Medical Evacuation in Afghanistan

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MEDICAL EVACUATION IN AFGHANISTAN: LESSONS IDENTIFIED!
LESSONS LEARNED?

ABSTRACT

Joint Forces Command in Brunssum (JFCBS) is the operational level headquarters (HQ) for the International Security Assistance Force (ISAF) mission in Afghanistan. From the view of the current Medical Advisor of this HQ this article lights aspects of Aeromedical Evacuation (AE) in the Afghan theatre. The operational planning for ISAF is based on the respective doctrinal NATO documents. This doctrine reflects, that in contrary to plans from the cold war era the focus lies no longer on the relief of the fighting troops from casualties but on the state of the art care for the patients. Whilst the timelines for Medical Evacuation have recently come under discussion the doctrine has proven worthwhile in the current conflict as it balances the benefit for the patient against feasibility. The article goes into detail on the limitations for AE in Afghanistan, be it national caveats, the availability of suitable airframes and medical AE specialists, weather and altitude, night flying capability or the tactical situation. It specifies a Patient Evacuation Coordination Cell (PECC) and challenges in Command and Control (C2).

Despite a higher tempo and intensity of operations the number for the “Killed in Action” (KIA) has relatively decreased whilst the figures for the “Wounded in Action” have increased. This shows, that the medical treatment and not at least the medical evacuation has significantly improved. Meanwhile more than 3200 patients have been flown in over 2063 missions, of which 30% were cases of the highest urgency. More than half of the patients were rated as casualties that need to see a surgeon latest after two hours of wounding. When 2007 still 12 percent of all flights were outside the two hour timeline, it was possible to reduce that figure to 7 percent in 2008 by improving mainly command and control but also by employing more airframes. The vast majority of patients were ISAF casualties, followed by ANSF.

The current Combined Joint Status Of Requirement (CJSOR) is by far not yet filled and national caveats hamper COM ISAF’s flexibility in employing Aeromedevac Airframes. A medical theatre reserve is mandatory for future operations. Current British experiences suggest, that highly interventional pre-hospital treatment of casualties as close to the point of wounding might be beneficial (scoop and play).

1.0 General

During the current International Security Assistance Force (ISAF) mission in Afghanistan, NATO has gathered a lot of valuable experience in the field of medical evacuation. Joint Forces Command in Brunssum (JFCBS) is the operational level headquarters (HQ) for this mission. The following article reflects the authors experience as the Medical Advisor to HQ JFCBS. It focuses primarily on Forward Aeromedical Evacuation in ISAF. Ground Evacuation is primarily performed for and by the Afghan National Security Forces (ANSF) whilst Tactical Aeromedical Evacuation is a topic, that would exceed...
the intended volume of this article.

2.0 Introduction
The military theatre in Afghanistan is exceptionally complex hence a multitude of organisations and stakeholders have interests in that country. It is of paramount importance to understand, that Coalition Forces are running the Operation Enduring Freedom (OEF) in parallel to the ISAF mission. Although in general a strict separation of both missions is adhered to, this is not feasible for medevac and medical treatment. To use such scarce assets as Aeromedevac Helicopters just for one of these missions is not affordable and can not be justified.

3.0 Definitions and Concept:

3.1 Doctrine:
The operational planning for ISAF is based on the respective doctrinal NATO documents. This is primarily the MC 326/2 (NATO Principles and Policies on Operational Medical Support), the AJP 4.10(A) (Allied Joint Medical Support Doctrine) and the Supreme Headquarters Allied Powers Europe (SHAPE) Operational Plan (OPLAN).

In all these documents is stated that „it is the aim to provide a standard of medical care which is as close as possible to prevailing peacetime standards, and follows the principles of best medical practice, while acknowledging the operational posture and environment.“ A further quote is:

„Patients passing through the medical system must be given care, which is continuous and relevant. Casualties must be managed continually until they reach definitive care. In transit care must be available during medical evacuation and the clinical condition of the individual is the key factor governing the timing, means and destination of the patient’s evacuation."

This reflects, that in contrary to plans from the cold war era the focus lies no longer on the relief of the fighting troops from casualties but on the state of the art care for the patients. Having formulated the above mentioned sentences as they stand now, it is provided, that casualties will never fall into a lower stage of medical care during their way through the medical system.

Questioning the responsibility for medical support, MC 326/2 states that „Troop Contributing Nations (TCN) are ultimately responsible for provision of medical support to their forces.“ and „upon transfer of authority, the NATO commander shares this responsibility."

These statements are however not very helpful should the question of liability been raised. Medical Support has become a limiting factor for operations. If a NATO commander regards these limitations and, recognising the lack of medical support provided by the TCN, confines his operations to a degree that the overall military goal can not be achieved, who will then be held responsible for the failure of the mission? This question is sadly less hypothetical than it seems.

3.2 Definitions:

Medical Evacuation is defined as „the movement of patients under medical supervision to a Medical Treatment Facility (MTF) and is an integral part of the treatment continuum.” (AJP 4.10(A)). It has to be noted that NATO medical doctrine does not recognise the term CASEVAC. Any movement of patients after on-scene first aid must be under medical supervision (i.e. A trained medical provider). It is yet obvious, that in a mass casualty event for a limited time these rules will not be applicable.

Forward Air Medevac is defined as the primary transfer of patient(s) to a suitable MTF. As ISAF in Afghanistan is divided into five Regional commands, Forward Air Medevac is coordinated by the Patient
Evacuation Coordination Cell (PECC) of the respective Regional Command (RC).

**Tactical Air Medevac** is defined as the transfer of a patient(s) by air between MTFs within the Area of Operations (AOO) using medical means. It is coordinated by the PECC in ISAF HQ.

**Strategic Air Medevac** is defined as the transfer of a patient by air outside the AOO. Strategic Air Medevac is still a national responsibility although in the current OPLAN nations are encouraged to share resources and to cooperate.

### 4.0 Procedures and Concept:

In ISAF, we are currently using three different reports, depending on: who is reporting and what is the aim of the report. The METHANE Report is used by all troops to report an incident within their chain of command. The so called „nine-liner“ is used to call in Forward Aeromedevac and the Patient Movement Request (PMR) „Lite“ is used for the request for intra theatre (or tactical) patient transport. All three of them and the systematic when to use what have proven worthwhile.

#### METHANE

1. Military details
2. Exact location of the incident
3. Time and type of incident
4. Hazards in the area
5. Approach routes for vehicles and details of RW LZ
6. Number, nationality and type of casualties
7. Expected response

#### 9 liner

1. Location
2. Call signal and frequency
3. Number of patients/ precedence
4. Special equipment req.
5. Number of patient/ type
6. Security at LZ
7. LZ marking method
8. Patient number/ nationality/ status
9. LZ terrain/ obstacle

### 5.0 Timelines

Currently the timelines, as they are stated in the respective doctrinal documents, have come under discussion.

It has to be noted, that all figures mentioned in the following are planning figures only. The ultimate goal is to get a patient within one hour from the time he has been injured or wounded to primary surgery. Where this is not feasible, Advanced Trauma Life Support (ATLS) should be provided as early as possible and as far forward as possible, but definitely not later than one hour. To reach primary surgery, an extension to four hours is only possible, if the patient had before the chance to undergo Damage Control Surgery (DCS). He should in any case be on a surgeons operating table not later than two hours after wounding.

In Forward Aeromedical Evacuation quite a big amount of time is eaten up by what can be called „idle time“ that can hardly be shortened. From one hour it leaves only 20 minutes total flying time. A major factor here is the warm up and weapons system check of the escort helicopters. But in the theatre as we face it today, these escorts are absolutely essential.

These figures show you the possible radius of an aeromedevac helicopter in kilometres, assuming an
average speed of 100 knots which equals approximately 180 km/h.

- 40 min flying time equals ca. 2h or 120 km radius
- 25 min flying time equals ca. 1h30' or 75 km radius
- 10 min flying time equals ca. 1h or 30 km radius

Here is an outlay where the spots symbolically mark where IED attacks occurred in the depicted time frame.


They show us three things:
Firstly they concern roughly the area of the so called „ring-road“.
Secondly they reflect those areas, where operations have taken place.
Thirdly they show us, which areas should be primarily covered by aeromedevac assets.
For security reasons the following slides are intentionally slightly incorrect. Nevertheless it gives you an impression of the current aeromedevac coverage. However this does not consider altitude restrictions nor differences in the capabilities of the available airframes.

This slide shows the aeromedevac coverage if we allow two hours from time of wounding to a surgeons operating table.
This is the coverage, when we allow only 1 hour and 30 minutes from the time of wounding to a surgeon’s table whilst

This slide shows, where we currently are, when we would only allow one hour from time of wounding to the hospital. It also explains why it is currently just not feasible to cover all areas of interests, even if we could enhance the number of helicopters and medical treatment facilities significantly.

6.0 Limitations

Most readers will be aware of the current restrictions on Aeromedical Evacuation in ISAF as they are quite self-explanatory. A specific item here are national caveats that are sometimes hindering COM ISAF to make use of all available airframes according to his operational and tactical planning.

As Afghan mountains reach up to 23,000 ft and the lowest point in the south of Afghanistan is still above 1,800 ft it is obvious that especially with the hot climate in summer many helicopters very quickly reach their limitations. Only powerful engines can master these challenges.
And just as an example: This is the snow coverage at Christmas 2006. As you can see, this is really an austere environment. Therefore I have listed here some of the specifications that an ideal airframe for aeromedevac purposes should have:

- Available on demand 24/7 (night!).
- Airborne (NTM):
  - 30 min in day (is 15 for most RC in ISAF)
  - 60 min in night (is 120 in some RC in ISAF)
- Able to operate at high altitudes.
- Capable of transportation of **min** 2 patients to MTF with specialist Aeromedical Evacuation capabilities.
- Capable of conducting operations in mountainous and desert terrain in AOO summer and winter.
- Has sufficient engineering and aircrew resources and is equipped with self-defence systems.
- Capable of operating in zero-illumination conditions.
- Equipped with life support oxygen (up to 10,000 ft of altitude desirable, above 10,000 ft mandatory).

The variability of available assets as well as the different configurations and even concepts of operations make it necessary to speak whenever possible rather about capabilities than about aircrafts or helicopters.

But there are more challenges to face of which Medical Command and Control is not the least.
7.0 Command & Control (C2)

This slide depicts the current medical chain of command on top of which of course you find the Allied Command Operations, better known as SHAPE. In each regional command you find a medical staff and a Patient Evacuation and Coordination Cell. However the composition of the medical staff or better the so-called „Crisis Establishment“ varies from lead nation to lead nation, from regional command to regional command. In RC West the function of the Medical Director is currently manned by the hospital. There is also no 24/7 permanent medical coverage for the Patient Evacuation Coordination Cell (PECC).

7.1 Patient Evacuation Coordination Cell (PECC)

A PECC should always be co-located to or integrated into the CJOC, because all medical planning and operations need to be integrated into the ongoing military operation and require therefore a full situational awareness in order to achieve the huge variety of tasks.

The factors to be considered by the dispatcher, that are influencing his planning for the use of aeromedevac can be divided into two groups: The non-medical and the medical planning factors. Here I have listed some of the non-medical and medical planning factors that he has to consider and that determine his need for tactical situational awareness.
Medical Evacuation in Afghanistan

<table>
<thead>
<tr>
<th>Non medical</th>
<th>Medical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance</td>
<td>Patient's condition</td>
</tr>
<tr>
<td>Terrain</td>
<td>Specialist availability</td>
</tr>
<tr>
<td>Weather</td>
<td>Medical equipment availability</td>
</tr>
<tr>
<td>Illumination</td>
<td>Hospital capacity</td>
</tr>
<tr>
<td>Enemy action</td>
<td>Hospital capabilities</td>
</tr>
<tr>
<td>Helicopter NTM</td>
<td></td>
</tr>
<tr>
<td>Refuelling availability</td>
<td></td>
</tr>
<tr>
<td>Crew Rest</td>
<td></td>
</tr>
<tr>
<td>Asset availability</td>
<td></td>
</tr>
<tr>
<td>Own Artillery/AD</td>
<td></td>
</tr>
</tbody>
</table>

The medical planning factors explain, why medical personnel is indispensable in a Patient Evacuation Coordination Cell. The dispatcher needs to ask the right questions in order to use the available medical assets in a comprehensive manner.

8.0 Development

We should remember, that it was until 2004 that ISAF was primarily restricted to KABUL and its surroundings. Since then the own situation has changed dramatically as we have seen a huge surge of troops and a change of operations from monitoring to a more active role. We can cut it short by stating: the more closely you look, the more trouble you find.

NATO is now between Phase 3 and Phase 4 of its plan for development. We hope, that Region Capitol can be handed over to the Afghan authorities very soon. However, it is known that the transition in other regions is unlikely to be achieved in the nearer future.

Talking about a surge of troops, this means for the medical community more possible clients and for the medical planners quite a challenge. As the military threat is perceived bigger in RC South and RC East, these were the regions where the major development could be observed. Currently the population at risk mounts up to 60.000.

Bearing this in mind, we can be very happy and as a medical community also a bit proud, that despite a higher tempo and intensity of operations the number for the “Killed in Action” (KIA) has relatively decreased whilst the figures for the “Wounded in Action” have increased. This shows us, that the medical treatment and not at least the medical evacuation has significantly improved. Ongoing detailed studies are already now supporting this thesis.
KIA Trends

WIA Trends

non sensitive information – releasable to the public
9.0 Performance

This can not be analysed without regarding who the patients are that we are talking about. In the current OPLAN from JFC Brunssum the Medical Annex shows a matrix of Medical Rules of Eligibility. Of course, every nation adds its personal view to it, which makes things sometimes a bit complicated. Most nations have by now accepted, that we are fighting alongside with our Afghan partners and are therefore regarding the Afghan National Security Forces as Coalition Partners.

<table>
<thead>
<tr>
<th>Medical Rules of Eligibility</th>
</tr>
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<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>First Aid</td>
</tr>
<tr>
<td>X</td>
</tr>
<tr>
<td>ISAF/OEF mil / civ:</td>
</tr>
<tr>
<td>Intern. Org. (IO):</td>
</tr>
<tr>
<td>Non Government Org. (NGO):</td>
</tr>
<tr>
<td>AnSF - Combined Operations:</td>
</tr>
<tr>
<td>- Bi or DNB:</td>
</tr>
<tr>
<td>- Routine:</td>
</tr>
<tr>
<td>LN - ISAF related:</td>
</tr>
<tr>
<td>- Non ISAF related:</td>
</tr>
<tr>
<td>- VIP:</td>
</tr>
</tbody>
</table>

This is the currently applicable matrix. The LN stands for Local Nationals. Here we have to differentiate, whether they have been injured by own forces or by opposing forces. LLE stands for „Life, Limb and Eyesight“ whilst HA stands for Humanitarian Aid.

On aeromedevac flights the vast majority of patients are ISAF casualties, followed by AnSF.

Meanwhile more than 3200 patients have been flown in over 2063 missions, of which 30% were cases of the highest urgency. More than half of the patients were rated as casualties that need to see a surgeon latest after two hours of wounding.
When 2007 still 12 percent of all flights were outside the two our timeline, we were able to reduce that figure to 7 percent in 2008 by improving mainly command and control but also by employing more airframes.

10.0 Room for Improvement

Nations must be encouraged to fill the current commonly agreed Combined Joint Statement of Requirement (CJSOR).

Secondly we would all benefit if national caveats could be removed for the sake of the common humanitarian thought. It is difficult to follow the logic why an aircraft for tactical aeromedevac may cross the regional boundaries whilst a helicopter may not. And it is not very helpful if the respective CJOC has to call to the home MOD to get approval for a medevac flight.

Thirdly some of the existing Medical Treatment Facilities need to be enhanced and their sustainability needs to be strengthened. More Forward Operating Bases are needed for further operations.

COM ISAF needs to be given more flexibility by the troop contributing nations on how to use the existing assets and in order to support shorter operations in remote areas, we need to bring some surgical capability forward. There have been encouraging national examples in the past.

As it has been proven in NRF as well as in past operations, the medical service could profit from a robust multinational medical task force, including a medical theatre reserve.

Looking further into the future, the model of AWACS could possibly serve for a Joint Strategic Aeromedical Evacuation Agency, may be even with an own fleet of aircrafts.

It is also imaginable that Rotary Wing Aeromedical Assets could become eligible for common funding, provided that a sufficient degree of standardisation for medical equipment and training of the necessary personnel could be achieved.

We have not yet succeeded to convince all participating nations of the need for a PECC that is under medical lead; and finally one should strive for a standardised education for our PECC personnel, because
this is one of the most challenging and demanding posts we have to offer. This personnel must have a profound military and tactical knowledge, as well as exceptional skills in rescue and emergency medicine in order to employ the scarce medevac assets to the greatest benefit of our patients.

And there is one more lesson, that we are currently about to learn:

ATLS can still be enhanced, when it is applied and eventually modified by experienced emergency physicians. This model has been practiced in Germany

The medevac configuration of the German Sikorski helicopter CH 53 may serve here as an example. But luckily the casualty rate in the past has been so low, that not sufficient data could be gathered to provide evidence of the benefit for the patients in comparison to a system based on skilled paramedics. The current system is still based on the principle: „stay and play“ as the patient should be stabilised before he is loaded into the helicopter.

Our British colleagues have now recently introduced a comparable system that they call the MERT-E, which stands for Medical Emergency Response Team – Enhanced. Sadly they have been confronted with significant numbers of patients and were therefore able to provide valid data. The principle, according to which they act can be described as „scoop and play“.

One of the CH 47 helicopters at Camp Bastion is always equipped for the role as dedicated Aeromedical asset. Whilst the emergency physicians do a lot of excellent work on board of this helicopters it has to be noted, that MERT-E is not meant to be a surgical platform.

1222 MERT report forms have been analysed to determine what interventions were done prior to MERT arriving and what were done on MERT. It demonstrates that in comparison to skills at Role 1, MERT-E is highly interventional.

First evaluations of the data indicate that the rate of unexpected survivors has risen since the introduction of that system.

11.0 Lines to take

Quality control for Aeromedevac is established but can still be improved.

Results could be significantly improved since 2007.

The risk for our soldiers in ISAF is currently increasing.

CASEVAC is for the type of battle that we are facing nowadays not an option.

A good medical care is in joint and combined interest and therefore more joint and combined solutions to current challenges should be sought.

As there is no alternative to aeromedevac particularly the economy of scale should lead to combined solutions.

Standardisation is paramount and in everyone’s interest.