

PART FOUR MEDICAL TRAINING

Chapter 21

MEDICAL TRAINING

21-1. General. Survival of any severely injured individual will depend upon prompt and accurate recognition of all life-endangering conditions followed by the administration of immediate proper treatment. The medical skills of a pararescueman should be directed toward life-sustaining emergency aid; not definitive treatment of injuries. Maximum proficiency in these skills must be maintained and continually demonstrated to ensure the effective accomplishment of the pararescue mission. Combat experiences have added considerable emphasis to the foregoing statements. Treatment will be administered in accordance with ARRSM 160-34.

21-2. Implementation. Medical training will consist of an academic and a clinical phase.

a. The academic phase is outlined by the curriculum provided in paragraph 21-3 of this regulation. The curriculum is designed to insure the pararescueman a complete medical training review in each 12 calendar month period. A minimum of 24 formal training hours will be allocated for its completion. The curriculum may be divided to assign four hours every two consecutive months for the accomplishment of each of the first five sections (paragraphs 21-3a through 21-3e). The remaining sections (paragraphs 21-3f through 21-3i) may be combined in the four-hour period allocated to the final two-month interval. Maximum effectiveness can be obtained from this program only if the flight surgeon supporting the ARRS unit attends and monitors the training sessions. When the flight surgeon is unable to comply, it then becomes the direct responsibility of the pararescue NCOIC to insure that the training is being accomplished in accordance with this regulation.

b. The clinical phase outlined in paragraph 21-4 will consist of periodic training in the local medical facility. Coordination with the Director of Base Medical Services must be obtained to establish a clinical training program at each base. Ideally each pararescueman should spend a minimum of 10 days/year training in a suitable clinical environment. At least 5 of these days should be consecutive. It will be the primary purpose of this training for the pararescueman to gain proficiency by actually performing the procedures in which he requires expertise. The most important procedure

for him to master is starting IV fluids and this is to be emphasized during the clinical training. Each pararescueman will start on patients as many IV's as possible while in the medical facility. Additionally, the pararescueman will become better medically oriented by observing cases first hand and following their initial evaluation, diagnosis and treatment. Although trauma cases are most germane to the pararescueman, he is encouraged to take advantage of all teaching opportunities which present themselves, including obstetrical, pediatric, medical and geriatric cases as well.

c. Pararescue personnel must maintain a high degree of medical proficiency. ARRS/SG will be notified and his assistance requested if necessary when problems arise in obtaining professional medical guidance for a PJ section or when the PJ NCOIC has to rely solely on in-house medical training. Medical training will be recorded on ARRS Form 54 as shown in attachment 19. For clinical training, the specific days the pararescueman spent in each area of the medical facility will be identified in the vertical columns. An entry in one column does not imply that the pararescueman spent only one hour in that area on the day(s) specified. Rather each day indicated implies that on that day a significant amount of time was spent in that area. The use of the remarks section to report exceptional training experiences is encouraged (see attachment 19). A new form will be initiated at the beginning of the 12-month period and certified by the pararescue NCOIC at the end of the 12-month training period or when an individual departs the unit in a PCS status. Complete forms will be maintained in the pararescue training folder.

21-3. Emergency Medical Training, Academic Phase.

a. Respiratory Distress.

(1) Signs and symptoms

- (a) General.
- (b) Upper respiratory obstruction.
- (c) Hypoxia-cyanosis, anxiety.
- (d) Cheyne-Stokes respiration.
- (e) Airway burns and smoke

inhalation effect.

(f) Effects of inhalation of toxic fumes and gases, particularly those applicable to spacecraft recovery.

- (g) Pulmonary edema.
- (2) Treatment:
 - (a) Demonstrate proficiency in manual technique for clearing the upper respiratory passages both digitally and with suction catheter.
 - (b) Demonstrate insertion of oropharyngeal airway.
 - (c) Demonstrate effective mouth-to-mouth resuscitation.
 - 1. In a child.
 - 2. In an adult.
 - (d) Demonstrate effective use of mechanical resuscitators available for use in the unit.
 - (e) Know indications and proper techniques for performing cricothyrotomy.
- (3) Special Consideration:
 - (a) The open chest wound.
 - (b) Flail chest.
 - (c) Progressive tension pneumothorax.
 - (d) Hemothorax.
 - (e) Acute bronchial asthma.
- b. *Shock.*
 - (1) Types and Etiology:
 - (a) Cardiogenic.
 - (b) Neurogenic.
 - (c) Endotoxic.
 - (d) Hypovolemic (hemorrhagic or oligemic).
 - 1. Know average blood volumes and estimation of loss required to produce tachycardia and hypotension.
 - 2. Wound types likely to be associated with excessive blood loss.
 - (2) Signs and Symptoms:
 - (a) General.
 - (b) Demonstrate proficiency in accurate pulse count at various body sites and recognize the significance of pulse rate changes with changes in body position, i.e., acutely hypovolemic individuals will manifest a pulse increase of at least 20-30 counts per minute when moved from a supine to a sitting position, if hypovolemia is significant.
 - (c) Demonstrate proficiency in both palpatory and auscultatory methods of determining blood pressure.
 - (3) Therapy:
 - (a) General.
 - (b) Demonstrate correct body position.
 - (c) Demonstrate proficiency in methods of IV fluid therapy.
 - 1. Venipuncture with hypodermic needle (IV setup) - various body sites.
 - 2. Insertion of intra-cath.
 - 3. Technique for venous cut-down.

- a. Forearm.
 - b. Ankle.
- (d) Knowledge of appropriate use of vasopressor drugs and correct dosage and routes of administration of drugs available in medical kit, i.e., Mephentermine sulfate (Wyamine sulfate).
- c. *Control of Hemorrhage and General Principles for Wound Care.*
 - (1) Control of hemorrhage.
 - (a) Digital pressure point sites.
 - (b) Demonstrate application of pressure dressing.
 - (c) Indication and disadvantages of use of a tourniquet (demonstrate proper method of use).
 - (d) Use of hypothermia (ice packs) to control blood loss and preserve viability of tissues.
 - (e) Demonstrate ability to use a hemostat.
 - (2) Wound Care.
 - (a) General principles of asepsis and wound cleansing.
 - 1. Local anesthetic techniques.
 - 2. Appropriate cleansing solutions.
 - (b) Demonstrate correct method of handling and applying a sterile dressing.
 - (c) Demonstrate methods of functionally bandaging various body sites.
 - (d) Wound Closure.
 - 1. Ability to recognize those wounds which may be sutured; those to be left open.
 - 2. Definition of a contaminated wound.
 - 3. Proper care of a puncture wound.
 - 4. Initial care of a wound suspected of containing a foreign body, i.e., bullet or shrapnel.
 - 5. Demonstrate at least two methods for wound suture.
 - 6. Demonstrate knowledge in surgical knot tying.
 - (e) Concept of tetanus and clostridial prophylaxis.
 - (f) Antibiotics (Systemic).
 - 1. Indications for use under field conditions.
 - 2. Correct dosage and route of administration.
 - a. Penicillin.
 - b. Tetracycline.
 - 3. Anaphylaxis and an approach to its treatment.
 - (g) Principles of immobilization of wound area (where possible).

d. *Thermal Injury.*

(1) Burns.

(a) Ability to identify and define types.

1. First degree.
2. Second degree.
3. Third degree.

(b) Assessment of extent of body burns (working knowledge of the "Rule of Nines").

(c) Therapy.

1. General principles and specific considerations.

a. Shock.
b. Edema of respiratory passageways.

c. Effects of smoke on respiratory passages.

2. Sedation and analgesia.

a. Reason for intravenous route of administration.
b. Knowledge of appropriate dosage schedule for demerol.

(1) In an adult.

(2) In a child.

3. Suppression of contamination.

a. Demonstrate knowledge of general principles for dressing burns of various body sites.

b. Use of antibiotics.

(1) Route of administration and correct dosages.

(2) Topical.

(3) Parenteral.

4. Fluid replacement.

a. Indications and appropriate method for utilizing the oral route of administration.

b. Parenteral replacement.

(1) Demonstrate

knowledge of Brooke Army Hospital Formula for first 24 hours post burn, i.e., 1/2 cc colloid per kg body weight per percent surface area of body burn plus 1/2 cc electrolyte solution per kg body weight per percent surface area of body burn plus 2,000 cc 5% D/W to cover insensible loss. One-half of above is to be administered during first eight hours; one-fourth during the next eight-hour period; and the remaining one-fourth during the third eight-hour period. Burns exceeding 50% of body surface area are to be treated as a 50% body burn.

(2) Demonstrate

knowledge of fluids utilized as sources of colloid and electrolyte, i.e., plasma protein fraction, dextran, lactated ringers, dextrose and saline solutions.

c. Urinary Output.

(1) Knowledge of appropriate method urethral catheterization on both male and female.

(2) Knowledge of normal values of hourly urine output and appreciation of significance of variations in these values as a reliable indicator for adequacy of body hydration (normal output, adult - 30-66 cc per hour).

d. Management of Occular

Burns.

(2) Cold Injury.

(a) Knowledge of various types and ability to identify each.

1. Immersion foot.

2. Trench foot.

3. Frostbite.

a. With dry gangrene.

b. With wet gangrene.

(b) Therapy.

1. Familiarization with technique for rewarming tissue in 42-degree C. water bath.

2. Knowledge of principles for avoiding contamination.

a. Local therapy.

b. Indications for systemic antibiotic therapy.

c. Need for tetanus prophylaxis (if available).

3. Demonstrate knowledge of principles of immobilization and transportation of cold injury patient.

(c) Principles of prevention of cold injury.

e. *Fractures.*

(1) Ability to Identify Clinical Types.

(a) Simple or closed.

(b) Comminuted.

(c) Compound or open.

(2) Knowledge of Principles of Immobilization.

(a) Demonstrate correct application of splints to various body sites.

1. Pneumatic.

2. Rigid or semi-rigid types.

(b) Methods for utilizing adjacent body parts for immobilization.

(3) Care of the Compound Fracture.

(a) Local therapy.

(b) Systemic antibiotics (type, dosage and routes of administration).

(4) Management of Traumatic Amputations.

f. *Head Injuries.*

(1) Diagnosis (signs and symptoms).

(2) Management.

(a) General.

(b) Review airway procedures.

(c) Principles governing judicious use of intravenous fluids.

(d) Knowledge of principles governing use of sedatives and analgesics.

1. Phenergan (dosages and routes of administration).

2. Salicylates (dosages and routes of administration).

(e) The approach to scalp lacerations.

1. Simple.

2. Associated with skull fracture.

3. Associated with skull fracture and herniation of brain tissue.

(f) Indications for the use of systemic antibiotics and drugs of choice.

(3) Knowledge of the signs and symptoms associated with increasing intracranial pressure.

g. Spinal Injuries.

(1) Diagnosis (suspect in any severely injured individual) - Review signs and symptoms.

(a) Cervical injury.

(b) Thoraco-lumbar injury.

(2) Management.

(a) Demonstrate proper method of transportation of patient.

1. Use of rigid litter.

2. Principles of strict immobilization.

a. Methods to avoid flexion of spine.

b. Methods to avoid rotation of spine.

(b) Principles governing use of sedatives and analgesics.

(c) Problem of acute urinary retention (review procedures for urethral catheterization).

h. Ocular Injuries.

(1) General principles governing assessment of injury, penetrating and non-penetrating.

(2) Management.

(a) Demonstrate effective flush technique for non-penetrating eye wounds.

(b) Demonstrate effective eye patch technique.

(c) Knowledge of ophthalmic drug available in medical kit and its appropriate use.

i. Emergency Childbirth. Basic principles of obstetrics-uncomplicated delivery procedures.

21-4. Emergency Medical Training, Clinical Phase. The cases and procedures each paramedic encounters will vary since they cannot be scheduled and are contingent upon the work load of the medical facility during his particular visit. Nevertheless, as far as possible, the following areas of the medical facility and types of training experiences are to be emphasized.

a. Medical/Surgical Wards.

(1) Starting IVs.

(2) Passing Naso gastric and urethral catheters.

(3) Sterile technique.

(4) Physical exam.

(5) Tracheotomy care.

(6) Care of chest tubes.

(7) IM and IV administration of medications.

(8) Cardio-pulmonary resuscitation.

b. Emergency Room.

(1) Starting IVs.

(2) Initial evaluation of medical emergencies.

(3) Management of airway problems.

(4) Cardio-pulmonary resuscitation.

(5) Management of shock.

(6) Administration of whole blood.

(7) Minor surgery techniques (to emphasize the cleansing and debridement of wounds).

(8) Reduction and stabilization of fractures.

c. Operating and Delivery Rooms.

(1) Starting IVs (preferably intracath and angiocaths on sedated patients under direct supervision of anesthetist or physician).

(2) Sterile technique.

(3) Anatomy of thoracic and abdominal cavities.

(4) Childbirth.

(5) Management of hemorrhage.

d. Laboratory.

(1) Phlebotomy.

(2) Autopsy.

e. Ambulance.

(1) Initial evaluation of medical emergencies.

(2) Stabilization of fractures.

(3) Movement of patients.

f. Surgery Clinic.

(1) Removal of sutures.

(2) Treatment of open wounds.

(3) Wound healing.

g. Cast Room.

(1) Stabilization of fractures.

(2) Manipulation of fractures.

(3) Examination of extremities for adequacy of neuro/vascular function.

h. Intensive Care Unit and Recovery Room.

(1) Management of airway problems.

(2) Monitoring of vital signs.

(3) Intravenous therapy.

(4) Cardio-pulmonary resuscitation.

(5) Care of chest tubes, N/G and urethral catheters.

21-5. Additional Advanced Medical Training. Advanced emergency medical training may be obtained through attendance of Course 92370-1, Paramedic/Recovery Technician Emergency Medical Treatment, which is offered at the 1550 ATTW, Hill AFB, Utah. Selection for participation in this training program will be in accordance with criteria established in AFM 50-5.

21-6. General. Medical supplies and equipment specified for support of routine pararescue training and operational situations are identified in ARRSR 167-1. Additional medical supplies and equipment peculiar to local area of operation or specific support should be used as required. Controlled medications will be maintained in accordance with ARRSR 167-2.

21-7. Medical/Jump Kit Deployment Procedures. The medical/jump kit will normally be deployed attached to the individual pararescuer. However, the mission may dictate that the kit be deployed separately, i.e., deployment to a survivor in the water without an available fixed work station (raft, boat, MA-1 kit), or when additional kits are required by a previously deployed team.

a. When the medical/jump kit is to be deployed with the individual, the kit normally will be worn below the reserve parachute and secured to the parachute harness reserve "D" rings, using the quick-release snap hooks on the kit. The lowering line will be secured around the parachute harness main lift web below the right/left reserve "D" ring or secured to the right/left accessory "V" ring. Criteria for release of kit on lowering line will be determined by the parachute deployment situation as follows:

(1) Land Jump Deployment. Release of the medical/jump kit for deployment on lowering line is optional during land jumps. It is recommended that the kit not be released if terrain is rough.

(2) Tree Jump Deployment. The kit will NOT be released on lowering line during descent. It may be released on the lowering line after a secure canopy hangup has been achieved to facilitate accomplishment of tree letdown procedures.

(3) (SCUBA) Jump Deployment. The medical/jump kit may be released for deployment on the lowering line during descent.

NOTE: When deployment situation dictates release of the kit on the lowering line, the kit will be released approximately 200 feet above the surface, ground, or water, and before jumper assumes a prepare-to-land attitude.

b. When the medical/jump kit is to be deployed separately, it will be packed in a MA-1 kit supply bundle and dropped as the No. 3 bundle with the MA-1 kit. A R-1 anti-exposure suit and/or other items required to support the pararescue team (additional clothing, food, etc.) will be packed with the medical kit when mission

requirements dictate separate deployment in water. The following MA-1 kit supply bundle components will be carried in each mission jump-master kit:

(1) Container, supply, inner, P/N 54C6406, FSN 4220-693-1466, 1 each.

(2) Container, supply, outer, P/N 54C6405, FSN 4220-693-1467, 1 each.

(3) Harness, supply, P/N 54D6403/2, FSN 4220-568-6103, 1 each.

c. The operational situation will dictate the number of pararescuemen required to deploy with medical/jump kits for any given mission. The decision for the number of kits required to support the mission will be based on the anticipated number of survivors who may require medical assistance. Normally this kit will provide an initial medical treatment capability for two or three survivors with the usual assortment of injuries incident to an aircraft accident. Additional medical/jump kits for land missions may be deployed as parabundles using the No. 3 bundle of the MA-1 kit for the delivery container.

21-8. Backup Medical Drop Kits. The area of responsibility and unit mission requirements will determine the number of types of backup medical drop kits and other medical equipment needed to support pararescue medical operations.

a. The following types of medical drop kits are strongly recommended for this support, but are not mandatory and their need will be dictated by mission requirements:

(1) Burn Kit - IV fluids (electrolyte solutions and colloid solution), water, bandages and other items required in the treatment of burns.

(2) Traumatic Injury Kit - Bandages, dressings, splints and other items required in the treatment of wounds and fractures.

(3) Chemical Biological Radiological Warfare Kit - May be required to support special mission when directed by HQ ARRS. ARRS will furnish a component list for this kit when a unit is selected to support this type special mission. Local host base medical personnel can supply additional guidance on this subject.

b. In addition to the above medical drop kits, the Pararescue Section will have on-hand a reasonable quantity of aerial delivery equipment, to include cargo parachutes, drop containers and packing material for the purpose of aerial drop of whole blood and other special supplies, as required.