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ENG.1.R

THE USE OF HELICOPTERS IN THE EU BG CONCEPT, INCLUDING THE MEDEVAC ROLE

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1. Finabel References: - Title and draft mission paper approved by the PMEs meeting 1-2011 (FINLAND)	**2. Other References:** Study T.37.R AAP-6 ATP-49(E) AJP-4(A) AJP-4.10(A) JDP4-03 AJMedP-2 FM1-100 FM 8-10-6 AMedP-15 Study M.19.R Study R.25.R STANAG 3204 STANAG 2087 RTO-MP-HMF-109-KN2 RTO-MP-HFM-157-01 RTO-MP-HFM-157-05 RTO-MP-HFM-157-06 RTO-MP-HFM-157-13 RTO-MP-HFM-157-16 USAMDJ07-08-2000
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10. Summary: The EU BG may be called upon to intervene in a wide variety of military operations. In most cases, the ability to employ helicopters to the activities of the Land Components will be crucial for the success of its mission. AERO-MEDEVAC is provided by helicopters and it can be used by the EU BG in all spectrum of operations. The EU BG in order to be able to provide effective MEDEVAC to its troops, it needs to have the necessary equipment and qualified personnel.	
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AIM OF THE STUDY

The purpose of the study is to capture the essence of using helicopters and those principles upon which it is employed across the range of military operations conducted by EUBG. This study is to define how helicopters could be employed to enhance the capabilities of an EU BG, including AERO-MEDEVAC missions. The aim of this study is to provide basic knowledge concerning helicopter operations and MEDEVAC system. Also provides some information regarding requirements, model structures and organizations in order to integrate helicopter into force. In addition, identifies the circumstances, defines the procedures and recommends the specific levels of common training required by AERO-MEDEVAC capabilities and by land forces in order to support successfully the EU BG operations. The study is based on a variety of documents developed by NATO members Armed Forces. The list of these documents is attached in the bibliographical part of the study in order to observe copyrights.

1. INTRODUCTION, KEY DEFINITIONS AND FUNDAMENTALS

1.1 General overview of using helicopters

Rotary wing aircraft[1], as a part of the manoeuvre force, is the third dimension of the land force. It brings a degree of versatility not replicated by other capabilities of the combined arms team and a range of unique capabilities that complement those of the other combat arms. Helicopters can manoeuvre rapidly in the ground commander's battle space to bring decisive combat power to bear at decisive points and times in the area of operations (AO). Rotary assets have the effect of expanding the battle space by shortening and/or mitigating the effects of time/distance factors on manoeuvre, through speed and mobility once thorough planning is complete. Helicopters ability to operate in all dimensions of battle space provides a degree of flexibility and agility that is unique. Synchronizing or integrating aviation manoeuvre with or within ground manoeuvre by enhancing reconnaissance, providing security and fire support, and conducting attacks and counterattacks. This allows the friendly force commander to shape the battle space to set the conditions to achieve a positional advantage in both time and space by generating greater tempo than the enemy. Linked with deep fires, aviation

1 Aviation, Army aviation, helicopters, rotary wings assets… and other similar words are used along this document to refer to the Army Aviation Units allocated under the EUBG which main asset are the helicopters

manoeuvre offers the ground commander the capability to influence events simultaneously throughout his AO. Rotary assets primary mission is to fight the land battle in coordination with ground units and to support ground operations. Helicopters greatly enhance the commander's ability to apply four fundamental principles of war; manoeuvre, mass, surprise, and economy of force. Expansion of the battlefield is necessary to enable the commander to seize the initiative at a critical point in the battle. Rotary wing expands the ground commander's battlefield, principally in space and time, by extending the range at which direct fires and observed fires can be concentrated on the enemy; and by expanding his reconnaissance and surveillance envelope beyond the effective range of other systems. Moreover is able to expand battle space at each echelon to which it is assigned or attached providing a capability where none previously existed, or by enhancing existing capabilities. Helicopters allow commanders to achieve the effects of mass without massing weapons systems.

1.2 Potential missions for helicopters

Rotary wing performs combat, combat support (CS) and combat service support – logistics (CSS) battlefield functions, in all theatre dimensions

Combat missions. The greatest contribution to battlefield success is the ability it gives the commander to apply decisive combat power at critical times, virtually anywhere on the battlefield. This may be direct fire from aviation manoeuvre units or the insertion of overwhelming infantry forces or direction of artillery fires, delivered into combat via air assault or by the complete integration of helicopter assets into ground manoeuvre as any other combat units (armoured or infantry). This versatility is the very essence of rotary wings.

CS missions. Missions to support ground combat operations. These operations include; air movement; command and control (C2); reconnaissance, information operations, combat search and rescue (CSAR); close air support (CAS) and close combat attack (CCA).

CSS missions. Helicopters perform CSS functions in support of units throughout the entire area of operations. Aviation units enhance the commander's ability to rapidly deliver supplies, personnel and aeromedical evacuation.

The characteristics of the helicopter enable it to undertake a variety of roles and partake in operations that may involve it in one or more of these roles. Similarly, a number

of helicopters may be called upon to perform a specific role in concert. The versatility of the helicopters enables a wide variety of minor tasks to be carried out; for example, deception whereby helicopter movements can be used to deliberately deceive an enemy.

The following missions may be applied throughout the spectrum of military activities:

(1) Air assault/mobile operations (including attack operations).

(2) Air transport/lift operations.

(3) C2 operations.

(4) Special operations.

(5) Personnel recovery operations (SAR/CSAR).

(6) Aeromedical evacuation (AE) operations.

(7) Noncombatant evacuation operations.

(8) Force demonstration.

Helicopters can also be used as an ISR platform for example:

(1) Airborne terrain recce and recce of enemy.

(2) Airborne support to ground based operations.

(3) Airborne C2 of recce operations on the ground.

(4) Air-insertion of light or dismounted recce forces.

(5) Detection of CBRN contamination.

(6) Direct fires onto targets once they have been identified.

On operations conducted by EUBG the usage depends on:

- Mission type conducted by EU BG.
- The type and number of helicopters assigned to the EU BG.

Helicopters in an EU BG can be used for a multitude of tasks to support the four scenarios listed in the EU BG concept[2]:

– Conflict prevention.

– Separation of parties by force.

– Evacuation.

2 EU BG Concept dated 5 Oct 2006.

– Assistance to humanitarian operations.

1.3 Helicopters operational principles

1.3.1 Characteristics.

In any helicopter operation the aim must be to exploit the advantages and capabilities of the helicopters and to minimise the limitations of the aircraft, aircrews and support. Commanders and operators must therefore plan accordingly, taking these factors into account with special attention being given to the characteristics of the particular helicopter type. Helicopters have the following characteristics.

a. Versatility. Most helicopters can carry out a wide range of tasks. Whilst each type of helicopter is likely to be more suited to specific tasks, it will normally e capable of performing other tasks.

b. Mobility. Surface features such as water, forests, and natural or man-made obstacles do not inhibit a helicopter's freedom of action. It is seldom restricted in its choice of operating area since it can use confined landing sites (LS) requiring little or no preparation. Most helicopters can also load and unload external loads and personnel when circumstances do not allow them to land.

c. Flexibility. The versatility and mobility of helicopters and their ability to redeploy rapidly in response to changes in the situation give them an inherent flexibility in the land battle. Armed helicopters have a further advantage in that they are not constrained by line of sight problems to the same extent as ground direct fire systems. This gives them the ability to acquire their own targets and engage them effectively out to the limits of their own weapon systems. This tactical integrity provides battlefield helicopters with a very high degree of flexibility.

d. Speed of Execution. Helicopters are normally deployed close to the supported forces that can exploit the helicopters mobility and flexibility to achieve rapid execution of tasks. This speed of execution can be further enhanced if a warning order is given, thereby allowing time for planning and briefing, and for placing helicopters and crews at high readiness (alert). The use of loiter readiness can further reduce reaction time but this is expensive in resources and can only be justified for very high priority tasks. Helicopters should not be used in preference to ground transport when speed of execution is not important and

ground transport can complete the mission satisfactorily. Furthermore, in some cases the time required to prepare loads and/or to load the helicopter can give ground transport the speed advantage. The advantage will, however, return to the helicopter over longer distances or difficult terrain.

e. **Surprise.** Because of the helicopter's speed, relative freedom of movement, ability to operate at very low altitude during both day and night and use of terrain masking to avoid detection, it can often achieve an element of surprise. This advantage may be lost if radar reflections are picked up by low-level air defence radar, or if cockpit/fuselage glint or rotor blade flicker is detected by the enemy. Where other battlefield noise levels are low, surprise may be lost due to engine or rotor noise. However, it will usually be difficult to determine the helicopter's precise location from its noise alone.

f. **Vulnerability.** Although some modern helicopters have an increased capability to survive on the battlefield and may be equipped with passive and active self-protection devices, the majority remain very vulnerable to a wide range of weapons. Their exposure to known or suspected enemy weapons may result in an unacceptable aircraft loss rate. Helicopters can, however, survive to discharge their roles effectively provided they are employed with due regard to the threat opposing them, and preferably as part of a combined arms team. More heavily protected aircraft may be employed closer to the enemy than is normal practice provided the expected gains from their mission justify the risks involved. Therefore helicopters will fly tactically aiming to remain concealed from electronic or visual acquisition.

1.3.2 Considerations.

When conducting operations helicopters the following planning considerations may apply:

a. **Performance Limitations.** Helicopter performance will be affected by: **Altitude and Temperature**. Engine power and rotor lift are affected by air density. A reduction in air density caused by high altitude and/or high temperature may produce a significant reduction in payload, range, manoeuvrability and engine performance.

b. **Payload and Range Balance**. Payload is the mass of the load that the helicopter can transport over a given distance and altitude. As the distance to be flown increases, fuel may have to be added at the expense of payload.

c. **Underslung Loads.** Normally, whenever the tactical situation permits, a helicopter will be flown at its optimum cruising speed. When an underslung load is carried it will be necessary to reduce airspeed to prevent the load from becoming unstable in flight. An underslung load will also reduce manoeuvrability and will hinder terrain flight. Nevertheless, the carriage of cargo externally will normally offer the most efficient utilisation of helicopter time when in the cargo or transport role.

d. **Night Operations**. With current technology (NVG-Night Vision Goggles), night operations have become the preferred operating environment. Planning considerations should reflect this and take into account the demands that this will impose on both the aircrew and planning teams. Regardless of the technical advantages night operations are still more challenging than day light operations. Linked to variable weather conditions and crew qualifications (risk management) it should be still considered.

e. **Weather Conditions.** Helicopters are capable of operating in poor visibility and under a lower cloud base. Poor visibility may prevent or hinder all helicopter operations not carried out by specially equipped aircraft and trained crews. While low visibility does hinder visual acquisition by the enemy, the helicopter remains vulnerable to radar, laser and thermal-based systems. Most helicopters can be flown without visual ground reference but must do so at a safe height above obstructions and must be able to descend to a landing site (LS) by visual reference or with the assistance of electronic guidance, either internal or ground based. Some helicopters have restrictions that preclude or restrict flight in ice conditions, falling snow or strong surface winds.

f. **Security.** Helicopters on the ground should be protected against enemy ground and air threats. Security of helicopter units in assembly areas is normally accomplished by use of resources from the supported unit or other organic assets. Careful selection of assembly areas is necessary to take advantage of terrain, other ground units in the general vicinity, and integration into the rear area commander's protection plan. The active protection of helicopters from enemy air action may be provided by point air defence weapon systems, whilst

passive protection is achieved by concealment and dispersion of aircraft. Concealment is made more difficult for helicopter units due to the helicopter's inherent lack of ground mobility, its inability to occupy rugged, irregular terrain, and the size and quantity of the supporting equipment required.

g. **Logistic Support.** Helicopters have a significant logistics chain and footprint. This should be carefully considered in all planning. Some helicopters may be required to position their own forward arming and refueling points (FARP) or to ferry recovery teams to downed aircraft. This temporary reduction in the number of aircraft and the amount of payload available to the supported unit must be taken into account to ensure the optimum employment of the helicopter force.

h. **Aircrew Considerations.** For sustained operations, commanders must consider crewing ratios (aircrew to airframe). Consequences of fatigue on aircrew can be serious and the degree of fatigue to be tolerated in a given operation must be considered. Crew rest requirements may differ between participating nations.

i. **CBRN.** Conditions can impose limitations on helicopter operations. At this point commanders should consider the decontamination capabilities for helicopters and their crews, protective gear etc.

1.4 MEDEVAC/CASEVAC[3]

Casualty Evacuation (CASEVAC) is used to transport casualties in dire need of evacuation that do not have time to wait for MEDEVAC, or where MEDEVAC is unable to get to a casualty. It is the movement of casualties in an aircraft or vehicle that does not necessarily have its own designated medical support to a facility where medical care can be provided. CASEVAC operations are most likely to be executed between Point of Wounding (PoW) and Medical Treatment Facilities (MTFs) of Role 1 and Role 2. This type of movement will inevitably occur and is generally controlled and conducted using BG resources.

Medical Evacuation (MEDEVAC) is the movement of patients under medical supervision to MTFs as an integral part of treatment. The MEDEVAC system has to ensure that each patient is brought to a MTF that is capable to cope with his/her illness or injury. In the chain of evacuation, MEDEVAC assets (including medical H/Cs) may move from Role 1 to Role 4 MTFs (from PoW to an MTF or in-between MTFs), but the underlying principle is to transport the casualty to the most appropriate MTF as quickly as possible, which may necessitate skipping a level or multiple levels.

Whereas medical treatment is generally described in terms of 4 Roles, according to their capabilities, in general MEDEVAC units are described in terms of which area along the chain of evacuation they operate NATO policy describes these 3 categories of MEDEVAC. There is a general recognition that many nations may choose to describe their MEDEVAC activity in different ways but we must remember that EU should provide the common framework.

There are three main categories of MEDEVAC:

(1) Forward MEDEVAC

"That phase of evacuation which provides airlift for patients between points within the battlefield, from the battlefield to the initial point of medical treatment and to subsequent points of medical treatment within the combat zone".[4] Forward MEDEVAC provides transport for patients from PoW to the initial MTF. This is required from operational circumstances to meet clinical timelines and therefore

3 "In DEU the expertise and the responsibility for MEDEVAC, AIRMEDEVAC and STRATAIRMEDEVAC as well are represented by the Bundeswehr Joint Medical Service and not by the German Army."

4 Definition taken from AAP-6 "NATO Glossary of Terms and Definitions for Military Use".

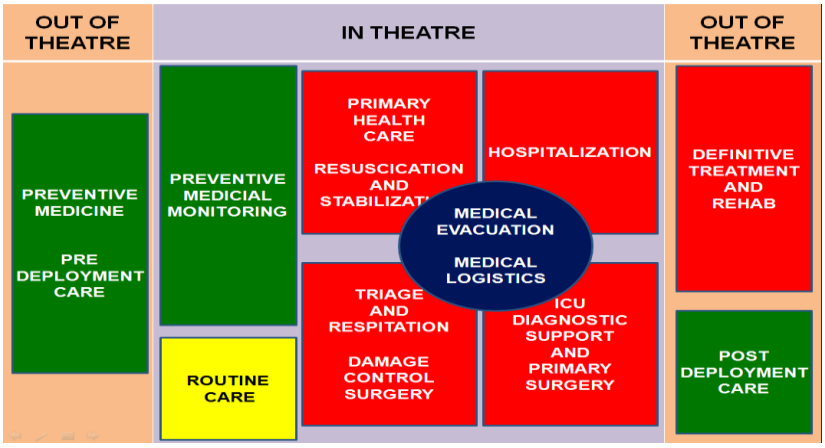
increasingly conducted by helicopters in forward areas. Forward MEDEVAC can be to a MTF of any Role and should be where possible, to the most appropriate level of care within the timelines and not necessarily to the closest MTF. Forward MEDEVAC needs to be configured to meet similar Force Protection levels as the forces in the area they are required to enter.

(2) Tactical MEDEVAC

"That phase of evacuation which provides airlift for patients from the combat zone to points outside the combat zone and between points within the communication zone" [5]. Tactical MEDEVAC is the evacuation of casualties within the Joint Operational Area (JOA), transporting patients between different MTFs, Role 1, Role 2 light manoeuvre or enhanced (LM or E) and Role 3. Accordingly, patients will routinely have been stabilized prior to evacuation. This category can be conducted by ground, rotary or fixed wing assets in the JOA.

(3) Strategic MEDEVAC

"That phase of evacuation which provides airlift for patients from overseas areas or from theatres of active operations to the home base, to other EU countries or to a temporary safe area" [6]. Strategic MEDEVAC is the evacuation of casualties from the JOA to the MTF in the home nation, in other EU countries or into a temporary safe area out of the theatre. Strategic MEDEVAC is still primarily a national responsibility. In case of non-availability of military means, consideration should be made for the use of civilian charter aircraft, with the caveat over their ability to fly into the operational theatre.



Medical Support Functions and Organization

5 Definition taken from AAP-6 "NATO Glossary of Terms and Definitions for Military Use".

6 Definition taken from AAP-6 "NATO Glossary of Terms and Definitions for Military Use".

2. THE GENERAL OUTLINE OF MEDEVAC MISSIONS

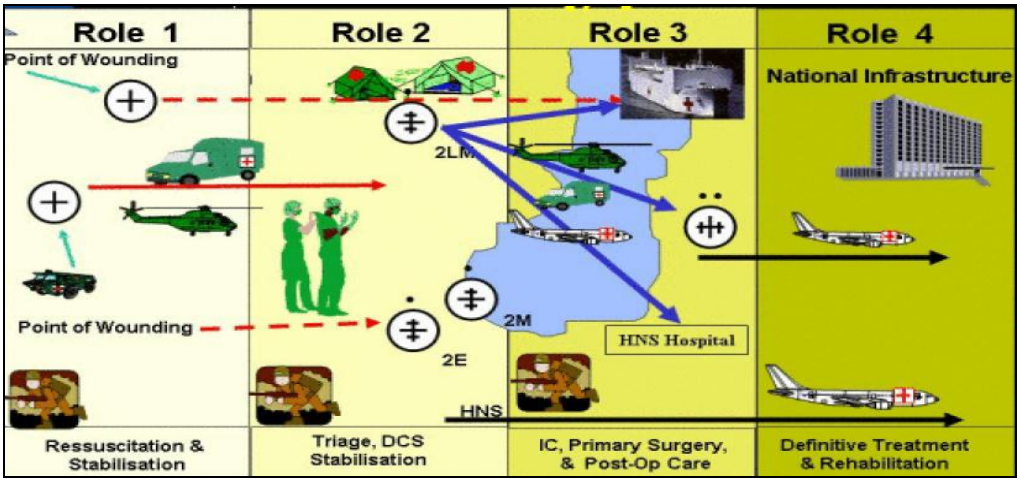
2.1 MEDICAL support

The concept of medical support derives from the following statements:

(1) The mission of medical support in military operations is to support the mission through the conservation of manpower, preservation of life and minimization of residual physical and mental disabilities. Appropriate medical support makes a major contribution to both force protection and morale by the prevention of disease, rapid and appropriate medical evacuation and treatment of the sick, wounded and injured and the return to duty of as many individuals as possible.[7]

(2) The medical support to a force must be capable of maintaining the necessary quality and quantity of treatment and evacuation activities during peace, crisis and conflict. This requires having on hand or in reserve appropriate medical personnel, supplies and evacuation capacity, as well as having the ability to resupply and to replace medical personnel on a continuous basis.

(3) The medical evacuation of casualties is a fundamental aspect of medical support. Movement of casualties is not just transportation to a suitable Medical Treatment Facilities (MTF), but is part of a continuum of patient treatment and care and is therefore a medical responsibility. At no point in the chain of evacuation should the level of care be reduced below that received at the previous MTF.



7 AJP 4.10 (A) Allied Joint Medical Support Doctrine.

Evacuation of casualties is a crucial part of the medical treatment provided by the medical support organisation to patients wounded or ill on operations. It requires specific medical personnel and assets. The ultimate goal is to get a patient within one hour from the time he has been injured or wounded to primary surgery.

To achieve its mission, a medical evacuation system should have the following capabilities:

a. The ability to evacuate casualties to a medical care facility 24 hours a day, in nearly all weather, over all terrain and in any operational circumstances. The evacuation organization must determine an alternative solution to ensure the continuum of treatment of casualties even when evacuation is not possible due to operational, environmental or technical reasons.
b. The provision of appropriate medical care for the casualty throughout the journey, using appropriately trained medical staff.
c. The ability to control the flow and types of patients when circumstances require and accurately track patients throughout their evacuation and treatment.

To meet the evacuation demands a spectrum of evacuation assets will be required as follows:

a. Tactical evacuation assets appropriate to the mission and designed on the same technological level as the units they have to support, which may include:
    - Ground assets (armoured and non-armoured, wheeled or tracked depending upon the units they have to support).
    - Air assets (fixed and rotary wing).
    - Maritime, littoral and non-tidal water assets.
b. Strategic evacuation assets will also be mission specific. The most likely option will be to use fixed wing aircraft, but helicopters or ships might also be used, depending on the nature of the Joint Operations Area (JOA) and movement distances involved.

2.2 AERO-MEDEVAC overview

Aeromedical rescue/evacuation is defined as the movement of casualties by air under medical supervision to and between MTF. Medical evacuation by helicopter is to be

used as far forward as the tactical situation will permit. This could apply to evacuation from enemy territory.

Sick and wounded should be picked up as soon as possible and evacuated directly to designated treatment facilities. Emergency aeromedical evacuation is concerned with the prompt movement of the sick and wounded, where rapid, evacuation or treatment will reduce or prevent disease, disability or death.

The special tasks for Air Rescue / Ambulance Helicopters are as follows:

- Fast direct transport of medical specialists and equipment to the disaster site.
- Direct evacuation of emergency patients to more distant MTF with appropriate levels of care.
- Carrying out urgent movement of casualties between treatment facilities when necessary.

Priorities. Aeromedical priorities are allocated on the following basis:

a. URGENT. Emergency patients who must be evacuated as soon as possible to save life, limb or eye sight, to prevent complication of serious illness or to avoid serious illness or permanent disability.

b. URGENT SURGICAL. Emergency patients who require urgent surgical intervention as soon as possible to save life and stabilize for permanent evacuation.

c. PRIORITY. Patients who are sick or wounded requiring specialized treatment not available locally, and who are liable to suffer unnecessary pain or disability unless evacuated with the least possible delay. Or those whose condition could deteriorate to such a degree that he will become an Urgent precedence.

d. ROUTINE. Patients whose immediate treatment requirements are available locally but whose prognosis would definitely benefit by air evacuation. Routine aeromedical evacuation is used when surface means are either non-existent or inadequate, or when aeromedical evacuation is more effective. In these cases, time is not of the same essence as in the emergency category. If properly prepared prior to routine evacuation, evacuees may require only minimal in flight care. However, patients requiring critical care support also may be moved in a timescale consistent with routine aeromedical evacuation.

e. **CONVENIENCE**. Patients for whom evacuation by medical vehicle is a matter of medical convenience rather than necessity.

Requesting and Tasking Information. When aeromedical evacuation is requested or tasked the 9 liner medical request must be used (see Annex A).

When it is possible additional information regarding tactical situation at landing zone concerning safety and security should be provided.

The principal medical planning timeline for the EU BG should be to provide surgery for priority one patients as quickly as possible, ideally within one hour of wounding (The Golden Hour). If this is not feasible timelines may have to be extended to two hours for the provision of Damage Control Surgery and four hours for Primary Surgery. The survivability rate of injured casualties is decisively influenced by early surgery which aims to avoid or at least limit irreversible pathophysiological damage.

In Forward Aeromedical Evacuation preparation time is required from being ordered to launch, to start up the aircraft. A major factor is the warm up and weapons system check of the escort helicopters, this time will vary depending on the aircraft and must be considered in the planning process.

The decision to evacuate a patient by air necessitates experienced aeromedical judgement. The medical benefits to the patient must outweigh the potential hazards, which might be incurred in the air. Aeromedical evacuation (AE) is accomplished by both helicopter and fixed-wing aircraft. Dedicated aeromedical evacuation assets permit en route patient care. This care minimizes further injury to the patient and decreases mortality and minimizes permanent damage. Evacuation by aircraft is considered advantageous for a variety of reasons:

a. The speed with which the patient can be evacuated to a MTF for treatment contributes to: saving lives, reducing permanent disability and increasing the number of patients returned to duty.
b. The range and speed of aircraft make it possible to evacuate patients by air over relatively long distances in short periods of time. This enables less frequent movement of MTFs.
c. Helicopters can move patients quickly over terrain where evacuation by other means would be difficult, perhaps impossible, to accomplish. The reduced landing area required for helicopters and other aircraft permits patients to be picked up well forward and delivered to supporting MTFs.

d. Helicopters allow reduced distribution of MTFs. Fewer treatment teams are required because of the capability to rapidly evacuate patients to appropriate MFTs.

Aeromedical evacuation is usually the fastest and in many cases the only live saving mode of transportation. It is conducted in the knowledge that the immediate clinical care for acute conditions will decisively improve the patient's prognosis. Qualified aeromedical evacuation of wounded and sick patients can only be conducted as efficiently as possible if the medical requirements are met and the accompanying medical personnel are appropriately trained.

3. AERO-MEDEVAC CONSIDERATIONS

3.1 Planning issues for AERO-MEDEVAC

During the planning process before a deployment, the type and number of MEDEVAC assets will need to be confirmed. Once a MEDEVAC mission is requested, the crew of a MEDEVAC helicopter will be tasked.

The planning and execution of medical evacuations are to be based upon the evacuation policy developed by the OHQ and implemented, within theatre, by the FHQ. The provision of resources will be coordinated by medical planning staff but may comprise assets from a number of sources, including common use theatre assets, nationally owned assets, HNS, Third Party Logistic Support and others.

To support this task FHQ medical staff must be collocated with the HQ's OpsCenter, which may be reinforced by a PECC (Patient Evacuation Coordination Cell).

When planning tactical AE, the following factors must be taken into consideration:

a. **Coordinating Instructions:** The CJ Med will create an overall med sp plan which will include the AE MEDEVAC plan. The plan must be integrated and where AE is temporarily not possible due to range or weather activities may have to be reduced or halted.

b. **Authority/ Responsibility for AE Operations:** The overall responsibilty for authorising all heli operations including AE operations lies with the CJ3. For MEDEVAC he will be advised by CJ Med. CJ3 may also be required to coordinate non-EUBG aircraft operating in the JOA.

c. **National Doctrine:** National medical evacuation doctrine, caveats and capabilities differ substantially. Increasing multinational integration increases the need for flexibility in national medical support structures. Differences in national doctrine and capability do not preclude close cooperation. Properly coordinated procedures can assure the smooth transfer of patients within a multinational medical support structure.

d. **AE Assets:** For reasons of medico-technical continuity, the most appropriate aircraft should be used for each task. The plan will incorporate use of military aircraft, and in some circumstances certified civil aircraft and crews. AE aircraft may be used in a dedicated or multi-purpose role.

e. **Liaison and Communication:** There may be a requirement for each nation to provide national medical personnel or liaison to the PECC.

f. **Location:** Geographic and climatic factors have an impact on movements. MTFs and medical evacuation assets should be carefully located in order to facilitate patient evacuation. Medical treatment and holding facilities may collocate with road evacuation assets. Planners should be aware that, depending on the operational environment, such deployment may eliminate the protection guaranteed to medical facilities by the Geneva Conventions. Helicopter landing sites are needed in the direct vicinity of all medical facilities. Ground transport evacuation means should always be planned to cover all situations where AE is not possible due to operational or geographic/climatic factors.

g. **Limitations to aeromedical transport because of the patient conditions:**

Specialist medical advice will be required to determine certain conditions that may prevent aeromedical evacuation, particularly in unpressurised aircraft.

h. **Other Factors:** Medical support must be provided for the deployed forces and it may also need to take into account the likely provision for other parties such as partnered forces, civilians or refugees.

3.2 Logistic support for AERO-MEDEVAC missions

Helicopter detachments, assigned to the (F)HQ, require specific Logistics Support (Log Sp) that may be assumed by a Lead Nation (LN), by a Role Specialist Nation (RSN) or even by the Host Nation (HN). Forward MEDEVAC helicopters and crews should be provisioned by the lead nation. The provisions for this specific Log Sp need to be agreed on in documents such as MOU or TA. This specific Log Sp could encompass several areas e.g. Aviation Fuel, METEO support, Air Traffic Control (ATC), Aeronautical Information Services (AIS), Fire Fighting (FFGT) capabilities, Battlefield Damage Repair (BDR).

It is also important to provide other special support, for example:

1. Logistic support for dedicated aircrafts (e.g. periodic maintenance, disinfection). If a helicopter is out of order it should be replaced as soon as possible. Maintenance of helicopters must be assured.
2. Provision, periodic maintenance and support of medical equipment (drugs and materiel).
3. Whenever a helicopter detachment is deployed, METEO Spt specialised in aeronautical weather forecasting will be required.
4. This METEO Spt can be organic to the helicopter detachment, but it may also be provided by either another flying unit, the (F)HQ or the Host Nation.
5. AERO-MEDEVAC beyond aircraft range may need to be augmented by the establishment of a Forward Arming and Refueling Point (FARP).

3.3 Command and control

Forces should possess robust mobile main and tactical headquarters elements, capable of planning and tasking appropriate support to all possible missions. (F)HQ, being the only HQ within the EUBG framework that has these capabilities, will have OPCON of the assigned assets.

A medical C2 structure is key to efficient medical support. The medical C2 organisation in theatre must be capable of planning, executing, sustaining, supervising, controlling and assessing the full range of medical support functions. It must also be capable of passing prompt and accurate medical advice to respective commanders. The medical C2 structure must be able to provide the FCdr and subordinate Cdr with the medical sp

implications of their decisions. In addition, the C2 organisation must be capable of patient regulating and tracking.

The Senior Medical Officer (SMO) of the EU BG is the CJ Med to the Force Commander and the ACOS CJMed (F)HQ EU BG.

The SMO of the EU BG is responsible for planning, coordinating and conducting the EU BG medical support in line with the FCdr's intent. He exercises technical control in all medical matters throughout the EU BG. This includes supervision in all technical matters, e.g. the transport of the wounded and the medical management of Mass Casualty (MasCal) situation.

The SMO of the EU BG has the additional responsibity of being the CJ Med to the FCdr on all issues regarding the medical services, including medical force protection, and preventive medicine. He is also involved in the pre-deployment phase. During the deployment he will be responsible for the Mass Casualty policy.

Patient Evacuation Coordination Cell (PECC)

The PECC should be a part of the EU BG´s Combined Joint Operations Centre (CJOC). It will be responsible for medical situational awareness, coordination and control of ground-based transportation conducted by MEDEVAC assets; coordination of Tactical Air MEDEVAC in the AOO and coordination with Strat(Air)MEDEVAC upon request by Troop Contributing Nations (TCN). The PECC fulfills functions both at tactical and operational level; therefore it is the PECC for the whole EU BG package. The PECC is directed by the chief PECC and will be manned by personnel of the TCN. The CJ Med (F)HQ is superior to the PECC in all technical matters.

PECC control over forward MEDEVAC

Forward MEDEVAC is coordinated by the PECC in close cooperation with the CJOC (F)HQ that controls rotary and ground transport assets.

PECC control over tactical MEDEVAC

Airborne Tactical MEDEVAC is coordinated by the PECC in close cooperation with AOC and all other necessary elements of the FHQ CJOC. The Chief PECC therefore must be a trained and experienced Aeromedical Evacuation Coordinating Officer (AECO). Decisions concerning the assignment of the role of helicopters have to be made using the normal chain of command.

PECC coordination over Strategic MEDEVAC

Strat (Air) Medevac will remain a national responsibility of the respective TCN and will be planned and coordinated by the TCNs after coordination with their national senior medical officer (SMO) and with the PECC. PECC might support the TCN´s SMO upon request. Between the participating nations, prior arrangements (TA/MOU) regarding procedural organisation have to be made.

3.4 Required capabilities for the provision of effective AERO-MEDEVAC

A medical evacuation system requires the following capabilities:

a. **Availability**. the medical system should be able to evacuate casualties 24 hours a day. Ideally a spare helicopter should be on call in case of technical failure of a medevac helicopter. depending on threat and environment, it may be necessary to provide armed escorts for MEDEVAC missions.

b. **Continuity.** The crew of medical evacuation assets must be trained and equipped to provide continuity of care to the casualty throughout the evacuation.

c. **Casualty Regulation.** There are two main aspects to Casualty Regulation, the management of the flow of casualties, particularly at times of high flow, and the direction of individual patients through the system primarily according to their clinical need. The Casualty Regulation system should be able to provide timely and accurate tracking information throughout the chain of evacuation.

d. **Survivability / Protection.** To survive on the battlefield helicopters may be equipped with passive and active counter-measures.

3.5 Structural considerations

The structure of EUBG MEDEVAC capability will be dependent on the type, volume and frequency of missions likely to be conducted. The exact composition will be decided during the force generation process. The minimum allocation of MEDEVAC assets is generally two MEDEVAC helicopters for an EUBG.

3.6 Training recommendations

Training for MEDEVAC in support of an EU BG should include MEDEVAC planning and procedures, airspace management and CASEVAC requests.

3.6.1 AIRCREW ABILITIES

To provide effective MEDEVAC capabilities for EU BG missions contributing nations should deploy sufficiently experienced and trained personnel.

Due to the varying abilities and restrictions placed on crews by national standards, aircraft and equipment it is essential that the CJ3 has a full understanding of the aircraft and aircrew capabilities. Some of the key information that may affect planning and employment of the AE are:

- Minimum visibility requirements by day and night.
- IR/NVG abilities.
- Cloud ceiling.
- Ambient light levels.

3.6.2 MINIMUM AEROMEDICAL EVACUATION TRAINING

An example of a comprehensive guide for the aeromedical evacuation training of nursing and medical personnel is contained in NATO STANAG 3204 AEROMEDICAL EVACUATION dated 1 Mar 2007.

3.6.3 MISCELLANEOUS

1. The pilots, medical personnel and MEDEVAC helicopter will be allocated from the same country. The helicopter will have the appropriate airworthiness certificate ensuring there is no interference between medical equipment and the aircraft.
2. A reliable communication capability, which provides for direct or minimal relay of transmissions, between the authority controlling medical missions, the aircraft and the requesting unit is to be provided. Communications are to be minimized by relaying accurate information in the original request for aeromedical evacuation. A ground-to-air communications capability at the landing site is desirable.

3.6.4 AIRCRAFT IDENTIFICATION

Aircraft solely used for evacuation missions will be marked with the emblem stipulated in Geneva Conventions.

ANNEXES

"A" MEDEVAC REQUEST FORMS

MEDEVAC CALLWORD FORMAT (9 – LINE FORM):

1. PICK-UP SITE GRID COORDINATES: _____

2. PICK-UP SITE FREQUENCY/CALL SIGN:_____/_____

3 NUMBER OF PATIENTS by Precedence:

of A – Urgent: _____

# of B – Urgent Surgery: _____

# of C – Priority: _____

# of D – Routine: _____

# of E – Convenience: _____

4 SPECIAL EQUIPMENT NEEDED by Patients:

A – None

B – Hoist

C – Extraction

5 NUMBER OF PATIENT by Type:

of L – Litter: _____

# of A – Ambulatory: _____

6 SECURITY OF PICK-UP SITE (Tactical):

N - No enemy troops

P – Possible Enemy Troops

E – Enemy troops (Caution Recommended)

X – Enemy troops (Armed Escort Recommended)

7 MARKING AT PICK-UP SITE:

A – Panels (What Color?)

B – Pyrotechnics (What Color?)

C – Smoke (What Color?)

D – None

E – Other: _____

8 Patient Nationality & Status:

A – US/Coalition Force Military, Nationality

B – US/Coalition Force Civilian, Nationality

C – Non – US/Coalition Force Military, Nationality

D – Non – US/Coalition Force Civilian, Nationality

E – Enemy Prisoner of War (EPW)

F – High Value Target (Armed Escort Required)

9 NBC Contamination:

N – Nuclear

B – Bio

C – Chemical

D - None

“B” ABBREVIATIONS AND ACRONYMS

For ready reference, certain acronyms used in this publication are given below:

AAC	Air Ambulance Company
AAEP	Air Ambulance Evacuation Platoon
AAP	Allied Administrative Publication
ACO	Airspace Control Order
ACOS	Assistant Chief of Staff
AECO	Aeromedical Evacuation Coordinating Officer
AF	Aviation Fuel
AH	Attack Helicopter/Armed Helicopter
AIS	Aeronautical Information Service
AJP	Allied Joint Publication
ALO	Air Liaison Officer
AMSL	Above Mean Sea Level
AMT	Aeromedical Transport
AO	Area of Operations
AOR	Area of Responsibility
AOC	Air Operations Centre
AOCC	Air Operations Coordination Centre
AR	Air Request
ASC	Airspace Control
ASM	Airspace Management
AT	Air Transport
ATC	Air Traffic Control
ATLS	Advanced Trauma Life Support
ATO	Air Tasking Order
ATP	Allied Tactical Publication
AVIM	Aviation Intermediate Maintenance
AVUM	Aviation Unit Maintenance
BDR	Battle Damage Repair

C2	Command and Control
C2IS	Command and Control Information Systems
C4ISR	Command, Control, Communications, Computers, Intelligence,Surveillance, and Reconnaissance
CAS	Close Air Support
CASEVAC	Casualty Evacuation
CCA	Close Combat Attack
CHQ	Company HQ
CS	Combat Support
CSAR	Combat Search and Rescue
CSS	Combat Service Support
DS	Direct Support
DCS	Damage Control Surgery
EW	Electronic Warfare
EU	European Union
EU BG	European Union Battle Group
FARP	Forward Arming and Refuelling Point
FFGT	Fire Fighting
FHQ	Force HQ
FLIR	Forward-Looking Infrared
FLOT	Forward Line of Own Troops
FOB	Forward Operating Base
FOP	Flight Operations Platoon
FSA	Forward Support Area
FSMT’s	Forward Support MEDEVAC Teams
FW	Fixed Wing
GPS	Global Positioning System
H/Cs	Helicopters
HMG	Heavy Machine-gun
HMS	Helmet-Mounted Sight
HN	Host Nation

HNS	Host Nation Support
HUD	Head-Up Display
HVT	High Value Target
IC	Intensive Care
ICAO	International Civil Aviation Organization
INFLTREP	In-flight Report
INS	Inertial Navigation System
IPB	Intelligence Preparation of the Battlefield
IR	Infrared
ISR	Intelligence, Surveillance and Reconnaissance
ISTAR	Intelligence, Surveillance, Target Aquisition and Reconnaissance
JAR	Joint Air Regulations
JCO	Joint Coordination Order
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JOA	Joint Operations Area
LCC	Land Component Commander
LN	Lead Nation
LS	Landing Site
MEDAD	Medical Advisor
MEDEVAC	Medical Evacuation
MISREP	Mission Report
MOU	Memorandum of Understanding
MP	Military Police
MSL	Mean Sea Level
MTF	Medical Treatment Facility
METT-TC	Mission, Enemy, Terrain, Troops, Time Available, Civilian Considerations
NATO	North Atlantic Treaty Organisation
NBC	Nuclear Biological Chemical
NFA	No-Fire Area
nm	nautical mile

NTISR	Non-Traditional Intelligence, Surveillance and Reconnaissance
NVD	Night Vision Device
NVG	Night Vision Goggle
OHQ	Operational HQ
OPORD	Operations Order
PECC	Patient Evacuation Coordination Cell
PGM	Precision Guided Munition
PIC	Pilot in Charge/Pilot in Command
PMR	Patient Movement Request
POW	Point of Wounding
POW	Prisoner of War
PR	Personnel Recovery
PSO	Peace Support Operations
ROE	Rules of Engagement
ROF	ROE-defined Opposing Forces
ROZ	Restricted Operating Zone
RSA	Rear Support Area
RW	Rotary Wing
RWR	Radar Warning Receiver
R&S	Reconnaissance and Surveillance
SA	Situational Awareness
SAR	Search and Rescue
SH	Support Helicopters
SMO	Senior Medical Officer
SOP	Standing Operating Procedures
SPINS	Special Instructions
STANAG	Standardization Agreement
TA	Technical Agreement
TCN	Troop Contributing Nation
TTPs	Tactics, Techniques and Procedures
UAV	Unmanned Aerial Vehicle