MEDICAL EVACUATION

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Medical Evacuation

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5-80. Special equipment requirements include, but are not limited to—

- Axes, crowbars, and other tools used to break through barriers.
- Special harnesses; portable block and tackle equipment; grappling hooks; poleless nonrigid and collapsible litters; lightweight collapsible ladders; heavy gloves; and casualty blankets with shielding. This equipment, using pulleys, is for lowering casualties from buildings or moving them from one building to another at some distance above the ground.
- Equipment for the safe and quick retrieval from craters, basements, sewers, and subways. Casualties may have to be extracted from beneath rubble and debris.
- Air ambulances equipped with a rescue hoist may be able to evacuate casualties from the roofs of buildings or may be able to insert needed medical personnel and supplies.

DANGER

There is a possibility of a dynamic rollout occurring when proper tension is not maintained at all times during hoist operations. Excessive slack in the hoist cable may allow the hook and seat attachment point to become positioned such as to allow for dynamic rollout. For alternate attaching procedures for all affected equipment and for more information, refer to message dated 151200Z Aug 16, SUBJECT - SAFETY OF FLIGHT (SOF), TECHNICAL, RESCUE HOIST OPERATIONAL, RESTRICTIONS, H-47-16-SOF-04 / H-60-16-SOF-02 / H-72-16-SOF-01. (This information can be found at the web site listed in the references section of this publication.)

5-81. Communication may be limited within the urban environment. Medical evacuation teams will have difficulty in locating injured or wounded Soldiers due to their isolation within buildings or by being hidden in rubble and debris. Casualties may have to use visual forms of communication to mark their position, such as markers, panels, or field expedients (equipment of parts of uniforms) indicating where they may be found.

5-82. Due to the increased hazards to aviation assets operating in an urban environment, it may be preferred that medical evacuation is by ground ambulance. Ground ambulance may need to transfer patients to air ambulances at preplanned AXPs outside the build-up area that provides greater security.

Establishing Casualty Collection Points

5-83. Preplan and establish CCPs at relatively secure areas accessible to both ground and air ambulances. The locations of these points are depicted on the HSS/FHP overlay to the OPLAN. Casualty collection points should—

- Offer protection from enemy fires.
- Be as far forward as the tactical situation permits.
- Be identifiable by an unmistakable feature (natural or man-made).
- Allow rapid turnaround of ambulances.

5-84. The tactical commander must approve route markings to the MTF and whether to display the Geneva Red Cross at the facility. (Camouflaging or not displaying the Geneva Red Cross can forfeit the protections, for both medical personnel and their patients afforded under the Geneva Conventions. Refer to Appendix A for additional information.) The location of the MTF must be as accessible as possible, but well separated from fuel and ammunition depots, motor pools, reserve forces, or other lucrative enemy targets, as well as civilian hazards such as gas stations or chemical factories.
GROUND EVACUATION FOR URBAN OPERATIONS

5-85. When using ground evacuation assets in support of urban operations, the medical planner must be aware that build-up areas may have significant obstacles to vehicular movement. Factors requiring consideration include—

- Rubble and other battle damage complicate and canalize transportation operations within the urban terrain.
- Bypassed pockets of resistance and ambushes pose a constant threat along evacuation routes.
- Land navigation with most tactical maps proves to be difficult. Using commercial city maps when available can aid in establishing evacuation routes.
- Ambulance teams must dismount from the ambulance, search for, and rescue casualties.
- Movement of patients becomes a personnel intensive effort. There are insufficient medical personnel to search for, collect, and treat the wounded. Medical units may require assistance in the form of litter bearers and search teams from supported units.
- Refugees may hamper movement into and around urban areas.
- Dislocated civilians, enemy prisoners of war (EPWs), and detainees receive medical treatment according to the command policy and the Geneva Conventions.

AIR EVACUATION FOR URBAN OPERATIONS

5-86. When using air ambulance assets in support of urban operations, the medical planner must consider enemy air defense capabilities and terrain features, both natural and man-made, within and adjacent to the build-up areas. Air ambulances may be the preferred means of evacuation in the AO, but special consideration must be taken into consideration when operating in urban areas. These considerations include the following:

- Movement is highly restricted and is canalized over secured areas, down wide roads, and open areas.
- Telephone and electrical wire and communication antennas hinder aircraft movement.
- Secure landing zones (LZ) must be available.
- Landing zones may include buildings with helipads on their roofs or sturdy buildings, such as parking garages.
- Snipers with air defense capabilities may occupy upper stories of the urban area’s taller buildings.

SPECIALTY TRAINING

5-87. Medical personnel require special training in the tactics, techniques, and procedures required to operate in an urban environment. If they are to survive in this environment, they must know how to—

- Cross open areas safely.
- Avoid barricades and mines.
- Enter and depart safely from buildings.
- Recognize situation where booby traps or ambushes are likely and would be advantageous to the enemy. Detailed information on the conduct of combat operations in the urban environment is contained in FM 3-06 and ATP 3-06.1.

Note. Medical personnel do not engage in offensive-type actions. They must rely on the supported unit to provide covering fires and to clear rooms and buildings prior to entry.

SECTION IX — ARMY SUPPORT TO CIVIL AUTHORITIES

DEFENSE SUPPORT TO CIVIL AUTHORITIES

5-88. Army forces support civil authorities by performing defense support of civil authorities (DSCA) tasks. Defense support of civil authorities is defined as support provided by U.S. Federal military forces,
DOD civilians, DOD contract personnel, DOD component assets, and National Guard forces (when the Secretary of Defense, in coordination with the Governors of the States, elects and requests to use those forces in Title 32 (National Guard), U.S. Code status) in response to requests for assistance from civil authorities for domestic emergencies, law enforcement support, and other domestic actives, or from qualifying entities for special events. Also known as civil support (DODD 3025.18).

5-89. The primary purpose of all DSCA missions are to—

- Save lives.
- Alleviate suffering.
- Protect property.

5-90. Defense support to civil authorities encompasses support provided by the components of the Army to civil authorities within the U.S. and its territories. This includes support provided by Regular Army, Army Reserve, and the National Guard. All Army components conduct DSCA, and National Guard forces conduct National Guard civil support as well. Army forces operating within the U.S. encounter very different operations environments than they face outside the Nation’s boundaries. Principally, the roles of civilian organizations and the relationship of military forces to federal, state, tribal, and local agencies are different. The support provided by Army forces depends on specific circumstances dictated by law, as state and federal laws define almost every aspect of DSCA. The differences are pronounced enough to define a different task set than offense, defense, or stability. Soldiers and Army civilians need to understand domestic environments so they can employ the Army’s capabilities efficiently, effectively, and legally. For more information on support to civil authorities see ADP 3-28 and ADRP 3-28.

5-91. Although not the primary purpose for which the Army is organized, trained, and equipped, DSCA operations are a vital aspect of the Army’s service to the Nation. The skills that allow Soldiers to accomplish their missions on today’s battlefield can support local, state, and federal civil authorities, especially when domestic emergencies overwhelm the ability of government agencies to support fellow Americans.

5-92. The four primary characteristics that define DOD support are—

- State and federal laws define how military forces support civil authorities.
- Civil authorities are in charge and military forces support them.
- Military forces depart when civil authorities are able to continue without military support.
- Military forces must document costs of all direct and indirect support provided.

5-93. Homeland security and homeland defense are complementary components of the National Security Strategy. In both homeland defense and homeland security, the Army may conduct DSCA.

HOMELAND SECURITY

5-94. The DOD supports the Nation’s homeland security effort, which is led by the Department of Homeland Security. Homeland security is the concerted national effort to prevent terrorist attacks within the U.S.; reduce America’s vulnerability to terrorism, major disasters, and other emergencies; and minimize the damage and recover from attacks, major disasters, and other emergencies that occur.

5-95. To preserve the freedoms guaranteed by the Constitution of the U.S., the Nation must have a homeland that is secure from threats and violence, including terrorism. Homeland security is the Nation’s first priority, and it requires a national effort in which the DOD has a key role in that effort. The National Strategy for Homeland Security complements the National Security Strategy of the U.S. by providing a comprehensive framework for organizing the efforts of federal, state, local, and private organizations whose primary functions are often unrelated to national security. Critical to understanding the overall relationship is an understanding of the distinction between the role that DOD plays with respect to securing the Nation and homeland security and the policy in the National Strategy for Homeland Security, which has the Department of Homeland Security as the lead. Homeland security at the national level has a specific focus on terrorist threats. The DOD focus in supporting homeland security is broader. Military application of the National Strategy for Homeland Security calls for preparation, detection, deterrence, prevention, defending, and responding to threats and aggression aimed at the homeland.
5-96. An understanding of the National Incident Management System is important to all response partners as this national crisis response system provides a consistent, nationwide approach to prepare for, respond to, and recovery from domestic emergencies, regardless of cause, size or complexity. Medical evacuation support plans to augment civil authorities may be necessary for a variety of contingencies. Domestic support planning must address a range of problems such as—

- Early identification of medical evacuation capabilities, units, and personnel available to support various contingencies large enough to require DSCA.
- Command and control relationships between civil authorities and DOD forces especially when DOD units are split-based.
- Cost capture and reimbursement from civil authorities to DOD in non-Stafford Act emergencies.
- Support for deployed DOD forces when no DOD logistics operations are deployed, including medical support.

5-97. Medical planners must understand that civil authorities are in charge and military forces support them. During DSCA command of military forces remains within military channels, but missions begin as requests for assistance from the supported civil authorities. Additional considerations include communications compatibility, terminology usage, and legal constrains and how they may affect the mission. They must also determine who their counterparts are and who they will be reacting with on the local, state, and federal levels.

5-98. Medical evacuation assets may be deployed as part of a larger military force that would include medical and/or aviation organization. In these capacity medical evacuation assets, both air and ground should plan on providing services similar to what they do when supporting unified land operations. This support would include the evacuation of patients, movement of medical supplies and personnel, and search and rescue activities.

**Homeland Defense**

5-99. Homeland defense is the protection of U.S. sovereignty, territory, domestic population, and critical defense infrastructure against external threats and aggression or other threats as directed by the President. Missions are defined as homeland defense if the nation is under concerted attack from a foreign enemy. Department of Defense leads homeland defense and is supported by the other federal agencies. The purpose of homeland defense is to protect against and mitigate the impact of incursions or attacks on sovereign territory, the domestic population, and defense critical infrastructure. For homeland defense missions, as directed by the President of the U.S. and/or the Secretary of Defense, DOD serves as the lead federal agency.

**Types of Homeland Defense Operations**

5-100. Medical evacuation support to homeland defense operations may follow the same tasks as found in unified land operations. These medical evacuation tasks can be conducted in the same manner and under the same constrains as they are during unified land operations. In support of homeland defense, medical evacuation assets, both ground and air would perform patient evacuation and transfers, movement of medical supplies and personnel and search and rescue mission support.

**Medical Evacuation Support for Foreign Humanitarian Assistance**

5-101. Medical evacuation support to foreign humanitarian assistance and DSCA are very similar in their execution and planning. The largest difference between the two actions is where they are conducted and the regulations and laws that govern their execution.

5-102. Foreign humanitarian assistance operations may use DOD forces to assist foreign civil authorities as they prepare for or respond to crises and relieve suffering. In these operations, DOD forces provide essential support, services, assets, or specialized resources to help civil authorities deal with situations beyond their capabilities. The purpose of which is to meet the immediate needs of designated groups for a limited time, until those foreign civil authorities can do without DOD assistance.
5-103. Foreign humanitarian assistance operations can include a number of activities such as disaster relief, refugee assistance, the provision of medical care to isolated populations, and refeeding programs resulting from famines or natural disasters. Medical evacuation assets may be used to evacuate the injured from disaster sites, to provide the emergency transport of critically needed medical supplies and personnel to remote locations, or to perform emergency rescues during times of flooding, earthquakes, or other natural disasters.

SECTION X — OTHER TYPES OF MEDICAL EVACUATION SUPPORT MISSIONS

EVACUATION OF MILITARY WORKING DOGS

5-104. Military working dogs when injured or ill may be evacuated on any transportation means available. The using unit is responsible for the evacuation of the animal. Use of dedicated medical evacuation assets (air or ground ambulances) is authorized based on mission priority and availability. When possible, the handler should accompany the animal during the evacuation. Using units should include the location of veterinary treatment facility/support units on mission request.

PERSONNEL RECOVERY OPERATIONS

5-105. Army personnel recovery is the sum of military, diplomatic, and civil efforts to prevent isolation incidents and to return isolated persons to safety or friendly control. Army personnel recovery operations are covered in FM 3-50.1.

5-106. Air ambulances do participate in personnel recovery operations in a support role and are not protected from attack while engaged in a personnel recovery mission over contested or denied territory. If the involvement in these operations consists solely of evacuating wounded crewmembers from a crash site in friendly territory, air ambulances retain the protection accorded to them under the provisions of the Geneva Conventions. Air ambulances flying in contested or denied areas are not protected from attack unless flying at times and routes agreed to by the enemy and may be summoned to land. Air ambulances must obey a summons to land. Personnel retain their protections under the Conventions. However, if air ambulances participate in the actual search and rescue phases of the operation, they are not solely engaged in the provision of AHS and are, therefore, not afforded the protections.

SHORE-TO-SHIP EVACUATION OPERATIONS

5-107. Lessons learned from past operations, have shown that U.S. Army helicopters should be able to operate to and from U.S. Navy air-capable ships. An interservice agreement between the Army and the Navy allows for deck-landing qualification of Army pilots (refer to FM 1-564 for additional information) and the current memorandum of understanding with the Navy. It is important that units having contingency missions requiring Navy support establish training requirements to obtain naval-operations orientation, water egress training, water survival, and deck-landing qualification. This enhances the successful accomplishment of the medical evacuation mission to naval vessels.

5-108. The Military Sealift Command operates two hospital ships. The U.S. Naval Ship MERCY T-AH 19 and the U.S. Naval Ship COMFORT T-AH 20. One ship is based on each coast and, when needed, will be assigned medical staffs from military hospitals, getting underway within 5 days. The hospital ships MTFs were designed for a total patient capacity of 1,000, including 500 acute care beds and 500 recuperation beds. The hospital ships have 50 trauma stations in the casualty receiving area, 12 operating rooms; a 20-bed recovery room; 80 intensive care beds; and 16 intermediate, light, limited care wards. The maximum patient flow rate, for which the helicopter facility and the casualty reception area were designed, is 300 patients per 24 hours. There is a limited capability to receive casualties from boats.

5-109. The U.S. Army has the shore-to-ship medical evacuation mission on an area support basis for Marine forces deployed on land.
COMMUNICATIONS

5-110. In past joint operations, communications have been burdensome for both Army and Navy elements. It is essential to establish commonality of communication requirements during training exercises and to establish communication equipment and frequencies for medical evacuation to Navy vessels. This will provide smooth integration of Army helicopters into the Navy airspace management system during actual operations.

NAVIGATION

5-111. As Navy vessels may operate relatively long distances from the ground combat operations, Army air ambulances units need to be proficient in over water navigation. The use of navigational aids from the Navy element in support of the operation is the first priority for over water navigation.

MEDICAL EVACUATION OF ENEMY PRISONERS OF WAR AND DETAINES

5-112. Sick, injured, and wounded EPWs and detainees are treated and evacuated in military police channels when possible. They must be physically segregated from U.S. and multinational patients. Providing guards for the transport of these prisoners or detainees is not the responsibility of medical evacuations unit or the MTF. Guards for these prisoners are provided according to the BCT, division or corps orders and are from other than medical resources. The echelon commander is normally responsible for this support. The U.S. provides the same standard of medical care for wounded, sick, and injured EPW and detainees as that given to U.S. and multinational Soldiers. Wounded, sick, or injured EPWs and detainees in the theater may be treated and returned to military police channels for evacuation or the EPWs and detainees may be stabilized and moved through medical channels to theater MTFs for treatment. Enemy prisoners of war and detainees are not evacuated from the theater for medical treatment.

5-113. When EPWs are evacuated through medical channels, medical personnel—
   • Report this action through medical channels to detainee operations medical director and the next higher headquarters.
   • Request disposition instructions from the MEDBDE (SPT) patient movement branch.

5-114. The MEDBDE (SPT) patient movement branch is responsible for—
   • Coordinating the transportation means.
   • Identifying the MTF to which the EPW or detainees will be taken.
   • Coordinating, in conjunction with the MTF commander, with the Detainee Reporting System to account for EPW within medical channels.

SECTION XI — MEDICAL EVACUATION REQUEST

5-115. Procedures for requesting medical evacuation support must be institutionalized down to the lowest level. The 9-line medical evacuation request provides a standardized message format that helps expedite the medical evacuation process. The same format is used for both air and ground medical evacuation requests.

This subparagraph implements NATO STANAG 2087.

5-116. In all circumstances, along with the patient’s condition, the operational situation, terrain, weather conditions, enemy threat and availability of assets are considered when determining whether to send a ground or air ambulance.

5-117. It is important that the 9-line medical evacuation request be sent by secure means, but more importantly that the request is SENT, even if it is by unsecure communications. The 9-line medical evacuation request format is show in Table 5-2 on pages 5-25 and 5-26.
Chapter 6

Medical Evacuation in Specific Environments

This chapter addresses medical evacuation in specific environments or under special circumstances. The medical evacuation effort must be well planned and its execution synchronized to be effective. Further, medical evacuation personnel must be flexible and ready to improvise, if needed, to meet the demands of unique situations.

SECTION I — MOUNTAIN OPERATIONS

6-1. In the past, armies have experienced great difficulty in evacuation of patients from mountainous areas because they are extremely diverse in nature. Some mountains are dry and barren with temperatures ranging from extreme heat in the summer to extreme cold in the winter. In tropical regions, mountains are frequently covered by lush jungles and heavy seasonal rains occur. Many areas display high rock crags with glaciated peak and year-round snow cover. Elevations can also vary from as little as 1,000 feet to over 16,000 feet above sea level with drastic and rapidly occurring weather changes. For more information on mountain operations refer to ATP 3-90.97.

6-2. Operations in mountainous terrain require some procedure modifications. This is due to the environmental impact on personnel and equipment. Important physical characteristics and considerations that influence medical evacuation are—

- Rugged peaks, steep ridges, and deep valleys.
- Limited number of trafficable roads.
- Reduced communication ranges.
- Unpredictability of and severe changes in weather.
- Decreased partial pressure of oxygen.
- Limited availability of LZs.

6-3. In order to effectively support the tactical plan, the AHS plan must provide maximum flexibility. The AHS planner should consider using all means of evacuation. Due to the length of evacuation times and the limited means of ground evacuation, it is important to triage and prioritize patients prior to movement. Planning considerations include—

- The availability of improved, hard-surfaced roads is extremely limited, if they exist at all. Usually, improved roads are only found in valley corridors. Such roads are often dependent upon a system of narrow bridges spanning mountains streams and ravines. They may also twist along ridgelines and cling to steep shoulders.
- Secondary roads and trails may be primitive and scarce. However, they may provide the only routes capable of vehicular traffic. Cross-compartment travel between adjacent valleys may be impossible by ground vehicle. Off-road travel requires detailed planning, even for short distances.
- Because of rough terrain, the Role 2 MTF may not be able to reach the BAS by ground vehicle. An ambulance shuttle system can be established with an AXP for air and ground evacuation vehicles to meet litter bearers. Litter bearers and beasts of burden may be the only means of evacuation available. Any available personnel may be used as litter bearers (nonmedical personnel from supported units may be required to augment the litter bearer teams). Close coordination between Role 2 MTFs and BASs in establishing CCPs or AXPs is necessary to—
  - Reduce distance traveled by litter bearers.
  - Reduce evacuation time.
  - Conserve personnel.
Chapter 6

- Locate the best potential LZs for air ambulances.
- In mountainous areas, evacuation of patients by air is the preferred means. Air ambulances permit the rapid movement of patients over rugged terrain. For example, to travel a distance of only 6 kilometers on foot could take up to 2 hours, while flying time could be less than 2 minutes.
- If frequency modulation radios are the principal means of communication in this environment, the ability to transmit may be hampered by the limitations of line-of-sight-transmissions.
- The briefing of ambulance drivers needs to be extensive, including detailed strip maps and overlays. Further, specific instructions on what to do in various situations should be covered (such as if the vehicle breaks down or the unit moves).

6-4. The mountain environment, with its severe and rapidly changing weather, impacts on aircraft performance capabilities; accelerates crew fatigue; and requires special flying techniques. Having to rely on continuous aviation support for a successful mountain operation can be risky. Challenges and planning considerations to air ambulance operations in mountainous environment include—

- Lack of LZs is critical because the characteristics of mountain terrain do not usually afford adequate LZs. The terrain may only allow the aircraft to hover while loading patients onboard.
- Hoist operations can be expected in mountainous terrain requiring the use of the internal or external rescue hoist. When possible, orientation and training sessions with supported troops should be conducted to help minimize the difficulty of such missions.
- Enemy air defenses must be considered because when enemy air defense capabilities preclude using air ambulances in forward areas, they should be used to evacuate patients from AXPs or from Role 2 MTFs.
- Ambulatory patients may be reported as litter patients in mountainous terrain because these patients may be unable to move unassisted over the rugged terrain. Once placed on the air ambulance, their status may be upgraded.
- Additional crew training for air ambulance crews should include mountain flying techniques and aeromedical factors. For ground medical evacuation crews, training should include mountaineer skills as taught in the Army mountain warfare school and as prescribed in ATP 3-90.97.

DANGER

There is a possibility of a dynamic rollout occurring when proper tension is not maintained at all times during hoist operations. Excessive slack in the hoist cable may allow the hook and seat attachment point to become positioned such as to allow for dynamic rollout. For alternate attaching procedures for all affected equipment and for more information, refer to message dated 151200Z Aug 16, SUBJECT - SAFETY OF FLIGHT (SOF), TECHNICAL, RESCUE HOIST OPERATIONAL, RESTRICTIONS, H-47-16-SOF-04 / H-60-16-SOF-02 / H-72-16-SOF-01. (This information can be found at the web site listed in the references section of this publication.)

6-5. Soldiers operating in mountainous areas are exposed to other injuries and illness that frequently occur in this environment. These conditions include—

- An increased rate of fracture, sprains, and dislocation injuries.
- Incidents of acute mountains sickness, high-altitude pulmonary edema, and cerebral edema caused by rapid ascent to heights over 7,500 feet above sea level.
- Cold weather illness.
- Dehydration and heat exhaustion.
Medical Evacuation in Specific Environments

- Sunburns and snow blindness.
- Aggravated sickle cell anemia. (Although this condition is not considered a mountain illness, personnel with the sickle cell trait can be seriously affected by the decrease in barometric pressure and lower oxygen levels found at higher altitudes.)

6-6. The proportion of litter cases to ambulatory cases is increased in mountainous terrain, for even the slightly wounded may be unable to move unassisted over rough terrain. Litter relay stations may be required along the evacuation route to conserve the energy of litter bearers and to speed evacuation. It is important to be able to predict the number of patients that can be evacuated with available personnel. When the average terrain grade exceeds 20 degrees, the four-man litter team is no longer efficient and should be replaced by a six-man team. The average mountain litter team should be capable of climbing 120 to 150 vertical meters of average mountain terrain and return with a patient in approximately 1 hour. More information on litter teams can be found in ATP 4-25.13.

SECTION II — JUNGLE OPERATIONS

6-7. Army health system support elements in a jungle environment retain the same basic capabilities as in other environments. Jungle operations, however, subject personnel and equipment to effects not found in other environments. The jungle environment degrades the ability to maneuver. Security problems are also increased and affect medical evacuation operations as much as they do the combat force. For more information of jungle operations refer to FM 90-5.

6-8. In jungle operations, combinations of air and ground evacuation units are used to maximize the patient evacuation potential. Using this dual system of evacuation ensures that the inherent limitations of one system can be compensated for by the other. Jungle variations affect the organizing, positioning, and securing of AHS assets. Due to the terrain, aerial resupply is usually a common practice. The responsiveness provided by aerial resupply requires fewer supplies to be stockpiled in the combat trains.

6-9. Jungle combat operations are usually characterized by ambushes and unconventional warfare-type operations. The security threat caused by infiltrators requires that lines of communication be patrolled often and that convoys be escorted. It is, therefore, essential that AHS be performed as far forward as the tactical situation permits. Positioning assets forward—

- Improves response time.
- Reduces road movement.
- Allows the AHS elements to take advantage of the security offered by combat units.

6-10. The thick foliage often makes evacuation by ground more difficult than in other types of terrain. Factors such as the threat, limited road network, and reliance on nonmedical personnel for convoy security make evacuation by air the preferred means. By using the ambulance shuttle system, patients can be transferred from forward-operating ground ambulances to either ground or air ambulances operating further to the rear. In situations where evacuation assets are delayed by various factors (weather or terrain), patients are held for longer periods of time at forward locations. This will dictate the need for additional medical supplies. Army Health System support planners must try to anticipate these delays whenever possible. The increased disease and infection incidences associated with the jungle environment may worsen the patient’s condition; therefore, timely evacuation is essential.

6-11. In some remote and densely foliaged jungles, the only means of evacuation may be by litter. Ambulances may not be practical on trails, unimproved muddy roads, or in swamps. As in mountain operations, there are a higher proportion of litter cases than usual. In the jungle even a slightly wounded Soldier may find it impossible to walk through dense undergrowth. At best, litter teams can carry patients only a few hundred meters over rough terrain before needing rest or relief. Litter carries should be kept as short as possible and medical elements pre-positioned and retained forward.

6-12. Some of the difficulties that the medical planner should consider for medical evacuation in a jungle environment are—

- The range of frequency modulating radio communications in the jungle may be significantly reduced due to the dense undergrowth, heavy rains, and hilly terrain. The radio transmission range can be extended by using additional radio relays and field expedient antennas.
• There may be few suitable LZs. Many LZs will only be large enough to support one or two helicopters at a time.
• Hoist operations may be required more frequently in the thick jungle vegetation where LZs are not available.

SECTION III — DESERT OPERATIONS

6-13. Arid regions make up about one-third of the earth’s land surface, a higher percentage than any other type of climate. Desert terrain varies considerably from place to place, with the primary similarity being the lack of water and its consequential effect on vegetation and terrain. Desert terrain can have mountains, rocky plateaus, or sandy dunes, some desert areas may contain all of these characteristics. Rain, when it falls, often causes flooding in low-lying areas. Wind can have a devastating effect upon AHS operations by destroying equipment and supplies and causing dust storms. Dust storms make navigation and patient treatment difficult. Since deserts vary considerably in the type of terrain and temperature, and in their cultural makeup, refer to the appropriate OPLAN/OPORD for information on the operational environment.

6-14. Training for desert operations is not significantly different than training for operations in other areas. One consideration is operating in mountainous desert terrain. As many desert areas are in mountainous terrain and because high temperatures increase density altitude, air ambulance evacuation units should be trained in mountain operations. Further, procedures and techniques for evacuation in mountainous terrain must be trained by all medical evacuation personnel.

6-15. In principle, medical evacuation operations in the desert do not differ greatly from these operations in other environments.

6-16. Helicopter landing sites should be chosen with care. Common mistakes made by units when establishing the LZ are—
• Locating the pad relative to the patient and tents, vehicles, and other obstacles. A common tendency is to locate the helipad downwind of the MTFs so that approaches may be made into the wind towards the facility. This causes either a dangerous over flight of the facility or the rotor-wash and dust cloud to encompass the facility. In mountainous deserts, winds normally channel down the valleys and are more predictable along valley floors. A better site selection for an LZ is with the MTF alongside the approach and takeoff zone. Thus, the landing direction is up or down the valley, depending on the airflow, and the MTF is not over flown.
• Marking of helicopter LZs is done so that the site can be seen from the air, but the markings should not be a hazard in themselves. Units requesting medical evacuation must be prepared to signal the evacuation aircraft upon its arrival. The requesting unit must signal the aircraft to ensure that designated LZ is used.
• Situating LZs in washes, small confined areas between large obstacles, or on routes where vehicles are operating. When operating at higher altitudes air crews may be power limited and lack the ability to land in confined areas, similarly when operating in blowing dust conditions air crews may not be able to see and avoid obstacles. Refer to FM 3-21.38 for additional guidance on setting up and marking LZs.

6-17. Desert warfare is usually characterized by extended lines of communication which increase evacuation distance and time. Army health system support units are located further to the rear in the desert or on segregated forward operating bases. Establishing an ambulance shuttle system or CCPs is useful. Army health system support units require a greater number of vehicles for operating in deserts than in other environments. Air evacuation by fixed and rotary-wing aircrafts is the preferred method due to their speed and range. Further, using aircraft reduces the load on ground vehicles. Augmentation from higher echelon AHS may also be required to meet the extended evacuation needs.

6-18. The desert environment is a challenging provides little or no protection from enemy air defenses except in the mountainous terrain. Aircraft may have to be flown in such a manner as to reduce its signature in order to reduce its risk to enemy air defense. Refer to the appropriate manual concerning flight in a desert environment for information on this topic.
SECTION IV — COLD REGION OPERATIONS

6-19. Operations in the extreme cold have many of the limiting factors found in desert operations. The tundra and glacial areas are harsh, arid, and barren. Temperatures may reach lows of 25°F to -40°F (-20ºC to -32ºC) and when combined with gale-force winds, makes exposure unsurvivable. Refer to ATP 3-90.97 for an in-depth review of cold region operations.

6-20. The greatest environmental detriment to operations is blowing snow. This results in a loss of depth perception from total white conditions. Blowing snow is caused by the wind or by the rotor wash of helicopters; its effect can reduce visibility to zero. Other environmental considerations are as extreme but easier to circumvent. Solid footing is suspect in both dead of winter and in the summer. Snow and ice cover crevasses, holes, and otherwise unstable ground. During the summer, ground transportation is more restricted than in any other environment due to the marsh and muskeg of the arctic tundra. Patients must be sustained for a longer duration due to terrain delays and the lack of direct lines of evacuation.

6-21. Factors to consider for conducting medical evacuation in arctic operations include the following:

- Arctic warfare is usually characterized by extended lines of communication that increase evacuations distance and time. Establishing an ambulance shuttle system of CCPs and AXPs is useful. Augmentation from higher roles of AHS support may also be required to meet the extended evacuation needs.

- Patient evacuation may have to be sustained for longer periods due to terrain delays and the lack of direct routes of evacuation. During medical evacuation to an MTF or to an AXP, patients need to be kept as warm as possible, the use of sleeping bags, blankets, or other hypothermia prevention devices is recommended. Warming shelters should also be established along extended lines of evacuation to provide patients and evacuators a means of warming themselves. This allows patients to be monitored for signs of a deteriorating medical condition and provides the personnel performing the evacuation with some relief. Patients with hypothermia require timely evacuation and monitoring throughout the evacuation process.

- The proper storage of medical supplies is essential to prevent loss from freezing or causing further harm to patients. Additional supplies of water should be carried by ambulances and maintained at CCPs, if possible.

- Landing zones must be chosen with care in both winter and summer. During the winter blowing snow takeoffs and landings may require larger LZs then normally used. It can be difficult for litter teams to move patients through snow and over snow drifts; care must be taken not to cause the patient further harm. In the summer movement of patients across tundra and muskeg can make loading air and ground ambulances difficult.

SECTION V — CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR CONTAMINATED ENVIRONMENTS

6-22. Medical evacuation and treatment are conducted continuously throughout operations conducted in a CBRN contaminated environment. The AHS commander should have a comprehensive plan which is rehearsed on a periodic basis to ensure the timely evacuation and treatment of CBRN casualties. The number of casualties and their medical conditions, type of contaminant, the size of the land area contaminated, the expected duration of operation, risk assessment and acceptable level of risk, and the number of AHS assets (medical personnel, medical units, and evacuation vehicles and aircraft) initially contaminated will determine the quantity and type of uncontaminated AHS resources, if any, which will be introduced into the contaminated environment to ensure timely medical treatment and evacuation occur. Refer to ATP 4-02.7 for additional information on AHS operation in a CBRN environment.

6-23. The commander must take into consideration the number of assets he is willing to commit during evacuation operations in a CBRN-contaminated environment. Since the combinations of evacuation methods are nearly endless, the commander has greater flexibility in tailoring an evacuation plan to meet his particular tactical situation in a CBRN-contaminated environment.
6-24. There are three basic modes of evacuation of patients on the battlefield: personnel, ground vehicles, and aircraft. The following are important considerations for evacuating patients from contaminated environments:

- In using personnel to physically carry the patient, the commander must realize the inherent physical stress involved. Cumbersome mission-oriented protective posture gear needed in a contaminated environment (added to climate, increased workloads, and fatigue) greatly reduces the effectiveness of unit personnel.
- If the commander must send evacuation personnel into a radiological contaminated area, he must establish operational exposure guidance for the medical evacuation operation. Radiation exposure records are maintained by the unit CBRN noncommissioned officer and are made available to the commander, staff, and surgeon. Based on operational exposure guidance, the commander decides which medical evacuation assets to send into the contaminated environment.

6-25. Commanders should make every effort to limit the number of contaminated evacuation assets while still maintaining a timely and effective medical treatment and evacuation operation. Factors to consider for reducing the impact contaminates have on evacuation assets include the following:

- It is expected that a certain number of both ground and air ambulances will become contaminated. The commander can, therefore, segregate these. This results in the smallest impact on his available assets and the greatest possibility for continuing the patient evacuation mission. Optimize the use of resources, medical or nonmedical, which are already contaminated before employing uncontaminated resources.
- Once a vehicle or aircraft has entered a contaminated area, it is highly unlikely that it will be able to be spared long enough to undergo a complete decontamination. This depends upon the contaminant, the tempo of the battle, and the resources available. Normally, contaminated vehicles (air and ground) have restricted use and are confined to a contaminated environment.
- Introducing uncontaminated aircraft into a contaminated area should be avoided, whenever possible. Ground ambulances should be used instead of air ambulances as long as their use does not adversely affect the patients’ medical condition. Ground ambulances are more plentiful and easier to decontaminate. This does not, however, preclude using aircraft in a contaminated environment or in the evacuation of contaminated patients.
- The relative positions of the contaminated area, location of patients, and threat air defense systems determine if and where air assets are to be used. Aviation and medical commanders may choose to restrict one or more air ambulances to the contaminated areas and use ground vehicles to cross the line separating contaminated and clean areas. The ground ambulance can proceed to the receiving MTF with a patient decontamination station. The patient can then be transferred to a clean ground or air ambulance if further evacuation is required. The routes used by ground vehicles to cross between contaminated and clean areas are considered contaminated routes and should not be crossed by clean vehicles. The effects of wind and time upon contaminates must also be considered.
- The rotor wash of helicopters must always be kept in mind when evacuating contaminated casualties. The intense winds disturb the contaminates in the area and further aggravate the condition by additionally spreading the contaminates. A helicopter must not land too close to a decontamination station (especially upwind) because any trace of contaminates in the rotorwash will compromise the decontamination procedure.
- Evacuation of patients must continue even in a contaminated environment. The commander needs to recognize resource constraints and plan and train to overcome deficiencies.
- Immediate decontamination of aircraft and ground vehicles should be accomplished to minimize crew exposure. Refer to the appropriate equipment technical manual or ATP 3-11.32 for equipment decontamination procedures.

SECTION VI — AIRBORNE AND AIR ASSAULT OPERATIONS

6-26. Airborne and air assault operation are one of the most complicated military operation to undertake, not only from an operational perspective, but also from a sustainment and AHS perspective. Planning for
these operations requires coordination with organic and supporting medical units and the aviation units that control the air ambulances. For additional information on airborne and air assault operations refer to FM 3-99.

6-27. During the initial phases of airborne and air assault operations medical planners should plan for casualty movement by way of manual carries, opportunity lift, and designated CASEVAC assets. Until evacuation assets are available, units must be prepared to provide medical care through their attached and organic medical assets.

AIRBORNE OPERATIONS

6-28. An airborne operation involves the air movement into an objective area of combat forces and their logistic support for execution of a tactical, operational, or strategic mission. The means employed may be any combination of airborne units, air transportable units, and types of transport aircraft, depending on the mission and the overall situation.

6-29. Medical evacuation of casualties from an airhead is difficult until the airhead is secure and medical evacuation means are available; the BCT must be prepared to provide medical care through its organic medical company or the attachment of EAB medical elements.

AIR ASSAULT OPERATIONS

6-30. An air assault operation is an operation in which assault forces, using the mobility of rotary-wing assets and the total integration of available firepower, maneuver under the control of a ground or air maneuver commander to engage enemy forces or to seize and hold key terrain.

6-31. The CAB allocates medical evacuation assets to the supported air assault task force for the duration of the air assault. However, the size and distance of the planned air assault dictates the duration of medical evacuation support to the air assault task force. As a general rule, the supporting commander should provide medical evacuation assets to the supported commander until ground lines of communication are established.

6-32. The evacuation platoon leader from the BSMC and the air ambulance platoon leader from the air ambulance company conduct the medical evacuation planning for the air assaults in coordination with the air assault task force and supported unit’s staff.

6-33. When planning for medical evacuation support for air assault operations—

- Integrate ground evacuation measures into the overall medical evacuation plan.
- Plan medical evacuation routes to supporting Roles 2 and 3 MTFs. Ensure routes are briefed to all aircrews participating in the air assault.
- Plan for medical personnel to fly on casualty evacuation aircraft if they are available and the time and the situation permit.
- Ensure medical evacuation crews are available for air assault orders, rehearsals, and preparations.
- Brief CCP locations during the air assault rehearsal.
- Plan to maintain a forward arming and refueling point after the air assault is completed so that medical evacuation aircraft have a place to stage from for follow-on ground tactical operations.

6-34. Medical evacuation aircraft are limited assets and should be scheduled and used accordingly. The air assault task force’s casualty estimate provides planning guidance for the number of medical evacuation aircraft needed to support the air assaults. To maximize the number of mission hours required to support the mission, medical evacuation aircraft should be staged to support an air assault at the latest possible time. Medical evacuation aircraft should support short distance air assaults from the pickup zone or brigade support area. To expedite pick up of casualties in long distance air assaults, aircraft may stage at a forward arming and refueling point or use a restricted operating zone.

6-35. During the execution of an air assault operation, the air ambulances are controlled by the air mission commander. This allows for the deconfliction of airspace and the coordination of security escorts.
if required. The air mission commander also coordinates the backhaul of casualties on designated aircraft which return the casualties to the CCP at the pickup zone for further medical care (if medical personnel are available) and medical evacuation to receiving MTFs.

SECTION VII — BATTLEFIELD OBSCURATION

6-36. Throughout the battlefield, forces acquire and engage targets on visual, laser, and microwave technologies. Friendly and enemy units use obscurants across the battlefield as a combat multiplier. The use of obscurants to mask the combat operations is dictated by the tactical commander. He normally provides the operational guidance for units or elements operating in an area requiring obscuration. Permission to employ obscurants solely to mask medical evacuation operation may not be approved. However, if the tactical commander’s plan indicates that battlefield obscurations are to be employed in a given AO, the medical planner should consider both the advantages and disadvantages posed by their employment. Refer to ATP 3-11.50 for more information on the use obscurants on the battlefield.

6-37. The medical planner should consider the factors which might impact the use of obscurants in medical evacuation operations. Factors to consider are the—

- Phase of the tactical operation in which obscurants will be employed.
- Effect on ground and air evacuation routes when operating in an obscured environment (such as limited hours of use, checkpoint or convoy requirements, or the elimination of nap of the earth approaches).
- Potential for exploiting the use of the concealment provided for clearing the battlefield of casualties, especially in defensive operations.
- Potential requirements for obscuration to perform the medical evacuation mission which would not detract from the tactical capability and requirements.

6-38. The benefit to AHS forces is derived through the tactical commander’s use of obscurants to hide friendly tactical maneuvers. This obscuration—

- Prohibits the enemy from knowing how many casualties have been inflicted.
- Aids the movement of medical units and equipment.
- Enhances the ability to resupply forward deployed AHS elements.
- Aids in the tactical deception plan.

GENEVA CONVENTIONS AND THE USE OF OBSCURANTS IN MEDICAL EVACUATION OPERATIONS

6-39. The 1949 Geneva Conventions for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (GWS) provides protection of medical personnel and units from intentional attack so long as they carry out no duties harmful to the enemy (Article 21, GWS). In order to facilitate their identification so as to prevent their intentional attack, medical units, equipment, and personnel are authorized to display the distinctive emblem of the Red Cross (Article 41 and Article 42 GWS). Under tactical conditions, when requirements for concealment outweigh those for recognition, all distinctive emblems may be obscured or removed from medical equipment if ordered by a brigade or higher commander and authorized by Army regulations. Display of the distinctive emblem is not required to afford the right against intentional attack, attack of medical units, equipment, and personnel not displaying the distinctive emblem are prohibited if opposing forces realize that the forces about to be attacked are medical units performing humanitarian duties.

6-40. The use of obscurants in medical evacuation operations does not differ from the use of camouflage techniques and is not prohibited by the GWS. Its only effect will be to obscure the identity of units as they perform their humanitarian mission. Given the lethality of the modern battlefield, however, it would be difficult, if not impossible, to say that such obscuration of these units, equipment, and personnel would necessarily increase their risk from unintentional attack.

6-41. It is recognized that, with the advent of precision-guided munitions and electro-optical or laser target acquisition devices, there will be a substantial use of obscurants on the battlefield as a result of normal
combat operations. The legitimate use of obscurants by combatants to thwart the accuracy of precision guided munitions may increase the risk to units and equipment not employing obscurants. This may possibly place medical units and equipment at greater risk if they fail to employ them. Further, medical evacuation operations will have to be carried out on the battlefield as medical personnel find it, which will include obscurants employed for combat operations.

**USE OF SMOKE IN AIR AMBULANCE AND HOIST RESCUE OPERATIONS**

6-42. Smoke and obscurants have several uses during air ambulance and hoist rescue operations. Some of these uses can be very beneficial to the pilot and crew in locating the patient, communicating with the ground personnel, and determining environmental conditions. Caution also needs to be exercised when using smoke or obscurants; some of these benefits and disadvantages are described below.

**Effective Use**

6-43. Colored smoke grenades (M18 smoke grenade) can be used effectively in air ambulance and overland hoist rescue operations to—

- Identify the landing site. Colored smoke is an excellent daytime marking method. The smoke generated from a smoke grenade is difficult to detect at more than 2 to 3 miles away, but an aircraft in the area should have little difficulty in noting its location. As more than one unit may be operating in a given area, it is important that the unit requesting a medical evacuation mission be able to signal the aircraft as to the correct landing site to use. When a unit employs colored smoke to mark a landing site, the aircrew should identify the color and confirm it with ground personnel.

- Radio communications produce an electronic signature. The electronic signature created from a prolonged transmission to guide an air ambulance to the landing site may not be an acceptable tactical risk. The transmission time required to signal the aircraft using smoke is limited, thereby reducing the electronic signature.

- Determine surface wind direction. The employment of smoke at the landing site also enables the aircrew to determine the wind direction.

- Provide concealment, in some environmental conditions (such as desert operations), the phenomenon of inversion occurs. When this occurs, obscurants used in normal combat operations may provide an upper layer of smoke under which the air ambulance can operate.

**Disadvantage**

6-44. The use of obscurants on air ambulance operations can be a disadvantage if incorrectly employed or generated. Obscurants can hide the landing site and make nap of the earth approaches unfeasible. Further, battlefield obscurations can force aircraft to fly at higher than planned heights. This may increases the risk of being acquired by the enemy.

**Overwater Hoist Operations**

6-45. In overwater hoist rescue operations, the employment of smoke, from a marine smoke and illumination signal device, can be used for marking the patient pickup area, for determining surface wind
conditions and for aiding in spatial orientation. The smoke employed by the aircrew must not interfere with the conduct of the operation or mask the location of the individual to be rescued.

DANGER
There is a possibility of a dynamic rollout occurring when proper tension is not maintained at all times during hoist operations. Excessive slack in the hoist cable may allow the hook and seat attachment point to become positioned such as to allow for dynamic rollout. For alternate attaching procedures for all affected equipment and for more information, refer to message dated 151200Z Aug 16, SUBJECT - SAFETY OF FLIGHT (SOF), TECHNICAL, RESCUE HOIST OPERATIONAL, RESTRICTIONS, H-47-16-SOF-04 / H-60-16-SOF-02 / H-72-16-SOF-01. (This information can be found at the web site listed in the references section of this publication.)

EMPLOYMENT OF OBSCURANTS IN GROUND MEDICAL EVACUATION OPERATIONS

6-46. The employment of obscurants during ground evacuation operations must be in consonance with the tactical commander’s plan. Obscurants can mask medical evacuation operations on the battlefield, but must not interfere with the tactical mission. In all combat operations, but especially in urban operation, obscurants can be employed to conceal—

- Movement across open areas.
- Extraction of casualties from vehicles and/or buildings.
- Entry and exit into/out of structures.
References

REQUIRED PUBLICATIONS
These documents must be available to the intended users of this publication.

- This publication is available online at http://www.apd.army.mil.
  - ADRP 1-02, Terms and Military Symbols, 7 December 2015.

RELATED PUBLICATIONS
These documents contain relevant supplemental information.

INTERNATIONAL PUBLICATIONS
This publication is available online at http://www.icrc.org/eng/war-and-law/treaties-customary-law/geneva-conventions/.

- Geneva Convention (I) for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, 12 August 1949.

NATO STANAGS
These publications are available online at https://nsa.nato.int/protected (password required).


ABCA STANDARDS
These documents are available online at http://www.abca-armies.org (password required).

- 2079, ABCA Patient Medical Evacuation Request, 13 August 2010.

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- DODD 3025.18, Defense Support of Civil Authorities (DSCA), 29 December 2010.
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- JP 4-02, Health Service Support, 26 July 2012.

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- ATP 3-11.50, Battlefield Obscuration, 15 May 2014.
- ATP 4-02.3, Army Health System Support to Maneuver Forces, 9 June 2014.
- ATP 4-02.5, Casualty Care, 10 May 2013.
- ATP 4-02.42, Army Health System Support to Stability and Defense Support of Civil Authorities Tasks, 9 June 2014.
- ATP 4-90, Brigade Support Battalion, 2 April 2014.
- FM 3-06, Urban Operations, 26 October 2006.

FM 6-0, *Commander and Staff Organization and Operations*, 5 May 2014.

**OTHER DOCUMENTS AND PUBLICATIONS**


**RECOMMENDED READINGS**

These readings contain relevant supplemental information.


🌟 **WEB SITES**

Aviation and Missile Command.  https://asmprd.redstone.army.mil

**PRESCRIBED FORMS**

None.

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DD Form 1380, *Tactical Combat Casualty Care (TCCC) Card*. 
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