Points:

1. Adjust and form splint material to fit the injured site before applying it.
2. Be sure joints above and below the injury are immobilized.
3. Pad the injured site for comfort and to minimize movement.
4. Monitor circulation of any involved extremities, and monitor the injured person for shock.

Skill: Injury Management

Required equipment:

1. Non-latex Gloves
2. First-aid supplies including tweezers, simulated hot pack, dressings and bandages

Recommended supplies:

1. Moulage for mock injuries

Objectives:

Demonstrate the proper technique for managing at least one of the following:

1. Spiny envenomations
2. Stinging envenomations
3. Contact injuries

Rationale:

Most injuries caused by hazardous marine life are not life-threatening and only require proper cleaning and bandaging particular to the type of injury.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- Spiny envenomations
 - **Wash area thoroughly** with soap and fresh water.
 - **Remove visible foreign material** with tweezers or forceps.
 - **Control bleeding** if present.
 - **Manage pain** by applying hot or cold packs.
 - **Apply a topical antibiotic**, if available, as appropriate to the injury.
 - Bandage if necessary.
 - Seek medical evaluation.
 - Monitor for infection or allergic reaction.
- Stinging envenomations
 - **Irrigate with vinegar** for 30 seconds.
 - **Remove tentacles** with tweezers or forceps. Wear gloves.
 - **Irrigate with saline solution** or sea water. Do not rub.

- **Control pain** with use of the following:
 - oral analgesics
 - topical anti-inflammatory agents
 - hot or cold packs
- **Bandage** if indicated.
- Contact injuries
 - **Clean area** with soap and fresh water.
 - **Remove any foreign material.**
 - Irrigate with syringe and catheter using clean water or saline solution.
 - Cellophane tape may help remove bristles from worms.
 - **Control bleeding** if present.
 - **Manage pain** by applying hot or cold packs.
 - **Apply steroid ointment** if available.
 - Cover with dressing and bandage.
 - For eye contact, flush with fresh water.

Note:

Every student should complete at least one of the following scenarios as the provider.

Set up practice groups, and provide scenario.

SCENARIO

You have just completed a survey dive and after exiting the water one of the divers in your group is holding their hand. You notice several small punctures with some dark discoloration around them. When you ask what happened, they reply they lost their balance as they got into shallow water and they think they hit a fish as they caught themselves along the rocks. You remember seeing a scorpionfish in that area before you surfaced.

Instructor: What action should you take?

Students: Provide any assistance need to get out of their gear then initiate first aid for a spiny envenomation.

SCENARIO

The dive group was warned about jellyfish in the area as you entered the water. As one buddy team returned to the boat and exited the water, one diver was experiencing considerable pain. You can see several angry red streaks on their exposed arms.

Instructor: What action should you take?

Students: Initiate first aid for a stinging envenomation being sure to use gloves to protect yourself against personal injury.

The surge at your exit point following a shore dive has picked up considerably. As the divers in your group are trying to get out of the water, you see one diver take tumble as the waves knock them down. When they stand up, you see big scrapes on one knee and a forearm. Both are bleeding but not badly.

Instructor: What action should you take?

Students: Provide any assistance needed to get them out of the water without further injury and help them remove their gear. Initiate first aid for a contact injury.

Debrief skill.

Injury Management Key Points:

- Spiny envenomations and contact injuries
 1. Wash area thoroughly.
 2. Remove visible foreign material.
 3. Control any bleeding.
 4. Manage pain by applying hot or cold packs.
 5. For contact injuries, apply antibiotic or steroid ointment if available.
- Stinging envenomations
 1. Irrigate with vinegar.
 2. Remove tentacles with tweezers or forceps. Wear gloves.
 3. Irrigate with saline solution or sea water.
 4. Control pain.
 5. Bandage if indicated.

Note: Monitor any injury caused by marine life for infection.

Moulage Application Tips for Injury Management Scenarios

Spiny Envenomations:

- Use clear/white decorator icing gel to create a film on the hand.
- Shake chocolate sprinkles onto gel film to simulate broken sea urchin spines.
- This also simulates the fragility of the spines during removal.



Stinging Envenomations:

- Simulate jellyfish tentacles with cooked spaghetti, aerosol string, cut rubber bands, etc.

Contact Injuries:

- Use clear/white decorator icing gel to create a film on the hand.
- Sprinkle cut bristles from a lightweight paint brush onto gel film.
- Use cellophane tape to remove the bristles.

Control of External Bleeding:

- Generously apply ketchup or chocolate syrup to the arm or hand to simulate blood.

NOTE: Strawberry ice cream topping is not a good choice because it becomes even more liquid in contact with warm skin. It is meant to congeal on cold products such as ice cream.

Other ideas for simulating injuries include the use of makeup pencils, lipstick, theatrical moulage/makeup supplies and Halloween costume makeup. Your imagination is the limit.

Skill: Pressure Immobilization

Required equipment:

1. Non-latex Gloves
2. First-aid supplies including dressings and elastic bandages, splints and slings

Objective:

1. Demonstrate the proper technique for applying a pressure immobilization bandage.

Rationale:

The pressure immobilization technique may be beneficial in delaying venom absorption in the case of injuries inflicted by sea snake, cone shells and the blue-ringed octopus. It is not universally effective but has been reported to delay systemic envenomation. It is only an interim measure to be used while getting an injured person to medical care.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- Keep the injured person **as still as possible**.
- Thoroughly clean the wound with soap and water.
- Remove any foreign material.
- Place dressing over the bite or wound.
- Apply an **elastic bandage snugly but not excessively tight** over the dressing, starting 6 inches (15 cm) above the wound and extending 6 inches (15 cm) below the wound. If there is insufficient space to wrap 6 inches on either side, wrap as far as possible.
- **Check for adequate circulation using peripheral pulses and/or capillary refill** of fingernail or toenail beds if bandage is on an extremity. Press the nail beds until they blanch, and watch for color to return. If it takes more than 2-3 seconds or if the injured person experiences tingling in their finger or toes, slightly loosen the bandage.
- **Splint the extremity** to immobilize the joints on either side of the wound.
- Use a sling and swath when an upper extremity is involved.
- Immediately transport the injured person to a medical facility.
- **Do not remove the bandage** until the injured person is under advanced medical care and antivenom is available.

Set up practice groups, and provide scenario.

SCENARIO

Several divers are working together to survey area crustaceans. Several cone snails are noted in the area. One diver suddenly grabs their hand and appears to be in pain. You assist them to the surface. Once on the boat, they describe feeling an immediate but moderate pain which has moved into numbness. You see an area of swelling and redness on their fingers and palm.

Instructor: What is your course of action?

Students: Keep the injured diver still and activate the emergency assistance plan. Apply a pressure immobilization bandage and monitor the injured diver's level of responsiveness and breathing.

Debrief skill.

Pressure Immobilization Technique Key Points:

1. Keep the injured person still.
2. Bandage snugly but not too tightly (like wrapping a sprain).
 - Check capillary refill, and adjust bandage if necessary
3. Splint to restrict movement.
4. Leave the bandage in place until the injured person is under advanced medical care and antivenom is available.

Skill: Traumatic Injuries (Control of External Bleeding)

Equipment:

1. Non-latex gloves
2. Gauze dressings or pads, bandages, tape
3. Splinting material, such as triangular bandages, SAM® splints, magazines and roller bandages

Objective:

1. Demonstrate applying direct pressure to control bleeding on a simulated injured person.
2. Demonstrate bandaging to secure a dressing in place once bleeding has stopped on a simulated injured person.

Rationale:

Uncontrolled external bleeding reduces the amount of blood circulating throughout the body. Shock is a resulting condition caused by lack of oxygen to the body's vital organs due to inadequate blood volume. Being able to control external bleeding may reduce the risk of shock and is potentially a lifesaving skill.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- If possible, wash the area with soap and water as soon as possible.
- **Cover the wound completely** with a sterile or clean dressing, and **apply pressure until the bleeding stops**.
 - **Use additional layers of dressing** if the dressing becomes soaked.
 - **Do not remove any layers of dressing materials** because it may disrupt the clotting mechanism of the body.
- **Once bleeding has stopped**, use conforming bandage, roller gauze or tape to **secure the dressing**, making sure there are no loose edges.
 - **Wrap bandaging toward the heart.**
- Remove all jewelry or constricting clothing on the injured appendage.
- Be careful not to interfere with circulation.
 - Check capillary refill on appendage nail beds to ensure adequate circulation.
 - Ask the injured person if any tingling or numbness is present.
 - Adjust bandage if necessary to ensure circulation.

- Monitor the pulse and motor function distal to the bandage before and after bandage application.
- Bandage small wounds several inches on either side to ensure coverage and even pressure distribution.
- When bandaging across a joint, apply the bandage in a comfortable position.
 - Keep the joint immobilized after bandage application to minimize further discomfort or bandage displacement. Splint the injury only if EMS will be delayed.

Set up practice groups, and provide scenario.

SCENARIO

You and a team mate were checking collection bags when a barracuda bit their hand. they have several slashes that are bleeding heavily.

Instructor: How should you manage the wounds?

Students: Wash the wound if possible then apply a dressing and bandage it in place. Teaching tip: Unrolling a bandage so the roll is on top of the bandage instead of under it helps keep the roll under control and minimizes the risk of dropping it.

Teaching Tip:

Unrolling a bandage with the roll on top instead of underneath will help keep the roll under control and minimizes the risk of dropping it.

Debrief skill.

Traumatic Injuries (Control of External Bleeding Key Points:

1. Dressings should completely cover bleeding wounds.
2. Use direct pressure to stop bleeding.
3. Apply additional layers of dressing material (gauze) if the dressing becomes soaked. Do not remove soaked layers.
4. Bandage dressings in place once bleeding has stopped.
5. Wrap extremity bandages toward the heart.

Skill: Applying a Tourniquet

Required Equipment:

1. Commercial (preferred) or materials for an improvised tourniquet

Objective:

1. Demonstrate applying a tourniquet to control bleeding on a simulated injured person.

Rationale:

Severe, life-threatening bleeding from extremities may require bleeding-control measures beyond direct pressure and cold therapy. For these kinds of injuries, application of a tourniquet may save a life.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- Inspect the wound **to ensure direct pressure was being applied directly to the site of the bleeding**. If not, attempt direct pressure once more.
- **Apply tourniquet 1-2 inches (2.5-5 cm) proximal to the wound** with the windlass over the bleeding artery.
- Secure the tourniquet.
- **Turn the windlass device** to stop bleeding **and secure**.
- **Verify absence of pulse** in the distal portion of the bleeding extremity. (See **Critical Note** below)

CRITICAL NOTE:

When applying a tourniquet as part of skill practice for course requirements, the tourniquet should not be tightened to the point the distal pulse disappears. Advise students tourniquets are painful when placed appropriately, but it will be released promptly. It may also cause temporary bruising.

***For safety and to prevent localized injury, do not tighten a tourniquet during practice beyond the point your practice partner starts to feel changes in sensation**.*

In an actual emergency, tighten the windlass until bleeding stops and/or the distal pulse disappears.

- **Secure the windlass.**
- **Note on the individual's forehead a T or TK** (indicating the use of a tourniquet) and **time of placement**.
- **Monitor bleeding**, and **tighten the tourniquet if necessary** as blood vessels relax.
- **Leave a tourniquet used in an actual injury in place** until the injured person is under medical care.
- **Tell the individual that the tourniquet will be painful** but is being used as a life-saving measure.
 - **Provide verbal support.**

Applying an improvised tourniquet:

- Fold a triangular bandage so it is 2 inches wide.
- Wrap the folded bandage tightly around the limb, and tie an overhand knot.
- Place a stick (pencil, dowel or similar object) over the knot, and tie a second overhand knot on top of the stick.
- Turn the stick to tighten the tourniquet.
- Secure it with a second bandage so it does not come loose.

Set up practice groups, and provide scenario.

SCENARIO

Continued from the previous scenario: The bleeding is not responding to direct pressure, and you have verified you are applying pressure directly over the bite.

Instructor: What is the next step?

Students: Apply a tourniquet, and immediately seek medical assistance.

Teaching Tips:

- *Use of dressings impregnated with hemostatic agents may also be required in some cases.*
- *Monitor bleeding, and tighten the tourniquet if necessary as blood vessels relax.*

Debrief skill.

Applying a Tourniquet Key Points:

1. Verify direct pressure was being applied over the wound.
2. If so, then apply tourniquet 1-2 inches (2.5-5 cm) above the wound.
3. Verify absence of distal pulse and/or stoppage of bleeding.
4. After tightening the windlass, secure it so it will not come loose.
5. Note on the individual's forehead a T or TK and the time the tourniquet was applied.
6. Leave a tourniquet in place until the individual is under advanced medical care.
7. Provide verbal support to the injured person.

Notes:

Skill: Wound Packing

Required Equipment:

1. Non-latex Gloves
2. roller gauze
3. Training aid to simulate a wound packing injury

Objective:

1. Demonstrate applying a wound packing to control bleeding on a simulated injury

Rationale:

Some injuries may be too deep for direct pressure to be effective. Injuries like this may require bleeding-control measures beyond direct pressure and cold therapy. For these kinds of injuries, wound packing may be necessary.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- **Pack dressing material to the depth of the wound.** Advise the injured person this will hurt, but will help stop the bleeding.
- **Apply lateral outward pressure to the wound walls,** holding gauze in place on one side while additional gauze is packed on the other side
- **Maintain lateral outward pressure** on wound walls during the packing process.
- Hemostatic impregnated gauze, if available, is a good choice for this type of wound. **If it is used, advise EMS Personnel.** It will require them to modify their care.
- **Fully pack the wound.** Use additional dressing material if needed.

Set up practice groups, and provide scenario.

SCENARIO

A diver slipped and fell against a sharp edge on the dive boat and has a deep gash in their thigh.

Instructor: What is the next step?

Students: Pack the wound.

Teaching Tips:

- Commercially available wound packing training aids are available
- An inexpensive alternative is use a section of a 'pool noodle' with a large gash to pack.

Debrief skill.

Wound Packing Key Points:

1. Pack the injury to the depth of the wound
2. Apply lateral outward pressure to the wound walls, holding gauze in place on one side while additional gauze is packed on the other side
3. Maintain lateral outward pressure on wound walls during the packing process.
4. Hemostatic impregnated gauze, if available, is a good choice for this type of wound. If it is used, advise EMS Personnel. It will require them to modify their care.
5. Fully pack the wound. Use additional dressing material if needed.

Skill: Severe Allergic Reaction

Required equipment:

1. Epinephrine auto-injector trainer

Objective:

1. Demonstrate the proper technique for assisting with an epinephrine auto-injector in a scenario.

Rationale:

Some individuals experience extreme reactions to specific exposures such as bee stings or certain foods. The speed of the reaction may inhibit the individual's ability to respond on their own. Assistance from another individual may be necessary.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- Ensure the airway and breathing.
- If the individual is **unable to administer the medication himself, assist him** by removing the auto-injector from its case. Epinephrine should be administered only if it is prescribed for the individual having the reaction.
- Remove the protective cap.
- Place the auto-injector in the palm of their hand, and place your hand around theirs. **Keep your fingers and thumb from covering either end.**
- With a firm grasp, jab the indicated end against the mid-thigh of the individual experiencing the reaction.
- **Hold the injector in place for at least 10 seconds.**
- Massage the area where the injection was administered to assist with dispersion of medication.
- **Note the time** the medicine was administered
- **Activate EMS.**
- **Return the auto-injector to its case, and give it to EMS personnel when they arrive.**

Set up practice groups, and provide scenario.

SCENARIO

The dive group is out for dinner one evening after a full day of diving. One of the diners suddenly starts itching and complaining of irritated eyes and fullness in their throat. They have shared earlier that they are allergic to shellfish. The dish ordered has a clam sauce on it they overlooked on the menu.

Instructor: What is your immediate response?

Students: Ask if they carries anything to take for allergic reactions. If so, secure it and assist as may be required to administer it.

Debrief skill.

Severe Allergic Reaction Key Points:

1. Assist the individual only if they are unable to administer the medication himself.
2. Avoid covering either end of the auto-injector with your fingers or thumb.
3. Hold the injector in place for at least 10 seconds to ensure full administration of the medication
4. Note the time of administration.
5. Activate EMS; give the used auto-injector to medical personnel when advanced care arrives.

Teaching Tip:

A similar skill process is used with naloxone auto-injectors for opioid overdoses.

Skill: Shock Management

Equipment:

1. Non-latex gloves
2. Blanket or other aids to assist with controlling body temperature

Objective:

1. Demonstrate proper technique for managing shock by placing the victim on their back or in a position of comfort and taking steps to maintain normal body temperature in a scenario

Rationale:

Shock is a life threatening condition. Death may result if steps are not taken to reverse the effects of shock. Maintaining an open airway, ensuring adequate breathing and circulation, and controlling bleeding are the most effective methods of preventing shock.

Conduct Real Time Demonstration.

Talk Through Demonstration Skill Description:

- Assess scene safety.
- Activate EMS.
- Control external bleeding if present.
- Provide comfort and reassurance.
- Place the victim **on their back or in a position of comfort**.
 - **Do not force a person (especially with a heart condition or a breathing problem) to lie down.**
- Consider elevating legs 6-12 inches if no neck, spine or pelvic injuries are suspected.
- **Maintain normal body temperature** by adjusting body coverings for cold or heat.
- **Do not give anything by mouth.**
- Monitor the **level of responsiveness**.

Set up practice groups, and provide scenario.

SCENARIO

A team member has tripped cutting their arm as they fell. The bleeding has now been stopped but they now look pale, their skin is cool and clammy.

Instructor: What is the next step for providing first aid?

Students: Monitor person for shock. Take preventive steps.

Instructor: Should you provide any food or drinks?

Students: No.

Debrief skill.

Shock Management Key Points:

1. Place the victim on their back or in a position of comfort.
 - a. Do not force a person (especially with a heart or breathing problem) to lie down.
2. Monitor the individual for thermal control, and adjust body coverings as indicated.
3. Do not give anything by mouth.
4. Continuously monitor the level of consciousness.

Skill: Combined Scenarios

(Completion of all scenarios is recommended but at least three scenarios must be completed)

Equipment:

(Will vary with scenario implemented)

1. Non-latex gloves
2. Oronasal resuscitation mask
3. Oxygen kit
4. AED Trainer
5. First-aid supplies including splint material

Objective:

1. Provide care to an injured person using multiple skills acquired during the Diving First Aid for Professional Divers course.

Rationale:

Diving accidents can involve multiple injuries and/or more than one diver. A rescuer needs to be prepared for a variety of circumstances and changing conditions. Acting as a team when responding to accidents can facilitate effective interceptive care as well as earlier access to emergency medical services.

Sample Combined Scenarios:

SCENARIO

At your facility sandwich shop, one of the patrons grabs their neck and starts coughing ineffectively. There is a phone next to the cash register, and a first-aid kit is present in the kitchen.

Instructor: What action should you take?

Student: Provide care for severe airway obstruction. (Abdominal thrusts)

Instructor: After giving several series of abdominal thrusts, the patron loses consciousness.

Student: Assist them to the floor, place them on their back and deliver chest compressions.

Instructor: A piece of food comes out of the mouth, but the patron is not responding. However, normal breathing is present.

Student: Place the patron in the recovery position. Continue to monitor.

Instructor: Post scenario review –

When and how EMS was called?

Did someone ask for a first-aid kit?

Are barriers used or asked for?

SCENARIO

While a staff member is doing routine maintenance from a ladder, the tool they are using slips throwing them off balance. They fall and cut their arm deeply. Blood is spurting out of the wound. Another staff member is with you. You have a company cell phone, and a first-aid kit is mounted on the wall in the immediate area.

Student: Scene safety assessment. The ladder has fallen away from the injured staff member. Ask the other staff member to call for the emergency team and bring the area first-aid kit.

Instructor: The first-aid kit arrives.

Student: Provide care for external bleeding using gloves from FA Kit.

Instructor: When bandaging the wound, you notice that blood soaks through the dressing.

Student: Add another dressing; continue using direct pressure. Bandage all dressings in place once bleeding has stopped.

Instructor: The injured staff member has pale, cold, clammy skin and is breathing shallow and rapidly. They seem restless.

Student: Treat for shock.

Instructor: They state they are thirsty and ask for some water.

Student: Do not give water.

Instructor: They lose consciousness. They are unresponsive, but breathing.

Student: Place the injured staff member in the recovery position. Continue to monitor

Instructor: Post scenario review -

In what position should you place the injured staff member? What should be shared with the emergency response team/EMS when they arrive?

SCENARIO

One of the older divers on your team surfaces and exits the water. They starts complaining about a pain their is experiencing in their chest. They are pale and short of breath. When they try to sit down, they suddenly drop to the ground. A first-aid kit and AED are available with the surface support supplies. You are tapped into the company com-system for ongoing communication during dive activities.

Student: Conduct scene safety assessment and check for responsiveness. Activate the emergency action plan.

Instructor: No response and they do not appear to be breathing.
Student: Ask another team member to get the AED. Start CPR

Instructor: A second rescuer trained in CPR arrives
Student: Switch to 2-person CPR

Instructor: The AED arrives.

Student: Continue CPR while the AED is set up. When it is ready, stop CPR so the AED can assess the individual.

Instructor: AED advises shock

Student: Deliver shock and immediately resume CPR

Instructor: Post scenario review -

What was done during the scene safety assessment?

Are barriers present?

Is it possible to use an AED in a wet environment?

SCENARIO

At an interactive display pool, a mother is supervising her young child. She has an infant in a front carrier. When she leans over to assist the child with petting a ray, the infant slips out of the carrier and falls into the pool. The mother screams and grabs the infant from the pool.

Student: Assure scene safety. Ask the mother if you may assist her. She replies yes as she thinks the baby died in the fall from the carrier. Check for responsiveness.

Instructor: No response from the infant and they do not appear to be breathing.

Student: Ask another team member to activate the emergency action plan.

Have a third team member, if present, get the first-aid kit and AED. Start CPR.

Instructor: After a few minutes of CPR the infant begins to cry.

Student: Continue to monitor the infant until EMS arrives. Stress the need for further medical evaluation to the infant's mother.

Instructor: Post scenario review -

What other concerns need to be considered for the infant?

Is it possible to use an AED on an infant?

SCENARIO

After a survey dive, one of the dive team members stows their gear and heads up the stairs. They have trouble negotiating the steps and nearly loses their balance. In the commons area, they mention that a large area on their thigh feels numb

Student: Assure scene safety. Get histories from the diver focusing on any strain or unusual events during the dive?

Instructor: Nothing of concern is noted. The diver does indicate the numbness seems to be spreading and now their leg hurts when touched, even lightly

Student: Ask a team member to bring the oxygen kit. Ask another team member to activate the emergency action plan. Complete a neurological assessment. When oxygen arrives, provide oxygen with the demand valve.

Instructor: The neurological assessment reveals noticeable weakness in one leg and mild weakness in the other leg. The diver seems to be having difficulty activating the demand valve while breathing.

Student: Switch the diver to a non-rebreather mask adjusting the flow rate to meet the diver's needs.

Instructor: The diver states they are feeling better and is now collapsing the bag on the non-rebreather mask.

Student: Turn the flow rate up (if not already done) or switch back to the demand valve.

Instructor: Post scenario review -

In what position would you place the injured diver?

At what flow rate would you start the non-rebreather mask?

How long should the diver remain on oxygen?

DAN DFA Pro V3.0 Final Assessment



The following questions have only one correct answer.

Duty of Care and Emotional Stress

1. A first-aid responder
 - a. has a legal obligation to provide care
 - b. must act within the scope of their training
 - c. may have an obligation to notify authorities that someone is in need of assistance
 - d. b and c only
2. A rescuer should always ask permission before providing care
 - a. True
 - b. False
3. Anxiety during an emergency is a normal reaction
 - a. True
 - b. False

Basic Sciences

4. The circulatory system is comprised of
 - a. heart, lungs, nerves
 - b. lungs, stomach, liver
 - c. arteries, veins, heart
 - d. all of the above
5. The respiratory system provides for gas exchange in the body
 - a. True
 - b. False
6. Hypoxia is a condition of low oxygen supply in the body
 - a. True
 - b. False
7. Gas exchange takes place at the:
 - a. Trachea and intrapulmonary bronchi
 - b. long bone joints
 - c. alveolar-capillary membrane
 - d. muscle-nerve junctions
8. The brain, spinal cord and nerves make up the:
 - a. circulatory system
 - b. respiratory system
 - c. nervous system
 - d. skeletal system

9. The atmosphere is composed of what percent of oxygen, nitrogen and inert gases?
 - a. 21% O₂, 78% N₂, 1% inert gases
 - b. 15% O₂, 65% N₂, 20% inert gases
 - c. 25% O₂, 74% N₂, 1% inert gases
 - d. 33% O₂, 33% N₂, 34% inert gases
10. The primary cause for decompression sickness (DCS) is:
 - a. dehydration and cold water.
 - b. heavy exertion before diving.
 - c. heavy exertion after diving.
 - d. inert gas bubbles in the body
11. Symptoms of decompression illness may include:
 - a. dizziness/vertigo
 - b. motor weakness
 - c. pain, numbness or tingling
 - d. All of the above.
12. Symptoms of AGE and DCS differ in that:
 - a. DCS symptoms typically occur within 6 hours
 - b. AGE symptoms occur within 15 minutes
 - c. AGE symptoms may be delayed up to 24 hours
 - d. both a and b
13. The primary risk factor for AGE is
 - a. breath hold during ascent
 - b. breath hold during descent
 - c. inert gas bubbles in the body
 - d. all of the above

Dive Emergency Preparation

14. The Bloodborne Pathogens Standard provides for training to assist with understanding of:
 - a. the need for protection from blood borne pathogens
 - b. the options for protection
 - c. what to do if an exposure occurs
 - d. all of the above
15. Personal protective equipment which can help prevent infection while providing care includes:
 - a. gloves
 - b. mask or face shield for CPR
 - c. resuscitation mask
 - d. all of the above

16. Diseases which can be transmitted by BBP include:
 - a. Hepatitis B and C
 - b. Influenza
 - c. HIV
 - d. a and c only
17. If you believe you have been exposed to a BBP, you should schedule an appointment only if symptoms present.
 - a. True
 - b. False
18. An Emergency Action Plan is a vital resource in an emergency.
 - a. True
 - b. False
19. An injured diver should be transported to:
 - a. the nearest hyperbaric facility
 - b. the nearest medical facility
 - c. their personal primary care physician
 - d. any of the above
20. Reasons to move an injured person include:
 - a. imminent danger
 - b. to make providing care easier
 - c. to provide CPR
 - d. a. and c. only

Response and Assessment

21. The mnemonic S-A-F-E is used to:
 - a. protect the rescuer from injury or impairment
 - b. assist with assessing circumstances surrounding the injured person
 - c. remind the rescuer of important equipment and supplies
 - d. all of the above
22. During initial assessment, you should
 - a. identify yourself and your training as a first-aid provider
 - b. tap and shout "are you OK?"
 - c. determine if there is normal breathing (and pulse if trained)
 - d. all of the above
23. Assess for normal breathing
 - a. by scanning the injured diver for movement
 - b. looking for changes in skin color
 - c. while doing a pulse check (if trained to do so)
 - d. all of the above

24. A breathing injured diver who is in danger of vomiting should be placed

- in the supine position (on their back).
- in someone else's boat.
- in the recovery position (on their side with the head supported).
- in a litter and made ready for helicopter evacuation.

25. Stroke symptoms include

- inability to speak or understand
- visual disturbances
- sudden loss of motor function
- all of the above

26. Stroke is the number one cause of long term disability.

- True
- False

27. F-A-S-T stands for

- facts, attitude, sensitivity, talent
- face, arms, speech, time
- feet, arms, spine, toes
- face, ankles, stability, touch

28. F-A-S-T is a quick assessment to determine if a neurological injury is a possibility. If any portion of the assessment shows deficits, EMS should be called immediately

- True
- False

29. Taking a history helps determine if signs and symptoms present may be due to a previous injury or illness.

- True
- False

30. For injuries related to a scuba diving incident, you should document

- all dives for 24 hours before the injury
- symptom onset time
- pre-existing conditions
- all of the above

31. Conducting a neurological assessment may convince an injured diver of the need for oxygen first aid.

- True
- False

32. The neurological assessment should be repeated every _____ minutes, barring evident changes in the individual's condition.

- 15
- 30
- 60
- There is no need to repeat the exam.

33. Neurological symptoms tend to be fixed when they develop and never change until definitive treatment is initiated.

- True
- False

34. Information gathered during a neurological assessment may help the individual's physician understand the extent of the injury and determine how it has changed over time.

- True
- False

Oxygen First Aid in Scuba Diving Injuries

35. The primary reason to provide the highest concentration of oxygen possible is to speed inert gas washout/removal and to slow symptom progression.

- True
- False

36. The percentage of oxygen delivered when using a demand valve is influenced by

- flow rate
- mask fit
- mask seal
- both b and c

37. A diver with suspected decompression illness may benefit from breathing 100 percent inspired oxygen before medical treatment because

- symptoms may be relieved and results of recompression treatment may be enhanced
- it may make recompression treatment unnecessary
- oxygen stimulates breathing
- all of the above

38. When choosing an oxygen cylinder for use in a diving emergency, what should you consider?

- type of oxygen delivery device or mask
- cylinder capacity
- time and distance to the next level of emergency response
- all of the above

39. When faced with a fellow diver who presents with symptoms that might be related to DCI, the correct course of action may include

- placing them on oxygen
- alerting EMS first then calling DAN
- getting the diver to a medical facility
- all of the above

40. The dive boat is ninety minutes from shore and your emergency oxygen unit has a single full oxygen cylinder that will only last one hour. When providing oxygen first aid to a breathing injured diver with suspected DCI, you should use the

- demand inhalator valve continuously for as long as the oxygen supply lasts
- non-rebreather mask at a reduced flow rate so that the oxygen will last
- oronasal resuscitation mask at a minimum continuous flow rate of 10 lpm
- demand inhalator valve only until the injured diver feels better

41. In a diving incident, it is not necessary to distinguish between decompression sickness and arterial gas embolism.

- True
- False.

42. The delivery system that delivers the highest possible concentration of inspired oxygen to a breathing injured diver is the

- nasal cannula
- oronasal resuscitation mask with supplemental oxygen
- non-rebreather mask
- demand inhalator valve and mask

43. Oxygen cylinders should be switched during care when the pressure drops below 200 psi if another cylinder is available.

- True
- False

Cardiopulmonary Resuscitation

44. The goal of CPR is to maintain adequate circulation of oxygenated blood to vital organs.
 - a. True
 - b. False
45. Chest compressions temporarily take over the function of the heart.
 - a. True
 - b. False
46. The sequence for CPR is CAB. This stands for
 - a. circulation, airway, breathing
 - b. call for help, assess, back away
 - c. carry to a safe place, activate EMS, begin compression
 - d. cardiac defibrillation, activate emergency action plan, begin compression
47. The first link in the chain of survival is
 - a. rapid initiation of CPR
 - b. rapid activation of EMS
 - c. post cardiac arrest care
 - d. advanced life support
48. Warning signs of a heart attack include
 - a. heavy pressure in chest, arm and neck pain
 - b. sudden rash, indigestion, heartburn
 - c. nausea, vomiting, sweating
 - d. a and c
49. Activate EMS
 - a. immediately for an adult if you are alone
 - b. after 2 minutes of CPR for children and drowning victims
 - c. after 10 minutes of CPR regardless of age
 - d. a and b
50. Rapid initiation of CPR is not necessary for most individuals. Wait for a response by EMS before taking action.
 - a. True
 - b. False
51. Once CPR has been initiated, any interruptions to chest compressions should be limited to
 - a. less than 10 seconds
 - b. 10-15 seconds
 - c. 20-25 seconds
 - d. 30-35 seconds

52. What is the recommended rate per minute for chest compressions?

- as fast as you can push
- 100-120
- 70-80
- 150-180

53. Chest compressions on an adult should be delivered to a depth of

- 1 1/2 -2" (3-3.5 cm)
- 2-2 1/2" (5-6 cm)
- 3-3 1/2" (7.5-8 cm)
- Depth is not important as long as compressions are being done.

54. If chest compressions are too fast

- the heart cannot adequately refill with blood
- blood flow to vital organs is decreased
- rescuer fatigue occurs more quickly
- all of the above

55. Chest compressions-to-ventilations ratio for two-person CPR on an adult is 30:2.

- True
- False

56. Chest compressions on a child can be performed with one or two hands depending on the

- age of the child
- size of the child
- presence of a parent or guardian
- presence of a second rescuer

57. Infant compressions are performed

- to 1/3 of the infant's chest depth
- at a rate of 100-120 compressions per minute
- only as a two rescuer team
- a and b

58. The compressions to ventilation ratio for two-person CPR on children and infants changes to 15:2.

- True
- False

59. What is the most effective way to open the airway for rescue breathing?

- Keep the head still and open the mouth.
- Tilt the head back while lifting the chin.
- Tilt the head back while flexing the neck with your hand.
- They all work just fine.

60. Most barrier devices are ineffective for delivering rescue ventilations and should not be used.

- True
- False

61. Rescue breaths should be given for about _____ second(s) using a _____ breath to make the chest rise.

- 2, deep
- 1, normal
- 1, deep
- 2, normal

62. The volume of rescue breaths on a child should be adjusted down.

- True
- False

63. Opening an infant's airway only requires a gentle tip of the infant's head for rescue breathing.

- True
- False

64. Ventilations for an infant require

- half the time as ventilation for an adult
- a much smaller volume of air than for adults or children
- whatever it takes to be effective
- none of the above

65. If you are alone when providing care for a drowning victim

- Perform CPR using the A-B-C protocol for two minutes then call EMS.
- Call EMS then wait for their support.
- Use the same protocols as with any unresponsive person.
- Perform CPR for one minute then reassess the person.

66. A BVM can also be used to ventilate an inadequately breathing diver.

- True
- False

67. Before using an MTV, its function should be checked by

- breathing from the mask
- setting the constant flow to 10 lpm
- testing the safety shut off against the palm of your hand
- priming the unit with several breaths

68. With either the BVM or MTV, two rescuers are required for effectively ventilations.

- True
- False

69. The chance of survival in cardiac arrest can decrease by _____ for each minute defibrillation is not available.

- 50%
- 15-20%
- 7-10%
- 25%

70. In a circumstance where CPR has been ongoing and an AED becomes available after four minutes of care, when should you use the AED?

- Immediately - apply pads and follow AED prompts.
- Continue with CPR until the two minute cycle is up and then apply AED.
- Wait a little while and see if CPR alone is sufficient.
- There is no point. It has been too long.

71. You apply an AED and it advises to deliver a shock. What step is the most appropriate after pressing the shock button?

- Turn off the AED so it will not interfere with CPR.
- Check for breathing.
- Immediately resume CPR beginning with compressions.
- Place in recovery position.

72. If a choking victim loses consciousness you should

- begin CPR
- activate EMS if not already done
- try to remove objects from throat you cannot see
- a and b only

73. What are differences between a mild and severe airway obstruction in choking?

- Mild obstruction means the person can effectively cough and should be encouraged to do so.
- Severe obstruction means the person cannot effectively cough or speak and first-aid intervention must be provided.
- It does not matter if the choking is mild or severe.
- a & b only

Secondary Care

74. What is not part of a secondary assessment?

- S-A-M-P-L-E
- head to toe physical exam
- ongoing assessment including any changes to initial assessment
- moving the person to a more comfortable location

75. Heat stroke requires
 - a. cool drinks and rest
 - b. aggressive intervention and cooling
 - c. lots of water with salt mixed in
 - d. moving the person to an air conditioned room and see how they do
76. An individual who has become severely hypothermic is at risk for cardiac arrest if not handled gently.
 - a. True
 - b. False
77. When splinting a possible fracture or dislocation, you should
 - a. manipulate the injury site to a normal position
 - b. apply a very tight fitting splint so no movement is possible
 - c. splint in the position found and only if medical care is not readily available
 - d. apply heat packs and then splint on top of them
78. Splints should be applied so they:
 - a. restrict movements of the joints above and below the injury
 - b. restrict the circulation of blood to the affected limb
 - c. amputate the injured limb
 - d. do not need padding for comfort around the site of the injury

First Aid for Hazardous Marine Life Injuries

79. The general categories of marine life injuries are
 - a. envenomations
 - b. traumatic injuries
 - c. seafood poisonings
 - d. all of the above
80. An envenomation is a process by which venom or toxin is injected into another creature.
 - a. True
 - b. False
81. Marine animal bites are usually the result of
 - a. hungry animals
 - b. defensive action by the animal
 - c. humans feeding marine life
 - d. b and c
82. Envenomations occur by means of
 - a. spoiled food or bacteria
 - b. improperly stored food
 - c. stings, spines, bites, barbs
 - d. b and c

83. The severity of envenomations is impacted by

- potency and volume of toxin injected
- time and storage method since the marine animal was caught
- an individual's health status and sensitivity to the venom
- a and c

84. First aid for injuries from venomous fish starts with

- applying a dressing and bandage to control bleeding
- applying topical ointments
- washing the area thoroughly
- pain control measures

85. Pressure Immobilization Technique is recommended for which of the following types of injuries?

- lionfish stings, sea urchin punctures and bristle worm contact
- cone snail, sea snake, blue-ring octopus bites
- bites from triggerfish, moray eels and grouper
- bluebottle jellyfish, sea stars and fire coral

86. In general, jellyfish stings should be treated using which of the following sequences?

- treat symptoms, remove tentacles, soak affected area in hot water
- remove tentacles, rinse with vinegar, and manage pain
- inactivate nematocysts, remove tentacles, wash area, manage pain
- manage pain, remove tentacles, and inactivate nematocysts

87. Which is the initial step in first-aid treatment of contact injuries?

- control bleeding
- wash the area with soap and water
- getting the injured individual to an emergency room
- none of the above

88. Irukandji syndrome presents initially as moderate pain, but

- symptoms show a clear progression and get worse
- can move on to cardiovascular symptoms
- is rarely fatal but medical support should be pursued
- all of the above

89. Marine animal bites are of particular concern due to the resulting high volume of blood loss.

- True
- False

90. Bites from marine animals should be followed up with a medical evaluation because a tetanus booster may be indicated.

- True
- False

91. Control of external bleeding begins with the use of direct pressure.
 - a. True
 - b. False
92. Signs of infection include
 - a. pain, redness and swelling
 - b. loss of function and increased heat in the affected area
 - c. tissue blanching and poor circulation
 - d. a and b
93. Symptoms of a life threatening allergic reaction include
 - a. raised, itching rash
 - b. pus and foul smell
 - c. airway narrowing and difficulty breathing
 - d. none of the above
94. Emergency medical services should be called if you suspect a severe allergic reaction.
 - a. Yes, call immediately.
 - b. No, wait to see if the symptoms get better.
 - c. It depends on what triggered the reaction.
 - d. Most allergies are seasonal and will go away on their own.
95. Which of the following are medical emergencies necessitating immediately calling emergency medical services?
 - a. sudden, itchy hives; rashes that do not respond to topical ointments
 - b. accidental contact with fire coral; minor cuts and scrapes
 - c. anaphylactic shock, cardiogenic shock, hypovolemic shock
 - d. all of the above
96. Which statement best describes shock?
 - a. life threatening condition
 - b. inadequate circulation/oxygenation to tissues
 - c. emergency requiring immediate first aid
 - d. all of the above
97. Which is not a common sign/ symptom of shock?
 - a. cool, sweaty skin
 - b. rapid and weak pulse
 - c. weakness or feeling faint
 - d. hyperactivity
98. Seafood poisoning is the result of
 - a. toxins stored in skin and muscles of seafood
 - b. bacteria, parasites, viruses or toxins
 - c. spoilage from improper storage
 - d. all of the above

99. Many contaminants that cause seafood poisoning can be eliminated by thorough cooking.

- True
- False

100. Dive practices that can help you prevent injuries from marine life include

- practicing good buoyancy control and streamlining your equipment
- having situational awareness as you dive and looking up and around as you ascend
- shuffling your feet when entering the water from shore and wearing appropriate exposure protection for environmental risks
- all of the above

Diving First Aid for Professional Divers V3.0

Final Assessment Key

Final assessment may be administered in written or oral form. Each question must be reviewed with each student so that 100 percent comprehension of materials is assured. Questions have only one correct answer.

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D		
Duty of Care & Emotional Response																					
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Diving First Aid for Professional Divers

Final Assessment

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Duty of Care & Emotional Response					Response & Assessment					Cardiopulmonary Resuscitation					Secondary Care				
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14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Oxygen First Aid in Scuba Diving Injuries				58	T	<input type="checkbox"/>	F	<input type="checkbox"/>	86	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35	T	<input type="checkbox"/>	F	<input type="checkbox"/>	59	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	87	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	60	T	<input type="checkbox"/>	F	<input type="checkbox"/>	88	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	T	<input type="checkbox"/>	F	<input type="checkbox"/>	37	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	89	T	<input type="checkbox"/>	F	<input type="checkbox"/>
18	T	<input type="checkbox"/>	F	<input type="checkbox"/>	38	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	62	T	<input type="checkbox"/>	F	<input type="checkbox"/>	90	T	<input type="checkbox"/>	F	<input type="checkbox"/>
19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	39	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	63	T	<input type="checkbox"/>	F	<input type="checkbox"/>	91	T	<input type="checkbox"/>	F	<input type="checkbox"/>
20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	64	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	92	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					41	T	<input type="checkbox"/>	F	<input type="checkbox"/>	65	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	93	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					42	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	66	T	<input type="checkbox"/>	F	<input type="checkbox"/>	94	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
					43	T	<input type="checkbox"/>	F	<input type="checkbox"/>	67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	95	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
										68	T	<input type="checkbox"/>	F	<input type="checkbox"/>	96	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
										69	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	97	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
										70	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	98	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
										71	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	99	T	<input type="checkbox"/>	F	<input type="checkbox"/>
										72	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
										73	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

I have reviewed this examination with the course instructor. I understand the correct response as indicated by my initials. Any questions regarding this examination and the contents of this course have been answered to my satisfaction.

Student signature

Date

Quick Reference Chart

1. Student completion of *Diving First Aid for Professional Divers* eLearning module before attending class.
2. Introductions and Registration (if not completed previously)
 - a. Course registration forms
 - b. Statement of Understanding
3. Review Question Discussions and Skill Development
 - a. Integrate review questions and skills by module
4. Final Assessment and Review
5. Approve successful course participants via the eLearning platform under *My Students*.
6. Remind students to download their completion card through their eLearning account when they receive their email notification and to complete the online feedback survey (link included in email).
7. Provide additional time for knowledge and skill remediation for individuals who require additional practice.

U.S. Coast Guard Approved

Course Delivery

SUPPLEMENTAL REFERENCES

for

Divers Alert Network

Diving First Aid for
Professional Divers
(DFA Pro) V3.0

DIVING FIRST FOR PROFESSIONAL DIVERS

Part A

Course Framework

SCOPE

The *DAN Diving First Aid for Professional Divers* (DFA Pro) program is designed to teach the knowledge and skills needed to provide the range of care that may be required for divers in an occupational dive setting. It includes background sciences, emergency preparation planning, scene safety assessment as well as assessment of the injured/ill individual. The program covers CPR and use of AEDs plus oxygen and first-aid skills. All components of the program were developed to meet the ILCOR/AHA 2015 Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiac Care. The content of this course addresses the requirements of 46 CFR 11.302ff, 46 CFR 12.602ff and 46 CFR 11.201ff and STCW A-VI/1-3 endorsements.

OBJECTIVE

Upon successful completion of the *DAN DFA Pro* curriculum, course participants will be able to prepare emergency action plans in cooperation with their agency management, conduct primary and secondary assessments, deliver CPR and utilize AEDs during care, manage obstructed airways, respond to dive injuries, provide basic first-aid care for injuries and medical conditions, and implement preventive measures.

ENTRY STANDARDS

There are no prerequisites for participation in this program unless required by local jurisdiction or company policy.

COURSE LIMITATIONS

Classroom ratios are flexible based on student needs and the instructor's ability to control lecture activities. Skill sections limit the ratio to 12 students:1 instructor. Skill development and assessment is conducted in teams of three (3). Additional students may be added with the full participation of assistant instructors. Detailed course standards regarding student:instructor ratios are defined in the *DAN Core Instructor Manual v2.1*. (see page 14)

COURSE COMPLETION REQUIREMENTS

Student must pass both a written exam with a minimum of 80% correct as well as meet performance objectives as noted on each skill. Final skill scenarios which incorporate multiple skills to reflect actual emergencies are completed in teams. All course requirement documentation is kept on file by individual instructors. Course rosters and evaluation forms are maintained at DAN headquarters in Durham, NC.

COURSE COMPLETION CERTIFICATE

Each student who successfully completes the course requirements will be issued a certificate of completion. The wall certificate will include the student's name and course date. The certificate will also include the course name as approved by the USCG, the approval granted by the USCG plus the USCG approved course code. No certificate of completion will be issued until all course requirements have been met.

Digital completion cards are issued upon receipt of the final course roster. Cards are printable to meet hard copy needs.

RETEST POLICY

A minimum score of 80% (80 questions correct) or above is required on the final written assessment.

- The instructor must review any missed questions on the examination or any information that is unclear with each participant to ensure 100 percent understanding of the material.
- If the student scores less than 80%, remediation must take place and the test re-administered.

Skill development will continue until performance requirements can be independently met. Instructors are encouraged to provide constructive correction and positive reinforcement during practice sessions to minimize the need for repeated testing.

COURSE DOCUMENTATION

DAN standards require record retention for 7 years, or longer if required by their local jurisdiction. 46 CFR 10.403(a)(6) requires retention of course records for at least 5 years. The DAN standards exceed this requirement. Course instructors must keep in their student files the following items:

- Student Registration and Statement of Understanding
- All student skill assessment results and final assessment scores.
- Copies of retests and/or additional evaluations
- A record of class attendance
- The number of students who started each course
- The number of students who successfully completed the course
- The number of students who were required to retest
- The number of students who were required to retake the entire course
- The number of students who were required to retake a portion of the course

All items on this list will be made available to DAN Training upon request without delay.

DAN Training Office in Durham, NC will maintain

- A copy of each student's course completion certificate
- Summary of course changes or modifications since last submission
- Course Rosters with DAN instructor name and number, names of all assistant instructors utilized for each specific course, location where the course was presented.

STAFF REQUIREMENTS

All DAN Instructors are required to complete both DAN Instructor Qualification Course administrative modules, Core Part 1 (available via eLearning) and Core Part 2 (conducted in class during the Instructor Qualification Course) as well as the course specific module for DFA Pro before they can be credentialed to offer the program. Teaching activity requirements are outlined in the **DAN Core Instructor Manual v2.1.** (see page 11) Each instructor application documents the modules completed and are verified through our eLearning module and student monitoring/course participant approval system.

FACILITIES AND EQUIPMENT

This course will be conducted at various sites around the United States and Canada as noted in other portions of this packet.

All lectures are to be presented in an appropriate classroom setting. Skills are to be conducted in a setting conducive to floor space needs and provide adequate room for course participants to easily engage in training activities.

Equipment standards for conducting all DAN first aid courses are outlined in the **DAN Core Instructor Manual v2.1**. (see page 15) The specific requirements for conducting **DFA Pro** are detailed in the course **Instructor Guide V3.0** (see pages 6-8).

TEACHING AIDS

Required instructor materials:

DAN CORE Instructor Manual V3.0

DAN Diving First Aid for Professional Divers Instructor Guide V3.0

Reference copy of student handbook (print or digital format)

Reference copies of the **DAN CPR, First Aid, Emergency Oxygen for Scuba Diving Injuries, Neurological Assessment, and First Aid for Hazardous Marine Life Injuries** Provider Slates (V3.0)

Pencil or other non-permanent/no smear writing implement

Required audiovisual materials:

DAN Diving First Aid for Professional Divers video and provider slides (V3.0)

- Projection equipment adequate to facilitate quality viewing by all course participants

or

DAN Diving First Aid for Professional Divers e-learning module

Required student materials:

DAN Diving First Aid for the Professional Diver Provider Student Handbook

(to be retained by each student in their personal library)

Oronasal resuscitation mask with oxygen inlet (one for each student)

Non-Rebreather mask (one for each student)

DAN Neurological Assessment Slate and pencil (one for each student)

Required equipment and supplies:

DAN oxygen system or equivalent as noted in **DAN Instructor Core Manual General Standards and Procedures**

Adult CPR manikin

Infant manikin

Non-latex medical gloves

MTV &/or BVM (both preferred)

AED Trainer

Manual vacuum pump (MVP)

Bulb suction syringe

Pencils or other non-permanent/no smear writing implements for use with slates

Pen/Pencil and Paper or dive accident management slate

First-aid supplies including dressing and bandaging materials, splints (commercial &/or improvised), tweezers, irrigation device

Commercial tourniquet &/or supplies for an improvised tourniquet

Epinephrine Auto-injector trainer

Recommended equipment:

DAN CPR, First Aid, Emergency Oxygen, Neuro, and HMLI Provider Slates (V3.0)

Moulage supplies to create mock injuries

REFERENCES

Included in the back of the student handbook (p. 227-230)

TEXTBOOKS

Bird N, Nocetto M, Seery P, Smith F. ***DAN Diving First Aid for the Professional Diver Student Handbook***

4th Edition, August 2017

(to be retained by each student in their personal library)

VIDEOS/POWERPOINT PRESENTATIONS

DAN Diving First Aid for Professional Divers video (2 hours) and provider course presentation slides
(v2.1), Divers Alert Network

or

DAN Diving First Aid for Professional Divers eLearning module, Divers Alert Network
This program is by invitation only through DAN authorized instructors.

DIVING FIRST AID FOR PROFESSIONAL DIVERS

Course Outline		(times noted as mm:sec)		
Subject		Lecture	Skill Development	
	Video	PPt & Discussion	Skills	
0.0	Overview	1:23	8:00	
0.1	Duty of Care/Emotional Stress	4:10	5:00	na
1.0	Basic Sciences			
1.1	Respiration & Circulation	1:57	7:00	na
1.2	Nervous System	1:00	5:00	na
1.3	Atmospheric Gases	3:13	3:00	na
1.4	Decompression Illness	6:58	22:00	na
2.0	Emergency Preparation			
2.1	Bloodborne Pathogens	2:00	15:00	na
2.2	Emergency Action Plans	2:00	10:00	na
2.3	Lifting & Moving	4:05	5:00	na
3.0	Response & Assessment			
3.1	Scene Safety/Standard Precautions	3:25	20:00	
3.1a	SKILL Scene Safety Assessment			5:00
3.1b	SKILL Donning and Doffing Gloves			7:00
3.2	Initial Assessment/Position for Care	3:20	6:00	
3.2a	SKILL Initial Assessment			15:00
3.2b	SKILL Recovery Position			10:00
3.3	Neurological Assessment	1:18	18:00	
3.3a	SKILL F-A-S-T Exam			10:00
3.4	Conducting a Neuro Assess	1:24	17:00	
3.4a	SKILL Taking A History			15:00
3.4b	SKILL Vital Signs			15:00
3.5	Four Functional Areas	2:24	15:00	
3.5a	SKILL Mental Function			12:00
3.5b	SKILL Cranial Nerves			10:00
3.5c	SKILL Motor Function			10:00
3.5d	SKILL Coordination and Balance			20:00
4.0	Oxygen First Aid			
4.1	Oxygen & Diving Injuries	2:51	19:00	
4.2	Handling Oxygen Safely	2:38	19:00	na
4.3	Oxygen Delivery Systems & Components	7:11	10:00	
4.3a	SKILL Identification, Disassembly and Reassembly			20:00
4.3b	SKILL Demand Valve			20:00
4.3c	SKILL Non-Rebreather Mask			15:00
5.0	CPR			
5.1	CPR	1:40	12:00	na
5.2	Starting CPR - Compressions	3:36	15:00	
5.2a	SKILL Compressions			30:00
5.3	Continuing CPR - Respirations	4:32	8:00	
5.3a	SKILL Rescue Breathing			20:00
5.3b	SKILL BVM			

5.3c	SKILL MTV			15:00
5.3d	SKILL Full CPR			30:00
5.4	Use of AEDs	5:16	12:00	
5.4a	SKILL Use of AED			30:00
5.5	Foreign Body Airway Obstruction	5:16	10:00	
5.5a	SKILL FBAO			10:00
5.5b	SKILL Suctioning			12:00
6.0	Secondary Care			
6.1	General Assessment & Med. Emerg.	8:44	15:00	na
6.2	Temperature Related Injuries	3:33	8:00	na
6.3	Slips,Falls,Fractures	6:32	15:00	na
6.4	Burns	4:14	3:00	na
6.3a	SKILL Secondary Assessment			20:00
6.3b	SKILL Splinting			20:00
7.0	First Aid for HMLI			
7.1	Introduction	0:50	2:00	na
7.2	Envenomation I: Vertebrates	5:15	14:00	na
7.3	Envenomation II: Invertebrates		18:00	
7.3a	SKILL Injury Management			20:00
7.3b	SKILL Pressure Immobilization			45:00
7.4	Traumatic Injuries	1:24	5:00	
7.4a	SKILL Control of External Bleeding			10:00
7.4b	SKILL Applying a Tourniquet			10:00
7.5	Seafood Poisoning	3:10	5:00	na
7.6	Life Threatening Complications	1:24	5:00	
7.6a	SKILL Severe Allergic Reaction			7:00
7.6b	SKILL Shock Management			7:00
7.7	Avoiding HMLI	4:33	5:00	na
8	Course Summary			
8.1	SKILL Final Scenarios (3)			30:00
		2 hours	6.25 hours	8.5 hours
			8+ hours	8+ hours

* Skill time allotment is based on multiple groups of 3 working concurrently
(12 individuals/4 groups max)

DIVING FIRST AID FOR PROFESSIONAL DIVERS

Course Schedule

(In class delivery of knowledge option)

Day 1	8:00 - 9:10 AM	Course Overview & Intro	9:20 - 10:15 AM	Emergency Preparation	10:15 - 11:15 AM	Response & Assessment
Morning	Duty of Care/ Emotional Stress Basic Sciences Respiration & Circulation Nervous System Atmospheric Gases Decompression Illness	Bloodborne Pathogens Emergency Action Plans Lifting & Moving	Scene Safety Assessment Initial Assessment/Position for Care	Scene Safety Assessment SKILL Donning and Doffing Gloves SKILL Initial Assessment SKILL Recovery Position		
Lunch	11:15-12:15					
Afternoon	12:15 - 2:45 PM	Response & Assessment (Cont)	3:00 - 5:00 PM	Oxygen First Aid		
	Neurological Assessment Conducting a Neuro Assess Four Functional Areas	SKILL F-A-S-T Exam SKILL Taking A History SKILL Vital Signs SKILL Mental Function SKILL Cranial Nerves SKILL Motor Function SKILL Coordination and Balance	Oxygen & Diving Injuries Handling Oxygen Safely Oxygen Delivery Systems	SKILL ID, Disassembly & Reassembly SKILL Demand Valve SKILL Non-Rebreather Mask		
Day 2	8:00 - 12:00 Noon					
Morning	CPR Starting CPR - Compressions Continuing CPR - Respirations Use of AEDs Foreign Body Airway Obstruction	SKILL Compressions SKILL Rescue Breathing SKILL BVM SKILL MTV SKILL Full CPR SKILL Use of AED SKILL FBAO SKILL Suctioning				
Lunch	12:00 Noon - 12:45 PM					

Day	Time	Content	Skills
Day 1	8:00 - 9:00 AM	Introduction to HML	Introduction to HML
Day 1	9:00 - 10:30 AM	Assessments & Medical Emergencies	Introduction to HML
Day 1	10:30 AM - 12 Noon	Review/Remediation	Introduction to HML
Afternoon	12:45 - 2:30 PM	Secondary Care General Assessments & Medical Emergencies Temperature Related Injuries Slips,Falls,Fractures Burns	SKILL Secondary Assessment SKILL Splinting
Afternoon	2:40 - 5:30 PM	First Aid for HML Introduction Envenomation I Envenomation II SKILL Traumatic Injuries Seafood Poisoning Life Threatening Complications Avoiding HML Course Summary	SKILL Injury Management SKILL Pressure Immobilization SKILL Control of External Bleeding SKILL Applying a Tourniquet SKILL Severe Allergic Reaction SKILL Shock Management

DIVING FIRST AID FOR PROFESSIONAL DIVERS

Course Schedule (Online knowledge development option, completed before arrival)

	8:00 -8:30 AM	9:20 - 10:15 AM	10:30 - 12:15PM
Day 1	Course Overview & Intro	Knowledge Reviews for: Response & Assessment	Knowledge Reviews for: Response & Assessment (Cont)
Morning	Knowledge Reviews for: Duty of Care/ Emotional Stress Basic Sciences Respiration & Circulation Nervous System Atmospheric Gases Decompression Illness Emergency Preparation Bloodborne Pathogens EAPs Lifting & Moving	Scene Safety SKILL Scene Safety Assessment Initial Assess SKILL Initial Assessment SKILL Recovery Position	SKILL F-A-S-T Exam SKILL Taking A History SKILL Vital Signs SKILL Mental Function SKILL Cranial Nerves SKILL Motor Function SKILL Coord & Balance
	Lunch	12:15-1:00	
Afternoon	1:00 - 2:10 PM	2:30 - 5:30 PM	Knowledge Reviews for: CPR
	Knowledge Reviews for: Oxygen First Aid	Oxygen & Diving Injuries Handling Oxygen Safely Oxygen Delivery Systems	SKILL Compressions SKILL Rescue Breathing SKILL BVM SKILL MTV SKILL Full CPR
		SKILL ID, Disassembly & Reassembly SKILL Demand Valve SKILL Non-Rebreather Mask	Knowledge Reviews for: Use of AEDs Foreign Body Airway Obstruction SKILL Suctioning

Day 2	8:00 - 9:00 AM	9:15 - 11:15 PM	11:30-12:00 Noon
Morning	Knowledge Reviews for: Secondary Care General Assessments & Medical Emergencies Temperature Related injuries Slips,Falls,Fractures Burns SKILL Secondary Assessment SKILL Splinting	Knowledge Reviews for: First Aid for HMLI Introduction Envenomation I Envenomation II SKILL Injury Management SKILL Pressure Immobilization Traumatic Injuri SKILL Control of External Bleeding SKILL Applying a Tourniquet Seafood Poisoning Life Threatening SKILL Severe Allergic Reaction SKILL Shock Management Avoiding HML Course Summary	Final Scenarios
Lunch	12:00 Noon - 12:45 PM		
Afternoon	12:45 - 2:30 PM	3:00 - 5:00 PM	Review/Remediation
	Written Assessment		

Diving First Aid for Professional Divers

<u>Lesson</u>	<u>Detailed Teaching Syllabus</u>	<u>Teaching Aids, Videos</u>
0.0: Overview & Introduction		
	References/Textbooks	
	T1: Student Handbook Chapter 1 R1:2015 Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care R2:OSHA Guidelines (29 CFR)	Video 1 – Introduction PowerPoint slides 1-3
Lesson	References/Textbooks	Teaching Aids, Videos
0.1 Duty of Care/Emotional Response	T1: Student Handbook Chapter 2	Video 2 – Duty of Care, Emotional Stress, Fear of Doing Something Wrong
	0.11 Define Duty of Care and its application to the first aid provider.	PP Slides 5-7
	0.12 Describe why it is important to ask permission before rendering care.	
	0.13 List the options to aid a rescuer in dealing with emotional stress.	
Lesson	References/Textbooks	Teaching Aids, Videos
1.0 Basic Sciences		
	T1: Student Handbook Chapter 3 Part 1	Video 3 –Respiration and Circulation
	1.11 Define hypoxia.	PP Slides 8-10
	1.12 Describe the role of oxygen in sustaining life.	
	1.13 Identify the body structures involved with gas exchange in the body.	
	1.14 List the body structures in the respiratory system.	
	1.15 List the body structures in the cardiovascular system.	
Lesson	References/Textbooks	Teaching Aids, Videos
1.2 Nervous System	T1: Student Handbook Chapter 3 Part 2	Video 4 – Nervous System
	1.21 Identify the primary components of the nervous system.	PP Slides 11-12
	1.22 Identify the functional unit of the nervous system.	
	1.23 List possible causes of interruptions along neural pathways.	

Lesson	References/Textbooks	Teaching Aids, Videos
1.3 Atmospheric Gases	T1: Student Handbook Chapter 4	Video 5 – Atmospheric Gases PP Slides 13-14
1.3.1 Describe the physical characteristics of oxygen (O ₂) 1.3.2 Identify the percentage of oxygen in both inhaled and exhaled air as we breathe. 1.3.3 Describe how oxygen is transported to body tissues. 1.3.4 Describe carbon dioxide and how is it eliminated from the body. 1.3.5 Describe the physiological nature of nitrogen gas in the human body. 1.3.6 Describe how carbon monoxide interferes with oxygen uptake and how it can be dangerous in breathing gases for use under pressure.	1.4 Decompression Illness 1.4.1 Identify the initial actions in responding to diving accidents. 1.4.2 Identify the two processes encompassed under decompression illness (DCI). 1.4.3 Identify the primary cause of decompression sickness (DCS). 1.4.4 List the primary symptoms of DCS 1.4.5 Describe arterial gas embolism (AGE). 1.4.6 Identify the primary risk factor for AGE. 1.4.7 List the reasons medical evaluation should be sought when DCI is suspected. 1.4.8 Identify the most prevalent symptoms of DCI.	References/Textbooks T1: Student Handbook Chapter 5 R3: Vann RD, Butler FK, Mitchell SJ, Moon RE. Decompression Illness. <i>Lancet</i> 2010;377. R4: Pollock, NW, ed. <i>Annual Diving Report</i> 2008 edition Durham, NC : Divers Alert Network, 2008. R5: Vann et al. <i>Proceedings of the 24th Symposium</i> . AAUS ISBN #1-878301-10-1;2005:171-7. R6: Comroe JH Jr, Dripps RD, Dumke PR, Deming M. "Oxygen toxicity: The effect of inhalation of high concentrations of oxygen for twenty-four hours on normal men at sea level and at a simulated altitude of 18,000 feet," <i>JAMA</i> 128:710-717, 1945. R7: Clark JM, Jackson RM, Lambertson CJ, Gelfland R, et al. Effects of prolonged oxygen exposure at 1.5, 2.0, or 2.5 ATA on pulmonary function in men (Predictive Studies V)," <i>J Appl Physiol</i> 86:243-259, 1999. R8: Clark JM, Jackson RM, Lambertson CJ, et al. "Pulmonary function in men after oxygen breathing at 3.0 ATA for 3.5h," <i>J Appl Physiol</i> 71:878-885, 1991.

<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
2.0 Emergency Preparation		
2.1 Bloodborne Pathogens		
2.11 Describe the purpose of the OSHA Blood Borne Pathogen Standard.	T1: Student Handbook Chapter 6 R9: World Health Organization, updated 2016, http://www.who.int/mediacentre/factsheet/fs204/en/index.html	Video 7 – Bloodborne Pathogens PP Slides 23-34
2.12 List the four things that must be present for disease transmission to occur.	R10: World Health Organization 2002, http://www.who.int/csr/disease/hepatitis/whocdssriyo2003/en/index/html	
2.13 List strategies to prevent disease transmission.	R11: PubMed Health. http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001329/	
2.14 List the steps you should take if you think you may have been exposed to a blood borne pathogen.	R2: OSHA Guidelines (29 CFR)	
2.15 Define zoonosis.		
2.16 Identify the specific requirement for diving in contaminated water.		
Lesson	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
2.2 Emergency Action Plans (EAP)		
2.21 List the elements included in an Emergency Action Plan.	T1: Student Handbook Chapter 7 R2: OSHA Guidelines (29 CFR)	Video 8 – Emergency Action Plans PP Slides 35-38
2.22 Describe why transport to a medical facility instead of a hyperbaric chamber the best course of action in a dive emergency.		
2.23 List the emergency equipment that should be readily available as part of an emergency action plan.		
Lesson	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
2.3 Lifting and Moving		
2.31 List the general considerations for a rescuer when attempting to move a patient.	T1: Student Handbook chapter 8	Video 9 – Lifting and Moving PP slides 39-41
2.32 Describe circumstances under which a patient should be moved.		

Lesson
References/Textbooks
Teaching Aids, Videos**3.0 Response and Assessment****3.1 Scene Safety Assessment**

3.1.1 Describe the elements of S-A-F-E.

3.1.2 Identify hazards that may need to be assessed before attempting to provide first aid.

3.1.3 Describe the role of exposure protection for rescuers.

3.1.4 List four examples of personal exposure protection equipment.

3.1a(1) List the four steps in performing a scene safety assessment.

3.1a(2) Perform a scene safety assessment in a scenario.

3.1a(3) Use appropriate first aid barrier devices in a scenario.

3.1b(1) Demonstrate donning of gloves without tearing or compromising the glove integrity.

3.1b(2) Demonstrate removal of gloves without contaminating exposed skin.

Lesson**3.2 Initial Assessment & Position for Care**

3.2.1 List the three primary steps in the assessment sequence.

3.2.2 Describe the technique that assists a rescuer in placing an unresponsive person on their back.

3.2.3 Describe agonal breathing.

3.2.4 Describe when the recovery position should be used.

3.2.5 Describe when the recovery position should not be used.

3.2a(1) Demonstrate the technique for establishing unresponsiveness in an adult or child.

3.2a(2) Demonstrate the technique for establishing unresponsiveness in an infant.

3.2a(3) Demonstrate the technique for determining the presence of a pulse in an adult or child. 3.2a(4) Demonstrate technique for determining the presence of a pulse in an infant.

3.2b Demonstrate rolling a patient from his back into the recovery position, keeping the spine aligned.

Lesson
References/Textbooks
Teaching Aids, VideosT1: Student Handbook Chapter 9
R1: 2015 Guidelines Update forCardiopulmonary Resuscitation
and Emergency Cardiovascular Care
`Shaving/Whipping CreamPP Slides 42-45
Non-Latex Gloves

Video 10 – Scene Safety/Uni. Prec.

Lesson
References/Textbooks
Teaching Aids, VideosVideo 11 – Init. Assess./Positg. Care
PP Slides 46-50

non-latex gloves

Oronasal Resuscitation Mask

<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
3.3 Neurological Assessment		
3.31 Describe the action that can help prevent permanent disability.	T1: Student Handbook Chapter 11 R12: Roger V. et al. (2011) Heart disease and stroke PP Slides 51-54	Video 12 – Neurological Assessment
3.32 Describe the assessments of a F-A-S-T exam.	Statistics – 2011 update: A report from the Chair American Heart Association. <i>Circulation</i> (New York, NY), 123(4), 318-e209.	
3.3a(1) Conduct a F-A-S-T assessment on a simulated patient suspected of having a neurological impairment.		
3.4 Conducting a Neurological Assess	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
3.41 Describe why collecting a patient's history can be essential to the assessment.	T1: Student Handbook Chapter 12	Video 13 – Conduct a Neuro Assess PP Slides 55-57
3.42 List and describe the mnemonic elements that assist in taking an injured diver's history.		Pencil/Paper or Neuro Assess, slate
3.4a(1) Interview a patient in a simulated scenario using the S-A-M-P-L-E mnemonic to identify previous medical history and determine where he might have acute problems or feel discomfort. Record findings in a usable format.		
3.4b(1) Demonstrate proper technique to determine a person's pulse rate and breaths per minute by counting each for 30 seconds then multiply by two.		
3.5 Four Functional Areas of a Neuro Assess	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
3.51 List the four functional areas of a Neurological Assessment.	T1: Student Handbook Chapter 13 R13: https://lane.stanford.edu/portals/cvicut/HCP_Neuro_Tab_4/Neuro_Assessment.pdf	Video 14 – the Four Funct. Areas... PP Slides 58-63
3.52 Describe how the “cranial nerves” are evaluated in a neurological assessment.	http://meded.ucsd.edu/clinicalmed/pe_neuroexam.pdf	DAN Neurological Assessment Slides Pencil/Non-smear writing implement
3.53 List the tasks used to evaluate “mental function” in the neurological assessment.		
3.54 List the designations used for motor function assessment.		
3.55 List in sequence of application the balance and coordination evaluations.		
3.5a(1) Determine an individual's level of consciousness in a scenario with a simulated injury.		
3.5a(1) Utilizing interview techniques, assess an individual's		
(a) speech and language abilities		
(b) orientation to person, place, date and time, and event		

(c) short-term memory

3.5b(1) Assess an individual's ability to do calculations utilizing a standardized protocol.

3.5b(2) Assess control of eyes and facial muscles using standardized commands.

3.5b(3) Assess an individual's ability to hear by rubbing or snapping fingers 1 foot/30 cm from the ear.

3.5c(1) Assess strength of muscle groups using muscle isolation and resistance.

3.5d(1) Assess an individual's coordination with a finger-nose-finger exercise

3.5d(2) Determine presence of functional balance using a straight walk and a Romberg test.

References/Textbooks

Teaching Aids, Videos

Lesson

4.0 Oxygen First Aid

4.1 Oxygen and Diving Injuries

4.11 List four benefits of providing a high concentration of oxygen to an injured diver.

4.12 List the two actions of oxygen partial gas gradient that aid in diving injuries.

4.13 Describe the primary goal of emergency oxygen for injured divers.

4.14 List the two critical factors that impact the percentage of oxygen delivery when using a demand valve.

4.15 Identify the initial flow rate for constant-flow oxygen delivery systems.

4.16 Describe the priority for oxygen delivery in remote areas.

4.17 Describe the circumstances where there may be concerns about oxygen toxicity.

4.18 List five symptoms of nonfatal drowning.

4.19 List the three actions of a first responder in a nonfatal drowning.

Lesson

4.2 Handling Oxygen Safely

4.21 List the three elements of the fire triangle.

4.22 Identify two steps to be implemented to reduce the risks of handling oxygen.

4.23 Explain the safety precautions that should be implemented when using oxygen equipment.

4.24 Identify the grade of oxygen and why it should be utilized for diving first aid.

4.25 List the documentation options to receive an oxygen fill.

References/Textbooks

Teaching Aids, Videos

Lesson

T1: Student Handbook Chapter 14

PP Slides 64-68

R14: Longfrel et al. *Undersea Hyperb Med* 2007; 34:43-9

R15: Richards DB, Knaur AL. "Drowning," In Marx JA Hockenberg RS, Walls RS, et al. eds. *Rosen's Emergency Medicine: Concepts and Clinical Practice*, 7th ed. Philadelphia, Pa: Mosby Elsevier; 2009: chap 143

Video 15 – O₂ and Diving Injuries

PP Slides 69-75

Video 16 – Handling Oxygen Safely

4.26 Describe proper storage of an oxygen cylinder.
4.27 Identify when an oxygen unit's components and cylinder pressure should be checked.
4.28 Describe how to clean reusable oxygen masks and oxygen system parts.

<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
4.3 Oxygen Delivery System	T1: Student Handbook Chapter 16	Video 17 – Oxygen Delivery Systems PP Slides 76-86 DAN Emergency Oxygen Unit (or equivalent – see CORE Manual) Clean sheet or towel (white preferred) Non-Latex Gloves Nonbreather mask
	4.31 List the components of an oxygen delivery system. 4.32 Identify the hydrostatic testing requirements for an oxygen cylinder 4.33 List two factors influencing the size of oxygen cylinder selection. 4.34 Identify when an oxygen cylinder in use should be switched out for a full cylinder. 4.35 Identify the preferred oxygen regulator for diving first aid and why it is preferred. 4.36 Identify how often and by whom an oxygen regulator should be serviced 4.37 Explain why a demand valve is the first choice for delivery of oxygen to an injured diver 4.3a(1) Identify the component parts of the DAN oxygen unit. 4.3a(2) Disassemble and reassemble the DAN oxygen unit or equivalent with minimal assistance. 4.3b9(1) Provide emergency oxygen to a simulated responsive breathing injured diver using the demand inhalator valve and oronasal mask. 4.3c(1) Provide emergency oxygen to a simulated unresponsive breathing injured diver using the nonbreather mask. 4.3c(2) Discern when oxygen delivery options are not working adequately, and switch to another delivery method as may be appropriate.	
<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
5.0 CPR		Video 18 - Cardiopulmonary Resuscitation PP Slides 87-101
5.1 CPR	T1: Student Handbook Chapter 17 R1: 2015 Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care	Video 18 - Cardiopulmonary Resuscitation PP Slides 87-101
	5.11 Describe the goal of CPR. 5.12 Itemize the five links in the chain of survival in their proper sequence. 5.13 Identify the first step for a single rescuer once unresponsiveness has been established for an adult patient.	R15: World Health Organization, reviewed 2016, http://www.who.int/mediacentre/factsheets/fs317/en
	5.14 Distinguish the first step for a rescuer if the injured person is a child or the victim of a drowning incident vs. an adult.	R16: World Health Organization, updated 2016, http://www.who.int/mediacentre/factsheets/fs204/en

5.15 Identify the CPR protocol, to be followed for drowning victims.

<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
5.2 Starting CPR – Supporting Circulation	T1: Student Handbook Chapter 18	Video 19 – Starting CPR - Supporting Circulation
5.21 Identify the recommended depth and rate for compressions on an adult during CPR.	R1: 2015 Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care	PP Slides 102-109 Adult CPR Manikin Infant CPR Manikin
5.22 Identify the recommended depth and rate for CPR compressions on a child.		Non-latex gloves
5.23 Identify the recommended depth and rate for CPR compressions on an infant.		
5.24 Describe the circumstance when full CPR always recommended.		
5.25 Differentiate the roles of rescuers when more than one rescuer is available.		
5.2a(1) Demonstrate proper hand positioning for chest compressions on a manikin for both an adult and a child.		
5.2a(2) Utilize proper body mechanics to accomplish chest compressions consistently to a depth of 2-2.5 inches (5-6 cm) on an adult CPR manikin at a rate of 100-120 compressions per minute.		
5.2a(3) Utilize proper body mechanics to accomplish chest compressions consistently to one-third the chest depth for a child, using one hand on a CPR manikin (adult or child) at a rate of 100-120 compressions per minute.		
5.2a(4) Demonstrate proper finger/thumb placement for infant chest compressions.		
5.2a(5) Utilize proper body mechanics to accomplish chest compressions consistently to one-third the chest depth on an infant CPR manikin at a rate of 100-120 compressions per minute.		
<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
5.3 Continuing CPR – Supporting Respiration	T1: Student Handbook chapter 19	Video 20 – Continuing CPR - Supporting Respirations
5.31 Describe barrier device (exposure protection) options for providing rescue breathing.	R1: 2015 Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care	PP Slides 110-119 Adult CPR manikin Infant CPR manikin non-Latex gloves
5.32 Describe how long rescue breaths should last.		Oronasal resuscitation masks Bag Valve Mask
5.33 Identify the compression/ventilation ratio for single rescuers on an adult.		Manually Triggered Ventilator
5.33 (a)For two rescuers.		
5.34 Identify the compression to ventilation ratio for a child.		
5.35 Describe how often rescue breaths should be delivered for an adult when providing ventilations only.		

5.35(a) For a child.
5.35(b) For an infant.

5.36 Compare the advantages and disadvantages of the following:

5.36(a) Manually triggered ventilator

5.36(b) Bag valve mask

5.3a(1) Demonstrate the proper rescue-breathing technique for an adult

5.3a(1a) and child on a CPR manikin.

5.3a(2) Demonstrate the proper rescue-breathing technique on an infant manikin.

5.3b(1) Provide emergency oxygen as part of a team to a non-breathing or inadequately breathing injured diver using a bag valve mask.

5.3(1a) Student must perform both team roles.

5.3c(1) Provide emergency oxygen as part of a team to a non-breathing or inadequately breathing injured diver using an MTV and oronasal mask.

5.3c(1a) Student must perform both team roles.

5.3d(1) Perform two minutes of full CPR as a single rescuer on adult

5.3d(1a) and infant CPR manikins, completing at least five cycles of 30:2 compressions/ventilations.

5.3d(2) Perform four minutes of full CPR as a two-person rescue team on an adult CPR manikin, completing at least 10 cycles of 30:2 compressions/ventilations

5.3d(3) Perform four minutes of full CPR as a two-person rescue team on an infant CPR manikin, completing at least 20 cycles of 15:2 compressions/ventilations

Lesson

5.4 Use of AEDs

5.4.1 Describe why AEDs are recommended as part of CPR.

5.4.2 Describe the considerations for using an AED on children or infants.

5.4a(1) Demonstrate proper AED pad placement for adults, (1a) and on children and infants, using CPR manikins.

5.4a(2) Follow the prompts of an AED training unit to simulate care for a nonbreathing patient on an adult CPR manikin.

5.4a(3) Utilize an AED training unit as part of CPR on an adult CPR manikin.

Teaching Aids, Videos

Video 21 – Use of AEDs

PP Slides 120-125

Adult CPR Manikin

Infant manikin

Non-Latex Gloves

Oronasal Resuscitation Masks

AED Trainer with pads

<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
5.5 Foreign Body Airway Obstruction	T1: Student Handbook Chapter 21	Video 22 – FBAO
5.51 Identify the most common cause of choking in adults.	R1: 2015 Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care	PP Slides 126-129 Adult CPR Manikin Infant CPR Manikin with simulated obstruction materials
5.52 Describe how a partial airway obstruction can be identified.		
5.53 Describe how a rescuer should respond to a partial airway obstruction.		Manual Vacuum Pump Suction Bulb
5.54 Explain how a complete airway obstruction can be identified.		
5.56 Describe the action that should be taken if a choking victim becomes unconscious.		
5.57 Describe when a finger sweep may be used.		
5.58 Identify the maximum time suctioning may be used on an adult.		
5.58(a) On an Infant.		
5.5a(1) Demonstrate proper abdominal thrust technique for management of an obstructed airway in an adult.		
5.5a(2) Demonstrate proper back blow/chest compression technique for management of an obstructed airway in an infant.		
5.5b(1) Demonstrate the appropriate technique and duration for suctioning on an adult or child manikin and an infant manikin.		
<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
6.0 Secondary Care		
6.1 General Assessments and Medical Emergencies	T1: Student Handbook Chapter 22	Video 23 – General Assessment and Medical Emergencies
6.11 Distinguish first aid care from basic life support.	R1: 2015 Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care	PP Slides 130-141
6.12 Describe a secondary assessment and when it should be used.		
6.13 Define asthma.		
6.14 Describe the signs and symptoms of heart attack.		
6.15 Compare and contrast hypoglycemia and hyperglycemia.		
6.16 Describe the primary first aid action for seizures.		
6.17 Identify the primary action for poisoning.		
6.18 Identify the preferred first aid for exertional dehydration.		

6.19 Explain the restrictions that should be observed by someone who may have suffered a concussion.

6.19 (2) Describe the options for preserving an avulsed tooth.

<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
6.2 Temperature Related Injuries	T1: Student Handbook Chapter 23 R1: 2015 Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care	Video 24 – Temper. Related Injuries PP Slides 142-146
6.21 Define hypothermia.		
6.22 Describe the first-aid response to hypothermia.		
6.23 Identify the special consideration that must be taken into account for hypothermia.		
6.24 Define hyperthermia.		
6.25 Differentiate between the four methods of heat loss, and how they can benefit the hyperthermic patient.		
6.26 Compare and contrast the signs and symptoms of heat exhaustion and heat stroke.		
6.27 Describe the first-aid response to hyperthermia.		
<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
6.3 Slips, Falls, Fractures	T1: Student Handbook Chapter 24 R2: OSHA (29 CFR)	Video 25 – Slips, Falls, & Secondary Assessment: Fractures and Splinting PP Slides 147-150
6.31 Describe two tactics to prevent slips and falls.		Pencil and Paper or Accident Management slate
6.32 List the steps in a secondary assessment.		Dressing and bandaging materials
6.33 Describe the general guidelines to be used when conducting a secondary assessment.		Various splints (commercial or improvised Elastic Bandages
6.34 Describe the purpose of a splint.		
6.3a Demonstrate technique for head to foot secondary assessment using a gentle touch and caring manner.		
6.3b Apply a splint to a simulated injured limb immobilizing the joints on either side of the injury. Use of either a professional splint or improvised splint is acceptable.		
<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
6.4 Burns	T1: Student Handbook Chapter 25 R2: OSHA (29 CFR)	Video 26 – Burns PP Slides 150-151
6.41 Identify how burns are categorized		
6.42 Describe a superficial burn		
6.43 Describe a second-degree burn		
6.44 Describe a third-degree burn		

6.45 Outline the general first-aid treatment for burns
6.46 Explain the first-aid care for chemical burns

<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
7.0 First Aid for Hazardous Marine Life Injuries (R17-62: see Additional Reading list in Appendix 4 of the Student Handbook for references)		
7.1 Introduction	T1: Student Handbook Chapter 26	Video 27 – Intro to Hazardous Marine Life injuries PP Slides 152-156
7.11 List the three general categories of marine life injuries.		
7.12 Define envenomation.		
7.13 Identify the usual trigger for marine animal bites.		
7.14 Identify the primary cause of seafood poisoning.		
7.15 Describe the protective measures a first-aid provider should utilize when treating a marine life injury.		
<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
7.2 Envenomation 1 (Vertebrates)	T1: Student Handbook Chapter 27 Part 1	Video 28 – Envenomations & Toxins PP Slides 157-168
7.21 Describe the mechanisms of envenomations.		
7.22 Identify the reason most envenomations occur.		
7.23 List three factors that may impact a victim's response to envenomations.		
7.24 Describe the first-aid steps for venomous fish injuries.		
7.25 Identify the three injuries when the pressure immobilization technique recommended.		
<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
7.3 Envenomation Part 2 (Invertebrates)	T1: Student Handbook Chapter 27 Part 2	PP Slides 169-194
7.31 Explain the four general first-aid guidelines in appropriate sequence for jellyfish stings. Non-Latex Gloves		
7.32 List the four general first-aid guidelines for treating injuries resulting from contact with marine life.		First aid supplies including: tweezers, simulated hot packs, dressings, bandages
7.3a Demonstrate the proper technique for managing at least one of the following:		Moulage supplies for mock injuries Splinting supplies Cravats for slings
(1)spiny envenomations (2)stinging envenomations (3)contact injuries		
7.3b Demonstrate the proper technique for applying a pressure immobilization bandage.		
<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
7.4 Traumatic Injuries	T1: Student Handbook Chapter 28	Video 29 – Traumatic Injuries PP Slides 195-203
7.41 Identify three reasons marine animal bites occur.		

<p>7.4.2 Describe the body's mechanisms to stop bleeding.</p> <p>7.4.2 Identify a rescuer's primary method to control bleeding.</p> <p>7.4.4 Describe when a tourniquet should be utilized.</p> <p>7.4.5 Explain how long a tourniquet should be left in place.</p> <p>7.4.6 List the signs and symptoms of infection.</p> <p>7.4a(1) Demonstrate applying direct pressure to control bleeding on a simulated patient.</p> <p>7.4a(2) Demonstrate bandaging to secure a dressing in place once bleeding has stopped on simulated patient.</p> <p>7.4a(3) Demonstrate applying a tourniquet to control bleeding on a simulated patient.</p>	<p>Non-latex gloves</p> <p>Gauze dressings or pads</p> <p>Bandages</p> <p>Commercial tourniquet &/or supplies for an improvised tourniquet</p>
<p>Lesson</p>	<p>References/Textbooks</p>
<p>7.5 Seafood Poisoning</p>	<p>T1: Student Handbook Chapter 29</p>
<p>7.5.1 Identify the primary cause of seafood poisoning.</p> <p>7.5.2 List four contaminants that can trigger seafood poisoning.</p> <p>7.5.3 Name the three well-established types of seafood poisoning.</p> <p>7.5.4 Describe how the risk of seafood poisoning can be minimized.</p>	<p>Teaching Aids, Videos</p>
<p>Lesson</p>	<p>References/Textbooks</p>
<p>7.6 Life Threatening Complications</p>	<p>T1: Student Handbook Chapter 30</p>
<p>7.6.1 List the signs and symptoms of an allergic reaction.</p> <p>7.6.2 Describe what steps should be taken if an allergic reaction occurs.</p> <p>7.6.3 List the signs and symptoms of cardiogenic shock.</p> <p>7.6.4 Describe the steps that should be taken if cardiogenic shock occurs.</p> <p>7.6.5 List the signs and symptoms of hypovolemic shock.</p> <p>7.6a Demonstrate the proper technique for assisting with an epinephrine auto-injector in a scenario.</p> <p>7.6b Demonstrate proper technique for managing shock by placing the victim on their back or in a position of comfort and taking steps to maintain normal body temperature in a scenario.</p>	<p>Teaching Aids, Videos</p>
<p>Lesson</p>	<p>References/Textbooks</p>
<p>7.8 Avoiding Hazardous Marine Life</p>	<p>T1: Student Handbook Chapter 31</p>
<p>7.8.1 List three likely causes of injuries by marine life.</p> <p>7.8.2 List eight dive practices can reduce the risk of injuries by marine life.</p>	<p>Teaching Aids, Videos</p>

<u>Lesson</u>	<u>References/Textbooks</u>	<u>Teaching Aids, Videos</u>
8.0 Summary	<p>T1: Student Handbook Chapter 32</p> <p>8.1a Provide care to a simulated injured person using multiple skills acquired during the DAN Diving First Aid for Professional Divers course. (Student must complete at least three scenarios as part of a team providing care.)</p>	<p>Non-Latex Gloves</p> <p>Oronasal resuscitation masks</p> <p>Oxygen Kit</p> <p>AED Trainer</p> <p>First Aid Supplies including splints</p> <p>Supplies will vary with scenario</p>

Dividing First Aid for Professional Divers

Lesson Plans					
	Teaching Method	Textbooks*	References*	Videos*	Time
Lesson 0.0	Video, Lecture/Power Point	T1	R1, R2	Video 1	9:23
0.0: Overview & Introduction					
Lesson 0.1	Video, Lecture/Power Point	T1	R1, R2	Video 1	9:23
0.1 Duty of Care/Emotional Response	Video, Lecture/Power Point	T1	R1, R2	Video 1	9:23
0.11 Define Duty of Care and its application to the first aid provider.					
0.12 Describe why it is important to ask permission before rendering care.					
0.13 List the options to aid a rescuer in dealing with emotional stress.					
Student Assignment Complete Chapter 2 Knowledge Review					
Lesson 1.0 Basic Sciences	Video, Lecture/Power Point	T1	R1, R2	Video 1	9:10
1.1 Respiration and Circulation	Video, Lecture/Power Point	T1	R1, R2	Video 1	9:10
1.11 Define hypoxia.					
1.12 Describe the role of oxygen in sustaining life.					
1.13 Identify the body structures involved with gas exchange in the body.					
1.14 List the body structures in the respiratory system.					
1.15 List the body structures in the cardiovascular system.					
Student Assignment Complete Chapter 3, Part 1 Knowledge Review					
Lesson 1.2	Video, Lecture/Power Point	T1	R1, R2	Video 1	9:10
1.2 Nervous System	Video, Lecture/Power Point	T1	R1, R2	Video 1	9:10
1.21 Identify the primary components of the nervous system.					
1.22 Identify the functional unit of the nervous system.					
1.23 List possible causes of interruptions along neural pathways.					
Student Assignment Complete Chapter 3, Part 2 Knowledge Review					
Lesson 1.3	Video, Lecture/Power Point	T1	R1, R2	Video 1	9:10
1.3 Atmospheric Gases	Video, Lecture/Power Point	T1	R1, R2	Video 1	9:10
1.31 Describe the physical characteristics of oxygen (O ₂)					
1.32 Identify the percentage of oxygen in both inhaled and exhaled air as we breathe.					
1.33 Describe how oxygen is transported to body tissues.					
1.34 Describe carbon dioxide and how it is eliminated from the body.					
1.35 Describe the physiological nature of nitrogen gas in the human body.					

1.36 Describe how carbon monoxide interferes with oxygen uptake and how it can be dangerous in breathing gases for use under pressure.

Student Assignment Complete Chapter 4 Knowledge Review

Lesson 1.4 Decompression Illness	Teaching Method	Textbooks	References	Videos	Time
1.4 Decompression Illness	Video, Lecture/Power Point	T1	R3-R8	Video 6	28:58

- 1.41 Identify the initial actions in responding to diving accidents.
- 1.42 Identify the two processes encompassed under decompression illness(DCI).
- 1.43 Identify the primary cause of decompression sickness (DCS).
- 1.44 List the primary symptoms of DCS
- 1.45 Describe arterial gas embolism (AGE).
- 1.46 Identify the primary risk factor or AGE.
- 1.47 List the reasons medical evaluation should be sought when DCI is suspected.
- 1.48 Identify the most prevalent symptoms of DCI.
- 1.49 Provide the typical onset times of DCS and AGE symptoms.

Student Assignment Complete Chapter 5 Knowledge Review

Lesson 2.0 Emergency Preparation	Teaching Method	Textbooks	References	Videos	Time
2.1 Bloodborne Pathogens	Video, Lecture/Power Point	T1	R2, R9-R11	Video 7	17:00

- 2.11 Describe the purpose of the OSHA Blood Borne Pathogen Standard.
- 2.12 List the four things that must be present for disease transmission to occur.
- 2.13 List strategies to prevent disease transmission.
- 2.14 List the steps you should take if you think you may have been exposed to a blood borne pathogen.
- 2.15 Define zoonosis.
- 2.16 Identify the specific requirement for diving in contaminated water.

Student Assignment Complete Chapter6 Knowledge Review

Lesson 2.2	Teaching Method	Textbooks	References	Videos	Time
2.2 Emergency Action Plans (EAP)	Video, Lecture/Power Point	T1	R2	Video 8	12:00

- 2.21 List the elements included in an Emergency Action Plan.
- 2.22 Describe why transport to a medical facility instead of a hyperbaric chamber the best course of action in a dive emergency.
- 2.23 List the emergency equipment that should be readily available as part of an emergency action plan.

Student Assignment Complete Chapter 7 Knowledge Review

Lesson 2.3	Teaching Method	Textbooks	References	Videos	Time
2.3 Lifting and Moving	Video, Lecture/Power Point	T1		Video 9	9:05
2.3.1 List the general considerations for a rescuer when attempting to move a patient.					
2.3.2 Identify when a patient should be moved.					
Student Assignment Complete Chapter 8 Knowledge Review					
Lesson 3.0 Response and Assessment	Teaching Method	Textbooks	References	Videos	Time
3.1 Scene Safety Assessment	Video, Lecture/Power Point	T1	R1	Video 10	23:25
3.1.1 Describe the elements of S-A-F-E.					
3.1.2 Identify hazards that may need to be assessed before attempting to provide first aid.					
3.1.3 Describe the role of exposure protection for rescuers.					
3.1.4 List four examples of personal exposure protection equipment.					
Student Assignment Complete Chapter 9 Knowledge Review					
	Group Skill Practice	T1			
3.1a(1)List the four steps in performing a scene safety assessment.					
3.1a(2)Perform a scene safety assessment in a scenario.					
3.1a(3)Use appropriate first aid barrier devices in a scenario.					
3.1b(1)Demonstrate donning of gloves without tearing or compromising the glove integrity.					
3.1b(2)Demonstrate removal of gloves without contaminating exposed skin.					
Lesson 3.2	Teaching Method	Textbooks	References	Videos	Time
3.2 Initial Assessment & Position for Care	Video, Lecture/Power Point	T1	R1	Video 11	9:20
3.2.1 List the three primary steps in the assessment sequence.					
3.2.2 Describe the technique that assists a rescuer in placing an unresponsive person on their back.					
3.2.3 Describe agonal breathing.					
3.2.4 Describe when the recovery position should be used.					
3.2.5 Describe when the recovery position should not be used.					
Student Assignment Complete Chapter 10 Knowledge Review					
	Group Skill Practice	T1			
3.2a(1) Demonstrate the technique for establishing unresponsiveness in an adult or child.					
3.2a(2) Demonstrate the technique for establishing unresponsiveness in an infant					
Demonstrate the technique for determining the presence of a pulse in an adult or child. 3.2a(3)					
Demonstrate technique for determining the presence of a pulse in an infant.					

3.2b Demonstrate rolling a patient from his back into the recovery position, keeping the spine aligned.

Lesson 3.3	Teaching Method	Textbooks	References	Videos	Time
3.3 Neurological Assessment	Video, Lecture/Power Point	T1	R12	Video 12	19:18

3.31 Describe the action that can help prevent permanent disability.

3.32 Describe the assessments of a F-A-S-T exam.

Student Assignment Complete Chapter 11 Knowledge Review

Lesson 3.4	Teaching Method	Textbooks	References	Videos	Time
3.4 Conducting a Neurological Assess	Video, Lecture/Power Point	T1		Video 13	18:24

3.41 Describe why collecting patient's history can be essential to the assessment.

3.42 List and describe the mnemonic elements that assist in taking an injured diver's history.

Student Assignment Complete Chapter 12 Knowledge Review

Lesson 3.5	Teaching Method	Textbooks	References	Videos	Time
3.5 Four Functional Areas Neuro Assess	Video, Lecture/Power Point	T1	R 13	Video 14	17:24

3.51 List the four functional areas of a Neurological Assessment.

3.52 Describe how the 'cranial nerves' are evaluated in a neurological assessment.

3.53 List the tasks used to evaluate 'mental function' in the neurological assessment.

3.54 List the designations used for motor function assessment.

3.55 List in sequence of application the balance and coordination evaluations.

Student Assignment	Teaching Method	Textbooks	References	Videos	Time
Complete Chapter 13 Knowledge Review	Group Skill Practice	T1			52:00

3.5a(1) Determine an individual's level of consciousness in a scenario with a simulated injury.

3.5a(1) Utilizing interview techniques, assess an individual's

(a)speech and language abilities

(b)orientation to person, place, date and time, and event

(c)short-term memory

- 3.5b(1) Assess an individual's ability to do calculations utilizing a standardized protocol.
- 3.5b(2) Assess control of eyes and facial muscles using standardized commands.
- 3.5b(3) Assess an individual's ability to hear by rubbing or snapping fingers 1 foot/30 cm from the ear.
- 3.5c(1) Assess strength of muscle groups using muscle isolation and resistance.
- 3.5d(1) Assess an individual's coordination with a finger-nose-finger exercise
- 3.5d(2) Determine presence of functional balance using a straight walk and a Romberg test.

Lesson4.0 Oxygen First Aid		Teaching Method	Textbooks	References	Videos	Time
4.1	Oxygen and Diving Injuries	Video, Lecture/Power Point	T1	R14-15	Video 15	21:51
4.11	List four benefits of providing a high concentration of oxygen to an injured diver.					
4.12	List the two actions of oxygen partial gas gradient that aids in diving injuries.					
4.13	Describe the primary goal of emergency oxygen for injured divers.					
4.14	List the two critical factors that impact the percentage of oxygen delivery when using a demand valve.					
4.15	Identify the initial flow rate for constant-flow oxygen delivery systems.					
4.16	Describe the priority for oxygen delivery in remote areas.					
4.17	Describe the circumstances where there may be concerns about oxygen toxicity.					
4.18	List five symptoms of nonfatal drowning.					
4.19	List the three actions of a first responder in a nonfatal drowning.					
Student Assignment Complete Chapter 14 Knowledge Review		Teaching Method	Textbooks	References	Videos	Time
4.2	Handling Oxygen Safely	Video, Lecture/Power Point	T1		Video 16	21:38
4.21	List the three elements of the fire triangle.					
4.22	Identify two steps to be implemented to reduce the risks of handling oxygen.					
4.23	Explain the safety precautions that should be implemented when using oxygen equipment.					
4.24	Identify the grade of oxygen to be utilized for diving first aid.					
4.25	List the documentation options to receive an oxygen fill.					
4.26	Describe proper storage of an oxygen cylinder.					
4.27	Identify when an oxygen unit's components and cylinder pressure should be checked.					
4.28	Describe how to clean reusable oxygen masks and oxygen system parts.					
Student Assignment Complete Chapter 15 Knowledge Review						

<u>Lesson</u>	<u>Teaching Method</u>	<u>Textbooks</u>	<u>References</u>	<u>Videos</u>	<u>Time</u>
4.3 Oxygen Delivery System	Video, Lecture/Power Point	T1		Video 17	17:11
4.31 List the components of an oxygen delivery system.					
4.32 Identify the hydrostatic testing requirements for an oxygen cylinder.					
4.33 List two factors influencing the selection of oxygen cylinder size.					
4.34 Identify when the oxygen cylinder in use should be switched out for a full cylinder.					
4.35 Identify the preferred oxygen regulator for diving first aid and why it is preferred.					
4.36 Identify how often and by whom an oxygen regulator should be serviced					
4.37 Explain why a demand valve is the first choice for delivering oxygen to an injured diver.					
Student Assignment Complete Chapter 16 Knowledge Review	Group Skill Practice	T1			55:00
4.3a(1) Identify the component parts of the DAN oxygen unit.					
4.3a(2) Disassemble and reassemble with minimal assistance the DAN oxygen unit or equivalent.					
4.3b91) Provide emergency oxygen to a simulated responsive breathing injured diver using the demand inhalator valve and oronasal mask.					
4.3c(1) Provide emergency oxygen to a simulated unresponsive breathing injured diver using the nonbreather mask.					
4.3c(2) Discern when options for oxygen delivery are not working adequately, and switch to another delivery method as may be appropriate.					
Lesson 5.0 CPR	Teaching Method	Textbooks	References	Videos	Time
5.1 CPR	Video, Lecture/Power Point	T1	R15-16	Video 18	13:40
5.11 Describe the goal of CPR.					
5.12 Itemize the five links in the chain of survival in their proper sequence.					
5.13 Identify the first step for a single rescuer once unresponsiveness has been established for an adult patient.					
5.14 Distinguish the first step for a rescuer if the injured person is a child or the victim of a drowning incident vs. an adult.					
Student Assignment Complete Chapter 17 Knowledge Review	Teaching Method	Textbooks	References	Videos	Time
Lesson	Teaching Method	Textbooks	References	Videos	Time
5.2 Starting CPR – Supporting Circulation	Video, Lecture/Power Point	T1	R1	Video 19	18:36
5.21 Identify the recommended depth and rate for compressions on an adult during CPR.					
5.22 Identify the recommended depth and rate for CPR compressions on a child.					
5.23 Identify the recommended depth and rate for CPR compressions on an infant.					
5.24 Describe the circumstance when full CPR always recommended.					

5.25 Differentiate the roles of rescuers when more than one rescuer is available.

Student Assignment Complete Chapter 18 Knowledge Review

Group Skill Practice T1

30:00

5.2a(1) Demonstrate proper hand positioning for chest compressions on a manikin for both an adult and a child. 5.2a(2) Utilize proper body mechanics to accomplish chest compressions consistently to a depth of 2-2.5 inches (5-6 cm) on an adult CPR manikin at a rate of 100-120 compressions per minute.

5.2a(3) Utilize proper body mechanics to accomplish chest compressions consistently to one-third the chest depth for a child, using one hand on a CPR manikin (adult or child) at a rate of 100-120 compressions per minute.

5.2a(4) Demonstrate proper finger/thumb placement for infant chest compressions.

5.2a(5) Utilize proper body mechanics to accomplish chest compressions consistently to one-third the chest depth on an infant CPR manikin at a rate of 100-120 compressions per minute.

Lesson	Teaching Method	Textbooks	References	Videos	Time
5.3 Cont. CPR – Supporting Respiration Video, Lecture/Power Point	T1	R1	Video 20	Video 20	12:32

5.31 Describe barrier device (exposure protection) options for providing rescue breathing.

5.32 Describe how long rescue breaths should last.

5.33 Identify the compression/ventilation ratio for single rescuers on an adult.

5.33 (a) For two rescuers.

5.34 Identify the compression/ventilation ratio for a child.

5.35 Describe how often rescue breaths should be delivered for an adult when providing ventilations only.

5.35(a) For a child.

5.35(b) For an infant.

5.36 Compare the advantages and disadvantages of the following:

5.36(a) Manually triggered ventilator

5.36(b) Bag valve mask

Student Assignment Complete Chapter 19 Knowledge Review

Group Skill Practice T1

85:00

5.3a(1) Demonstrate the proper rescue-breathing technique for an adult and

5.3a(1a) child on a CPR manikin.

5.3a(2) Demonstrate the proper rescue-breathing technique on an infant manikin.

5.3b(1) Provide emergency oxygen as part of a team to a non-breathing or inadequately breathing injured diver using a bag valve mask.

5.3(1a) Student must perform both team roles.

5.3c(1) Provide emergency oxygen as part of a team to a non-breathing or inadequately breathing injured diver using an MTV and oronasal mask.

5.3c(1a) Student must perform both team roles.

5.3d(1) Perform two minutes of full CPR as a single rescuer on adult and

5.3d(1a) infant CPR manikins, completing at least five cycles of 30:2 compressions/ventilations.

5.3d(2) Perform four minutes of full CPR as a two-person rescue team on an adult CPR manikin, completing at least 10 cycles of 30:2 compressions/ventilations switching roles half-way through.

5.3d(3) Perform four minutes of full CPR as a two-person rescue team on an infant CPR manikin, completing at least 20 cycles of 15:2 compressions/ventilations switching roles half-way through.

<u>Lesson</u>	<u>Teaching Method</u>	<u>Textbooks</u>	<u>References</u>	<u>Videos</u>	<u>Time</u>
5.4 Use of AEDs	Video, Lecture/Power Point	T1	R1	Video 21	17:16

5.41 Describe why AEDs are recommended as part of CPR.

5.42 Describe the considerations for using an AED on children or infants.

Student Assignment Complete Chapter 20 Knowledge Review

Group Skill Practice

30:00

5.4a(1) Demonstrate proper AED pad placement for adults,

(1a) and on children and infants using CPR manikins.

5.4a(2) Follow the prompts of an AED training unit to simulate care for a nonbreathing patient on an adult CPR manikin.

5.4a(3) Utilize an AED training unit as part of CPR on an adult CPR manikin.

<u>Lesson</u>	<u>Teaching Method</u>	<u>Textbooks</u>	<u>References</u>	<u>Videos</u>	<u>Time</u>
5.5 Foreign Body Airway Obstruction	Video, Lecture/Power Point	T1	R1	Video 22	15:16

5.51 Identify the most common cause of choking in adults.

5.52 Describe how a partial airway obstruction can be identified.

5.53 Describe how a rescuer should respond to a partial airway obstruction.

5.54 Explain how a complete airway obstruction can be identified.

5.56 Describe the action that should be taken if a choking victim becomes unconscious.

5.57 Describe when a finger sweep may be used.

5.58 Identify the maximum time suctioning may be used on an adult.
5.58(a) On an Infant.

Student Assignment Complete Chapter 21 Knowledge Review

Group Skill Practice

22:00

5.5a(1) Demonstrate proper abdominal thrust technique for management of an obstructed airway in an adult

- 5.5a(2) Demonstrate proper back blow/chest compression technique for management of an obstructed airway in an infant.
- 5.5b(1) Demonstrate the appropriate technique and duration for suctioning on an adult or child manikin and an

infant manikin.

<u>Lesson6.0 Secondary Care</u>		<u>Teaching Method</u>	<u>Textbooks</u>	<u>References</u>	<u>Videos</u>	<u>Time</u>
6.1 General Assessments and		Video, Lecture/Power Point	T1	R1	Video 23	22:44

Medical Emergencies

6.11 Distinguish first aid care from basic life support.

6.12 Describe the information components identified by the mnemonic S-A-M-P-L-E.

6.13 Define asthma.

6.14 Describe the signs and symptoms of heart attack.

6.15 Compare and contrast hypoglycemia and hyperglycemia.

6.16 Describe the primary first aid action for seizures.

6.17 Identify the primary action for poisoning.

6.18 Identify the preferred first aid for exertional dehydration.

6.19 Explain the restrictions that should be observed by someone who may have suffered a concussion.

6.19 (2) Describe the options for preserving an avulsed tooth.

Student Assignment Complete Chapter 22 Knowledge Review

Lesson	Teaching Method	Textbooks	References	Videos	Time
6.2 Temperature Related Injuries	Video, Lecture/Power Point	T1	R1	Video 24	11:33

6.21 Define hypothermia.

6.22 Describe the first-aid response to hypothermia.

6.23 Identify the special consideration that must be taken into account for hypothermia.

6.24 Define hyperthermia

6.25 Differentiate between the four methods of heat loss, and how they can benefit the hyperthermic patient.

6.26 Compare and contrast the signs and symptoms of heat exhaustion and heat stroke.

6.27 Describe the first-aid response to hyperthermia

Student Assignment Complete Chapter 23 Knowledge Review

Lesson	Teaching Method	Textbooks	References	Videos	Time
6.3 Slips, Falls, Fractures	Video, Lecture/Power Point	T1	R2	Video 25	21:32
6.31 Describe two tactics to prevent slips and falls.					
6.32 List the steps in a secondary assessment.					
6.33 Describe the general guidelines to be used when conducting a secondary assessment.					
6.34 Describe the purpose of a splint.					
Student Assignment Complete Chapter 24 Knowledge Review	Group Skill Practice	T1			40:00
6.3a Demonstrate technique for head to foot secondary assessment using a gentle touch and caring manner.					
6.3b Apply a splint to a simulated injured limb immobilizing the joints on either side of the injury. Use of either a professional splint or improvised splint is acceptable.					
Lesson	Teaching Method	Textbooks	References	Videos	Time
6.4 Burns	Video, Lecture/Power Point	T1	R2	Video 26	7:14
6.41 Identify how burns are categorized					
6.42 Describe a superficial burn					
6.43 Describe a second-degree burn					
6.44 Describe a third-degree burn					
6.45 Outline the general first-aid treatment for burns					
6.46 Explain the first-aid care for chemical burns					
Student Assignment Complete Chapter 25 Knowledge Review					
Lesson 7.0 First Aid for Hazardous Marine Life Injuries					
Lesson	Teaching Method	Textbooks	References	Videos	Time
7.1 Introduction	Video, Lecture/Power Point	T1	R17-62	Video 27	2:50
7.11 List the three general categories of marine life injuries.					
7.12 Define envenomation.					
7.13 Identify the usual trigger for marine animal bites.					
7.14 Identify the primary cause of seafood poisoning.					
7.15 Describe the protective measures a first-aid provider should utilize when treating for a marine life injury.					
Student Assignment Complete Chapter 26 Knowledge Review					
Lesson	Teaching Method	Textbooks	References	Videos	Time
7.2 Envenomation 1 (Vertebrates)	Video, Lecture/Power Point	T1	R17-62	Video 28	19:15

- 7.21 Describe the mechanisms of envenomations.
- 7.22 Identify the reason most envenomations occur.
- 7.23 List three factors that may impact a victims' response to envenomations.
- 7.24 Describe the first-aid steps for venomous fish injuries.
- 7.25 Identify the three injuries when the pressure immobilization technique recommended.

Student Assignment Complete Chapter 27, Part 1 Knowledge Review

<u>Lesson</u>	<u>Teaching Method</u>	<u>Textbooks</u>	<u>References</u>	<u>Videos</u>	<u>Time</u>
7.3 Envenomation Part 2 (Invertebrates)	Lecture/Power Point	T1	R17-62		18:00
7.31 List the four general first-aid guidelines in appropriate sequence for jellyfish stings.					
7.32 List the four general first-aid guidelines for treating injuries resulting from contact with marine life.					
Student Assignment Complete Chapter 27, Part 2 Knowledge Review	Group Skill Practice	T1			65:00

7.3a Demonstrate the proper technique for managing at least one of the following:

- (1)spiny envenomations
- (2)stinging envenomations
- (3)contact injuries

7.3b Demonstrate the proper technique for applying a pressure immobilization bandage.

<u>Lesson</u>	<u>Teaching Method</u>	<u>Textbooks</u>	<u>References</u>	<u>Videos</u>	<u>Time</u>
7.4 Traumatic Injuries	Video, Lecture/Power Point	T1	R17-62	Video 29	6:24
7.41 Identify three reasons marine animal bites occur.					
7.42 Describe the body's mechanisms to stop bleeding.					
7.43 Identify a rescuer's primary method to control bleeding.					
7.44 Describe when a tourniquet should be utilized.					
7.45 Explain how long a tourniquet should be left in place					
7.46 List the signs and symptoms of infection.					

Student Assignment Complete Chapter 28 Knowledge Review

<u>Lesson</u>	<u>Teaching Method</u>	<u>Textbooks</u>	<u>References</u>	<u>Videos</u>	<u>Time</u>
7.4a(1) Demonstrate applying direct pressure to control bleeding on a simulated patient.	Group Skill Practice	T1			10:00
7.4a(2) Demonstrate bandaging to secure a dressing in place once bleeding has stopped on simulated patient.					
7.4a(3) Demonstrate applying a tourniquet to control bleeding on a simulated patient.					

Lesson	Teaching Method	Textbooks	References	Videos	Time
7.5 Seafood Poisoning	Video, Lecture/Power Point	T1	R17-62	Video 30	6:24
7.51 Identify the primary cause of seafood poisoning.					
7.52 List four contaminants that can trigger seafood poisoning.					
7.53 Name the three well-established types of seafood poisoning.					
7.54 Describe how the risk of seafood poisoning can be minimized.					
Student Assignment Complete Chapter 29 Knowledge Review					
Lesson	Teaching Method	Textbooks	References	Videos	Time
7.6 Life Threatening Complications	Video, Lecture/Power Point	T1	R17-62	Video 31	6:24
7.61 List the signs and symptoms of an allergic reaction.					
7.62 Describe what steps should be taken if an allergic reaction occurs.					
7.63 List the signs and symptoms of cardiogenic shock.					
7.64 Describe the steps that should be taken if cardiogenic shock occurs.					
7.65 List the signs and symptoms of hypovolemic shock.					
	Group Skill Practice	T1			5:00
7.6a Demonstrate the proper technique for assisting with an epinephrine auto-injector in a scenario.					
7.6b Demonstrate proper technique for managing shock by placing the victim on their back or in a position of comfort and taking steps to maintain normal body temperature in a scenario.					
Student Assignment Complete Chapter 30 Knowledge Review					
Lesson	Teaching Method	Textbooks	References	Videos	Time
7.8 Avoiding Hazardous Marine Life	Video, Lecture/Power Point	T1	R17-62	Video 32	9:33
7.81 List three likely causes of injuries by marine life.					
7.82 List eight dive practices can reduce the risk of injuries by marine life.					
Student Assignment Complete Chapter 31 Knowledge Review					
Lesson 8.0 Summary					
Teaching Method	Textbooks	References	Videos	Time	
Lecture/Power Point	T1				30:00
Group Skill Practice	T1				
8.1a Provide care to a simulated injured person using multiple skills acquired during the <i>DAN Diving First Aid for Professional Divers</i> course. (Student must complete at least three scenarios as part of a team providing care.)					
Final Examination to follow					

***KEY**

Textbook, References, and Videos are specifically identified in Teaching Syllabus