

UNITED STATES MARINE CORPS
FIELD MEDICAL TRAINING BATTALION
Camp Lejeune, NC 28542-0042

FMSO 109

Coordinate Casualty/Tactical Evacuation (TACEVAC)

TERMINAL LEARNING OBJECTIVE

1. Given casualties in a tactical environment, evacuate patients to a higher level of care for further medical treatment. (FMSO-HSS-2003)

ENABLING LEARNING OBJECTIVES

1. Without the aid of reference, given a description or list of capabilities, identify the capabilities of the taxonomy of care, within 80% accuracy, per JP 4-02.1, Health Service Support. (FMSO-HSS-2003a)

2. Without the aid of reference, given a description or list, identify common litters used as TACEVAC platforms, within 80% accuracy, per Prehospital Trauma Life Support, Current Military Edition. (FMSO-HSS-2003b)

3. Without the aid of reference, given a description or list, identify ground vehicles used as CASEVAC platforms, within 80% accuracy, per FM 8-10-6, Medical Evacuation in the Theater of Operations. (FMSO-HSS-2003c)

4. Without the aid of reference, given a description or list, identify aircraft used as CASEVAC platforms, within 80% accuracy, per FM 8-10-6, Medical Evacuation in the Theater of Operations. (FMSO-HSS-2003d)

5. Without the aid of reference, given a description or list, identify Casualty Receiving Treatment Ships (CRTS) used as CASEVAC platforms, within 80% accuracy, per FM 8-10-6, Medical Evacuation in the Theater of Operations. (FMSO-HSS-2003e)

6. Without the aid of reference, given a description or list, identify the casualty evacuation categories, within 80% accuracy, per FM 8-10-6, Medical Evacuation in the Theater of Operations. (8404-HSS-2004f)

7. Without the aid of references, given a description or list, identify the purpose of the 9 Line evacuation communication process, within 80% accuracy, per FM 8-10-6, Medical Evacuation in the Theater of Operations. (FMSO-HSS-2003g)

8. Without the aid of reference, given the necessary equipment, transmit a 9 Line Evacuation request, within 80% accuracy, per FM 8-10-6, Medical Evacuation in the Theater of Operations. (FMSO-HSS-2003h)

9. Without the aid of reference, given multiple simulated casualties in a tactical environment, standard field medical equipment and supplies, and individual combat equipment, perform casualty evacuation, to prevent further injury or death, per FM 8-10-6, Medical Evacuation in the Theater of Operations. (FMSO-HSS-2003i)

OVERVIEW

Tactical Evacuation Care (TACEVAC) is the third phase in the Tactical Combat Casualty Care process. Tactical evacuation encompasses both medical evacuation (MEDEVAC) and casualty evacuation (CASEVAC). The care delivered in the TACEVAC phase can more closely resemble advanced trauma life support guidelines than that in the first two phases. With either vehicular or air evacuation of wounded casualties from the battlefield, there is an opportunity for access to additional medical equipment not available to the Corpsman during the first two phases. One example is the use of pulse oximetry devices, which detect the percent of hemoglobin with oxygen bound to it and gives you an indication of how well the casualty is breathing. It also allows for early detection of pulmonary compromise or cardiovascular deterioration before physical signs are evident. They are highly reliable and can apply across all ages and races. This lesson will describe the taxonomy of care, different methods of casualty evacuation, and how to call for an evacuation.

1. TAXONOMY OF CARE

The taxonomy of care outlines distinctive and overlapping care capabilities that enhance performance in a military force. The level of care commences at the scene of the injury and continues until the member receives definitive care and is discharged or returned to full duty. While this course teaches you the skills needed to operate using the first responder, forward resuscitative, and en route care capabilities, there are five capabilities in the taxonomy continuum of healthcare which are used when evacuating the wounded from the battlefield (see figure 1).

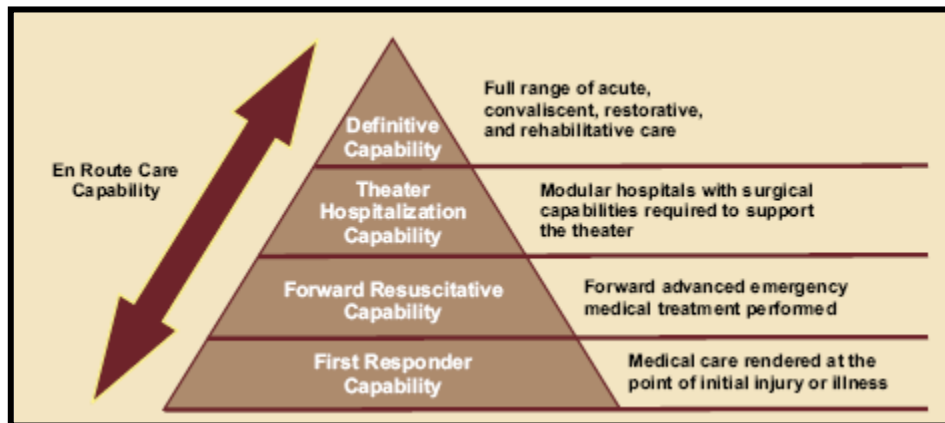


Figure 1. Taxonomy of Care

First Responder Capability - first aid and emergency care rendered at the point of initial injury are the primary objectives of care at this level. Defined by its time requirements, first responder care provides immediate medical care and stabilization to the patient in preparation for evacuation to the next capability in the continuum of care. Examples of First Responder Capabilities include:

- Self-aid/Buddy aid
- Battalion Aid Station (BAS)

Forward Resuscitative Capability - builds on the First Responder Capabilities. Characteristics include performing advance emergency medical treatment as close to the point of injury as possible, stabilizing the patient, and saving life and limb. Stabilization ensures the patient can tolerate evacuation. Examples of Forward Resuscitative Capabilities include:

Medical Battalion - provides surgical care for the MEF. Provides stabilizing surgical procedures. Capable of holding patients up to 72 hours.

Casualty Receiving & Treatment Ships (CRTS) - part of an Expeditionary Strike Group (ESG). They provide additional medical capabilities for receiving a mass casualty (up to 50 casualties).

Shock Trauma Platoon (STP) - small forward unit with one physician supporting the MEF specializing in patient stabilization and evacuation. No surgical capability.

Forward Resuscitation Surgical Suite (FRSS) - staffed with 8 to 10 personnel (two surgeons, one critical care nurse, one anesthesiologist, and four to six corpsmen). It consists of a two tent surgical system that provides a fully powered, climate-controlled environment with enough space for one operating room and one pre- and post-operative care room. The shelter is equipped with cutting-edge surgical gear and takes less than one hour to set up or break down.

Theater Hospitalization Capability - services are delivered via modular hospital configurations and/or hospital ships required to sustain forces in theater. These capabilities deploy as modules or multiple individual capabilities that provide increasing medical services in a more robust theater. The care offered either returns the patient to duty or stabilizes the patient to ensure they can tolerate evacuation to a definitive care facility. Services encompass primary inpatient and outpatient care, emergent care, and enhanced medical, surgical, and ancillary capabilities, including:

Fleet hospitals - deployable ground asset that is located away from enemy threat providing up to 500 hospital beds, 80 ICU beds, and 6 OR's.

Hospital ships (USNS Mercy and USNS Comfort) - deployable medical assets providing up to 1,000 beds, 100 ICU beds, and 12 OR's.

Definitive Capability - rendered to conclusively manage a patient's condition and is usually delivered from, or at, facilities in the homeland, but may be delivered in facilities outside the homeland. This capability generally leads to rehabilitation, return to duty, or discharge from the armed forces. Because this care is usually given outside the operational area, the most advanced health care can be made available and accessible to the patient. It includes:

CONUS Military, Veteran's and selected civilian hospitals - provide full convalescent, restorative, and rehabilitative care to all patients returned to the Continental United States (CONUS).

Overseas Medical Treatment Facilities - offers the surgical capability found in the theater hospitalization capability, along with further definitive therapy for those patients in the recovery phase who can be returned to duty within the theater evacuation policy. A patient who cannot be returned to duty will be evacuated through the en route care capability.

En Route Care Capability - en route care is the continuation of care during evacuation within the continuum without clinically compromising the patient's condition. This capability can take one of three forms – medical evacuation (MEDEVAC) in which dedicated special medical non-combatant platforms are used. The Air Force is the primary provider of MEDEVAC assets. Casualty evacuation (CASEVAC) are primarily non-medical evacuation platforms, however, some may have medical attendants such as a Hospital Corpsman or an Army Medic. The third capability is Aeromedical evacuation. This type of evacuation is generally beyond the scope of TCCC but it is typically used when transferring patients between medical treatment facilities. This course deals specifically with CASEVAC, which involves the unregulated movement of casualties aboard ships, land vehicle, or aircraft.

2. METHODS OF EVACUATION

The level of urgency and the tactical situation dictates the method of evacuation. Depending upon which level of care you are in, Care Under Fire, Tactical Field Care, or Tactical Evacuation Care, will dictate how the casualty is transported. The most common forms of evacuation are: ambulatory, manual carries, litter evacuation, ground evacuation, air evacuation, or sea evacuation. Regardless, the casualty should be made as comfortable as possible and kept warm and dry. If an improvised litter is used, it should be padded and field-expedient material replaced with conventional splints, tourniquets, and dressings as soon as feasible. A patient with minimal injuries should be encouraged to stay in the fight if possible and to ambulate to an area where care can be safely provided.

Manual Carries

Fireman's Carry - Used for unconscious and conscious patients. (See figure 2)

1. Secure your arms around the patient's waist with their body lightly tilted backward to prevent their knees from buckling. Place your right foot between their feet and spread them six to eight inches apart.
2. With your left hand, grasp their right wrist and raise it over your head.
3. Bend at the waist and knees, pull the patient's arm over and down your left shoulder, bring their body across your shoulders. Pass your right arm between their legs.
4. Place the patient's right wrist in your right hand and your left hand on your left knee for support in rising.
5. Rise with the patient correctly positioned with your left hand free.



Figure 2. Fireman's Carry

One-man Supporting Carry - Conscious patients only. The patient is able to walk using you as a crutch. (See figure 3)

1. Raise the patient from the ground as in the Fireman's Carry.
2. With your left or right hand, grasp the patient's left or right wrist and draw it around your neck.
3. Place your left or right arm around their waste.



Figure 3. One-man Supporting Carry

Saddle-back Carry - Conscious patients only. (See figure 4)

1. Raise the patient to an upright position.
2. Support patient by waist and move to the front of the patient.
3. Have patient encircle arms around your neck.
4. Stoop, raise patient to your back and clasp hands beneath his thighs.



Figure 4. Saddle-back Carry

Pack-strap Carry – Good for unconscious patients, however do not use if patient has fractures. (See figure 5)

1. Raise the patient from ground as in Fireman's Carry.
2. Support by wrist and move to front of patient.
3. Grasp patient's wrist and hoist onto your back until their armpits are over your shoulders.



Figure 5. Pack-strap Carry

Two-man Supporting Carry – Patient is conscious and has no suspected fractures. (See figure 6)

1. Same as One-man Carry, but done with two individuals.



Figure 6. Two-man Supporting Carry

Two-man Carry – Used for placing patient on a litter or moving short distances. Similar to performing a patient log roll. (See figure 7)

1. Two corpsmen kneel at one side of patient.
2. One places one arm beneath the hips and the other beneath the knees.
3. The second bearer places one arm beneath the shoulder and one beneath the back.
4. Lift patient to knees, then stand up and carry at chest level to lessen fatigue.



Figure 7. Two-man Carry

Fore-aft Carry – Used to carry an unconscious patient for short distances. (See figure 8)

1. With patient lying on their back, front bearer spreads legs of patient and steps between legs with back towards patient, grasps legs behind the knees.
2. Rear bearer kneels at the head of the patient, places arms under the armpits and clasps hands on their chest.
3. Bearers rise together.



Figure 8. Fore-aft Carry

Four Hand Carry – Patient must be conscious. (See figure 9)

1. Each bearer grasps their left wrist with the right hand and then each other's right wrist with the left hand.
2. Patient sits on the interlocked hands supporting themselves by putting one arm around each of the bearer's necks.



Figure 9. Four Hand Carry

Two Handed Seat Carry – Used for conscious patients with no fractures. (See figure 10)

1. With patient on their back, bearers on each side of the patient's hips.
2. Bearers interlock their wrists behind the patient's thighs and back.
3. Bearers rise together lifting patient.



Figure 10. Two Handed Seat Carry

Clothes Drag Carry – Used during “under fire” conditions. (See figure 11)

1. Grasp the patient's shirt collar or gear and drag to safety.

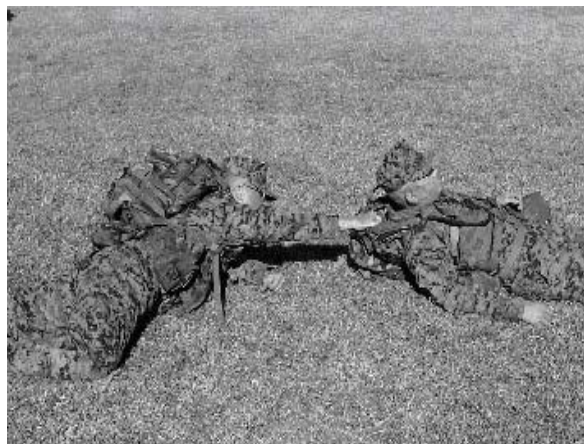


Figure 11. Clothes Drag Carry

Types of litters - there are six commonly used litters within the FMF.

Talon Litter (See figure 12) - the Talon collapsible handle litter was developed to meet the US Army's urgent requirement to provide casualty evacuation. The Talon litter allows a casualty to be transported in one vehicle then transitioned to a standard evacuation platform without the need to transfer a casualty from one litter to another. This is the **most commonly used** litter.



Figure 12. Talon Litter

Standard Army Litter (See figure 13) - the standard collapsible litter folds along the long axis.

Stokes Litter (See figure 14) - affords maximum security for the patient when the litter is tilted.

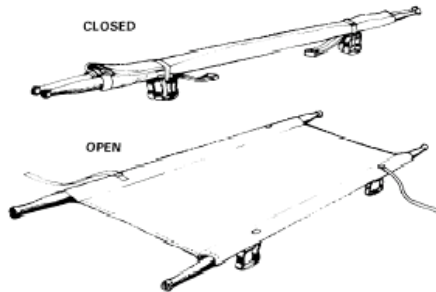


Figure 13. Standard Army Litter

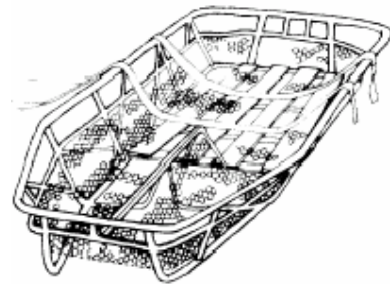


Figure 14. Stokes Litter

Pole-less Non-rigid Litter (See figure 15) - this litter can be folded and carried by the Field Medical Service Technician. It has folds into which improvised poles can be inserted for evacuation over long distances.

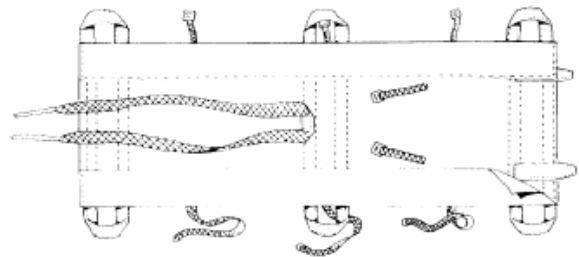


Figure 15. Pole-less Non-rigid Litter

Miller (full body) Board (See figure 16) - the Miller Board is constructed of an outer plastic shell with an injected foam core. It is impervious to chemicals and the elements and can be used in virtually every confined-space rescue and vertical extrication. It fits in stokes stretcher and will float a 250-pound person.

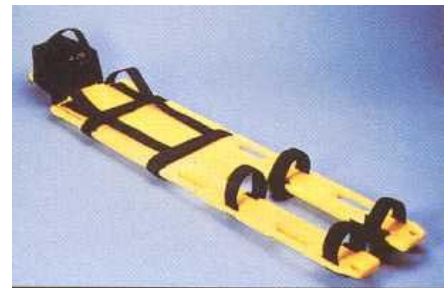
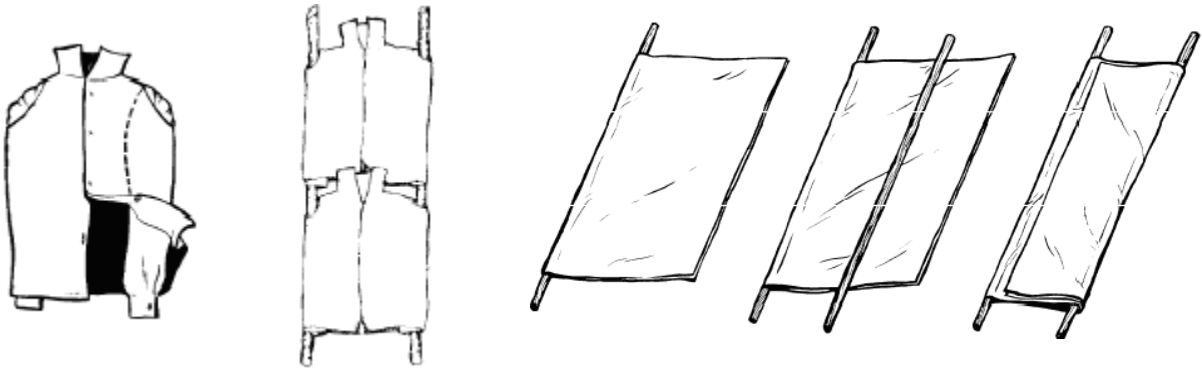


Figure 16. Miller (full body) Board

Improvised Litters (See figure 17) - used for moving a casualty when a standard litter is not available, the distance may be too great for manual carries, or the casualty may have an injury that would be aggravated by manual transportation. These litters are to be used in emergency situations only and must be replaced by standard litters at the first opportunity.



Blouse / Flak Jacket Litter

Rolled Blanket Litter

Figure 17. Improvised Litters

Procedures for Carrying Litters

1. When moving a patient, the litter bearers must make every movement deliberately and as gently as possible. The command “steady” should be used to prevent undue haste.
2. The rear bearers should watch the movements of the front bearers and time their movements accordingly to ensure a smooth and steady action.
3. The litter must be kept as level as possible at all times, particularly when crossing obstacles such as ditches.
4. Normally, the patient should be carried on the litter feet first, except when going uphill or up stairs
5. When the patient is loaded on a litter, his individual equipment is carried by two of the bearers or placed on the litter. When available, use Marines as your litter bearers.

3. GROUND EVACUATION PLATFORMS

(See figure 26)

M997 Ambulance (See figure 18)- HMMWV frame with armor protection for crew and patients. It is capable of transporting up to 4 litter or 8 ambulatory patients.



Figure 18. M997 Ambulance

M1035 Ambulance (See figure 19) - HMMWV frame with removable soft-top. It is capable of transporting 2 litter and 3 ambulatory patients.



Figure 19. M1035 Ambulance

MK 23 7 Ton(See figure 20) - non-medical vehicle that may be utilized for casualty transportation when available. It is capable of transporting 10 litter or 20 ambulatory patients.



Figure 20. MK 23 7 Ton Truck

4. **AIR EVACUATION PLATFORMS** (See figure 26)

CH-46 Sea Knight (See figure 21)

- Dual rotor medium lift helicopter used to transport personnel and cargo (being phased out by the MV-22 Osprey Tilt Rotor Aircraft).
- When configured for litter racks, able to carry 15 litters or 22 ambulatory patients.



Figure 21. CH-46 Sea Knight

UH-1 Huey (See figure 22)

- Light transport helicopter used to transport personnel and cargo.
- When configured for litter racks, able to carry 6 litters or up to 10 ambulatory patients.



Figure 22. UH-1 Huey



Figure 23. MV-22 Osprey

MV-22 Osprey(See figure 23)

- Tilt-rotor aircraft that takes off and lands vertically but flies like a plane. This aircraft is designed to eventually replace the CH-46.
- When configured for litter racks, able to carry 12 litters or 24 ambulatory casualties.

CH-47 Chinook (See figure 24)

- Dual rotor medium lift helicopter used to transport personnel and cargo for the US Army.
- When configured for litter racks can carry 24 litter patients or 31 ambulatory patients.



Figure 24. CH-47 Chinook



Figure 25. UH-60 Blackhawk

UH-60 Blackhawk (See figure 25)

- Single rotor helicopter with multiple uses by not only the Army but the Navy as well.
- Can carry up to 6 litter patients if litter modification kit is installed.
- Can carry up to 7 ambulatory patients if litter modification kit is not installed.
- Patients can be loaded from either side.

NOTE: The Marine Corps does not have dedicated CASEVAC aircraft. Any of its aircraft can be utilized as a “lift of opportunity” upon completion of its primary mission. The use of helicopter evacuation provides a major advantage because they greatly decrease the time between initial care and definitive treatment thereby increasing the casualty’s chances of survival. Figure 17 below reflects USMC assets as well as those available through the Army and Air Force.

AIRCRAFT				
TYPE	SERVICE	LITTER	AMBULATORY	ATTENDANTS
UH-60 Blackhawk	USA	6	7	1 Medic
CH-47 Chinook	USA	24	31	2 Medics
UH-1 Huey	USMC	6	10	1 Corpsman
CH-46 Sea Knight	USMC	15	22	2 Corpsmen
CH-53 Super Sea Stallion	USMC	24	37	2 Corpsmen
MV-22 Osprey	USMC	12	24	2 Corpsmen
MEDICAL GROUND VEHICLES				
TYPE	SERVICE	LITTER	AMBULATORY	ATTENDANTS
M997 HMMWV	USA/ USMC/ USAF	4	8	1 Corpsman
M1035 HMMWV	USA/ USMC/ USAF	2	3	1 Corpsman
VEHICLES OF OPPORTUNITY (GROUND)				
TYPE	SERVICE	LITTER	AMBULATORY	ATTENDANTS
MK 23 (7-Ton Truck)	USMC	10	20	None

Figure 26. Ground/Air CASEVAC Platform Data Description

5. CASUALTY RECEIVING TREATMENT SHIPS

Specific ships within an Amphibious Task Force are designated as Casualty Receiving Treatment Ships (CRTS).

LHD/LHA - Amphibious Assault Ships with medical capabilities (See figure 27).

Mission

- Assault via helo, landing craft, and amphibious vehicle.
- Primary amphibious landing ships for MEF's, MEB's, and MEU's.
- Primary CRTS

Transport capabilities

- Flight deck with large internal hangar deck and well deck.
- May receive casualties via helicopter or waterborne craft.



Figure 27. LHA Tarawa Class

Medical Capabilities

Largest medical capability of amphibious ships. When fully staffed, capabilities include:

- 4 Operating Rooms
- 15 ICU Beds
- 45 Ward Beds

Hospital Ships (T-AH) (see figure 28)- the COMFORT and the MERCY are operated by the Military Sealift Command and are designed to provide emergency, onsite care for US combatant forces deployed in war and other operations. The T-AHs provide a mobile, flexible, rapidly responsive afloat medical capability to acute medical and surgical care in support of ATF; Marine Corps, Army, and Air Force elements; forward-deployed Navy elements of the fleet; and fleet activities located in areas where hostilities may be imminent. The T-AHs also provide a full-service hospital asset for use by other government agencies involved in the support of disaster relief and humanitarian operations worldwide.

Transport Capabilities

- Flight deck capable of receiving rotary wing aircraft.

Medical Capabilities

- Operating Rooms (12)
- ICU Beds (100)
- Intermediate Care Beds (400)
- Ward Beds (500)
- Ancillary capabilities of lab, x-ray, pharmacy, computerized tomography scanner, and blood storage.



Figure 28. Hospital Ship

6. CASEVAC CATEGORIES (See figures 29-31)

Once a patient has been triaged and stabilized at the BAS, should that patient require further or additional medical treatment, he/she will be categorized for evacuation from the BAS to the next higher capability of care. While evacuating patients, ensure that they are kept warm to prevent hypothermia! The category levels are as follows:

Urgent Evacuation

- Evacuation to next higher capability of medical care is needed to save life or limb.
- Evacuation must occur within two hours.

Urgent Surgical Evacuation

- Same criteria as Urgent. The difference is that these patients need to be taken to a facility with surgical capabilities.

Priority Evacuation

- Evacuation to next higher capability of medical care is needed or the patient will deteriorate into the URGENT category.
- Evacuation must occur within four hours.

Routine Evacuation

- Evacuation to the next higher capability of medical care is needed to complete full treatment.
- Evacuation may occur within 24 hours.

Convenience

- Used for administrative patient movement.

URGENT/URGENT SURGICAL - 2 Hours or Less

Life threatening injuries such as temporarily corrected hemorrhage, temporarily controlled airway injuries, or temporarily controlled breathing issues.

Examples include (but not limited to) patients with:

Tourniquets	Needle Decompression
Cricothyroidotomy	Major Internal Bleeding

(Figure 29)

PRIORITY - 4 Hours or less

Potentially life threatening injuries such as compensated shock, fractures causing circulatory compromise, and uncomplicated but major burns.

Examples include (but not limited to) patients with:

Compensated Shock	Broken arm with loss of distal pulse
2 nd degree burns to a large portion of the abdomen or extremities	

(Figure 30)

ROUTINE - 24 Hours or less

Injuries so insignificant or extreme that chances of survival are not based on evacuation time.

Examples include (but not limited to) patients with:

Abrasions	Cardiac Arrest	Massive Head Trauma
Small Fractures	Frostbite	2 nd /3 rd degree burns >70% BSA

(Figure 32)

7. **NINE LINE CASEVAC** (See figure 33)

A nine-line evacuation request is a standard format used by the Armed Forces for coordinating the evacuation of casualties. Evacuation request transmissions should be by the most direct communication means available to the medical unit controlling evacuation assets. The means and frequencies used will depend on the organization, availability, and location in the area of operations as well as the distance between units.

The information must be clear, concise, and easily transmitted. This is done by use of the authorized brevity code. The authorized brevity code is a series of phonetic letters, numbers, and basic descriptive terminology used to transmit casualty information. These codes

indicate the standard information required for an evacuation commonly known as the “9 Line”. This message is verbally transmitted in numerical “line” sequence utilizing the following brevity codes:

Line 1 - Location - location of the Landing Zone (LZ) where the casualties are to be picked up. This information will be transmitted in the form of an eight digit grid coordinate.

Line 2 - Radio Frequency, Call Sign - radio frequency and call sign that will be used by the ground unit at the LZ. You should know this information before every operation.

Line 3 - Precedence (Urgent, Urgent Surgical, Priority, and Routine) - number of casualties by precedence. Use the following codes:

- Alpha - Urgent
- Bravo - Urgent Surgical
- Charlie - Priority
- Delta - Routine
- Echo - Convenience

Line 4 - Special Equipment - identifies any special equipment that will be needed, such as a hoist in the case where a helo cannot land. Use the following codes:

- Alpha - none
- Bravo - hoist
- Charlie - extraction equipment
- Delta - ventilator

Line 5 - Number of Patients by Type - number of patients who are ambulatory and the number of litter patients. This determines whether or not the helo should be configured to carry litters. Use the following codes:

- Lima - litter patients
- Alpha - ambulatory patients

Line 6 - Security of Pickup Site - whether or not the enemy is near the LZ. If all of your casualties are routine and the LZ is not secured, then you may not get your requested CASEVAC approved. Use the following codes:

- November - no enemy troops in area
- Papa - possible enemy troops (approach with caution)
- Echo - enemy troops in area (approach with caution)
- X-Ray - enemy troops in area (armed escort required)

Line 7 - Method of Marking Pickup Site - methods that you will use to mark your LZ and then ask the pilot to identify. Use the following codes:

- Alpha - panels
- Bravo - pyrotechnic signal
- Charlie - smoke signal
- Delta - none
- Echo - other

Line 8 - Patient's Nationality and Status - patients' nationality and status. Use the following codes:

- Alpha - US military
- Bravo - US civilian
- Charlie - non US military
- Delta - non US civilian
- Echo - enemy prisoner of war

Line 9 - NBC Contamination - whether the LZ has been contaminated with NBC agents. Use the following codes:

- November - nuclear
- Bravo - biological
- Charlie - chemical

Example: During a routine patrol your platoon takes two casualties. One receives a gunshot wound to his right arm. The other receives a gunshot wound to his abdomen and has signs and symptoms of shock associated with internal hemorrhage. While you perform initial treatment, members of your platoon determine that the closest potential landing zone for a helicopter is 300 feet to the West. Its grid location on the map is DH 1234 5678. Your call sign is Blue Thunder and your unit is operating on the frequency 99.65. Your unit commander informs you that the site is secure and will be marked with green smoke. The following would be your nine line radio CASEVAC Request transmission:

Line 1: DH 12345678

Line 2: 99.65 Blue Thunder

Line 3: 1 Bravo, 1 Charlie

Line 4: Alpha

Line 5: 1 Lima, 1 Alpha

Line 6: November

Line 7: Charlie

Line 8: 2 Alpha

Line 9: None

Figure 33. Nine-Line Casualty Evacuation Request Example

REFERENCES:

Prehospital Trauma Life Support, current edition
Medical Evacuation In A Theatre of Operations, FM 8-10-6, Chapters 5, 7-11
Health Service Support, JP 4-02, Chapter I

CASEVAC/TACEVAC Review

1. Identify three different facilities that fall under the Forward Resuscitative Capability.
2. How many litter patients can be carried in an M-997 vehicle.
3. Describe the difference between the Urgent and Urgent Surgical categories.
4. In relation to the Nine Line evacuation request, what are “authorized brevity codes”?