Helicopter Casevac, Kill or Cure?

Maj IP Curry
RAMC*

Medical Centre, 1 Regt Army Air Corps, Princess Royal Barracks, BFPO 47

SUMMARY: Helicopter Casevac in the British Army is examined in the context of published work in the area and the perspective of the Army Air Corps (AAC) experience. The system by which a casualty on the ground becomes a Casevac is explored, from tasking by the medical services, through to acceptance and launch by the Air Corps. The problems involved are discussed and some potential answers suggested, the aim being to produce a safer system for patients, pilots and medics.

Introduction

The AAC is essentially a helicopter force with the present types flown being the Westland Lynx Mk 7 and 9 and the Aerospatiale Gazelle AH1. The roles of this force include: armed action, direction of fire, assistance in command and control and limited logistical tasks. At no point in Army Aviation doctrine is Casevac mentioned as a role. In practical terms the AAC is involved in providing Casevac cover to British Forces worldwide, in several locations, that is the main reason for an AAC presence.

The purpose of this article is to examine the problems Casevac poses to both the AAC and to the medical community tasking them. Also, it is hoped to stimulate debate on how Casevac is, or is not regulated and finally, to propose possible solutions to the problems that are deemed to exist.

We are becoming familiar with the use of helicopters in civilian medical emergencies and there are a number of high profile examples. The Helicopter Emergency Medical Service (HEMS), operating from the Royal London Hospital is probably the most famous. There has been considerable debate in the medical press (1, 2, 3) as to whether trauma patients fare better with or without helicopter attendance. In recent years the emphasis has shifted from 'scoop and scoot' to 'taking the emergency room to the patient'. This whole debate is peripheral to the Army situation but lessons may be learned from the civilian community. For instance Nicholl *et al* (4) found that in a rural area (Cornwall), in its role as an emergency response vehicle, the helicopter's performance was no better than that of ground ambulances. Activation times, responses times and on-scene times were all longer than on average for ground ambulances.

Transport times to hospital were sometimes much faster. Other areas of interest are the long experience of US Forces with 'dust-off' and their Vietnam War results. The latter is probably more applicable to the British Army, as the AAC is usually called upon to provide Casevac cover for exercising troops in remote areas of the world with poor communications and medical infrastructure.

Problems

As Casevac is not a central role for the AAC, the aircraft flown are not suited to the task. The Gazelle may be quickly re-roled to accommodate a stretcher casualty, although a standard GS stretcher will fit, it is very cramped and requires the removal of one pilot's seat. Also, the access to the casualty for a medical attendant is very poor. The Lynx may be re-roled to a stretcher fit but this is unusual and a stretcher casualty is more likely to be carried on the floor of the aircraft with the passenger seats removed. This means that continuing the treatment of a casualty in flight is virtually impossible given the cramped conditions, noise and vibration. This author has attempted it in both aircraft with little success.

All this would lead to suggest that any severely injured casualty should be stabilised before Casevac in an Army aircraft, as any deterioration would be likely to necessitate landing to carry out further treatment. An Austrian study (5) has shown that having a trained Doctor of any speciality on board the helicopter significantly increased the survival of severely injured patients. This was attributed to a better initial diagnosis and treatment of the patient on the ground before any transit by helicopter.

Problems more specific to the Army situation will be discussed by using some examples:

A young aircraft commander was killed and a medical officer badly injured when a Gazelle crashed in Canada during a MEDMAN exercise. It was a call for a Casevac to retrieve a soldier with a 'broken leg', it was at night and the weather was terrible. Shortly after take-off the pilot became spatially disorientated and recovered to base. He then made another attempt became disorientated again and crashed. The circumstances behind this death were unfortunate but by no means unique. The pilot was a young and relatively inexperienced aircraft commander, who was allowed to attempt the sortie on his own initiative. The Casevac call had come from a medic on the ground who had grossly exaggerated the injury, in fact the soldier had a bad sprain. Because the casualty was thought to be a stretcher case, the Gazelle was roled to that fit before take-off, therefore the pilot was on his own. This episode occurred some years ago; there was a similar incident in 1997 which fortunately did not result in a crash.

Events such as those outlined above are a matter of record only if they become the subject of an accident or incident board of inquiry, and those officially recognised are probably the tip of a worryingly large iceberg. In an informal and anonymous survey of the more experienced aircrew (over 2000 hrs) in an Air Corps regiment, between 80 and 90% had cause for concern about Casevac at some time in their careers. All had performed Casevacs during day and night and most could recall a situation, 'where they felt that the aircraft was in significant danger of crashing'. Many felt that they had been very lucky to get out of the situation that the accepted Casevac request had put them in.

In summary, the major problems that need to be addressed are:

Inappropriate tasking of Casevac.

Inappropriate response from aircrew.

Tasking

A Germany study by Arntz *et al* (6) showed that in 10% of cases, experienced trauma physicians exaggerated the extent of a casualty's injuries. From this, one may readily extrapolate that at least this state of affairs and probably much worse exists when a patient is initially assessed by a less highly trained person. One could argue that it is unfair to expect a Combat Medical Technician to quickly and accurately assess and diagnose a trauma casualty. Their training does include elements of the skill

Footnote: For the purposes of this article Casevac will be defined as the removal of a casualty from or near the point of injury or illness by an Army helicopter.

*now Aviation Medicine, 4 Regt AAC, RAF Wattisham, Ipswich, Suffolk IP7 7RA

required but the level of actual experience is liable to be low in most cases. Given the sometimes critical nature of the decision to call in a helicopter, a reasonable expectation would be that the call for Casevac should be made by someone with a skill level commensurate with the potential danger.

Response

The other facets to the tasking of a Casevac are the decision to go, and the composition of the crew to perform the task.

An authorising officer who will make choices as to the feasibility of a given task should be experienced in the prevailing conditions in the locale and be able to satisfy himself as to the urgency of the request. There is a pervading 'can do' culture in the AAC and the tendency in the past has been to react very quickly to Casevac calls with little critical appraisal. This is a circumstance that has led to the dangerous situations alluded to above and is one that should be examined. The authoriser must also satisfy himself that the crew to perform the task are competent so to do. Thus he must take into account their competence, past experience and state of readiness in terms of current flying practice in addition to how well rested they are. An authorising officer is one of the two key personnel in the chain of events that can lead to a safe Casevac or, put crew, aircraft and possibly patient at risk. The other I would suggest, being the person who initiates the task.

Solutions?

Hotvedt *et al* (7) in a recent paper from Norway showed that Casevac can be utilised effectively and to the significant benefit of patients. In a very rural area with relatively poor transportation links (north of Tromsø), they showed that 11% of a group airlifted gained significantly in terms of survival and eventual outcome. The requests were screened by an experienced team before the task was allowed, this was also shown to be of benefit in the London experience of Coats and Newton (8).

A study by the US military (9) compared the safety records of Army and civilian Casevac helicopters and concluded that the safety advantage of the Army was based on always having two pilots in their aircraft.

The Way Forward

Nobody in the British Army would question the absolute requirement to provide the best possible evacuation and

treatment facilities to our troops wherever they may be. Within the constraints of this and the equipment available to us, some gain may be had by considering the way we operate.

1. A prospective audit of the Casevac requests received by the AAC and their outcomes, would be invaluable in formulating future policy.
2. Medical personnel in the position of requesting Casevac must be educated in both accurate casualty assessment and the hazards of the procedure they are requesting.
3. Authorising Officers must be experienced enough to know the hazards of the environment into which they are sending a crew.
4. Casevac procedures should rarely, if ever, be undertaken by a single pilot and then only by a very experienced aviator.

REFERENCES:

1. NICHOLL JP, BRAZIER JE, SNOOKS HA. Effects of London helicopter emergency medical service on survival after trauma. *BMJ* 1995; **22**: 217-22.
2. SNOOKS HA, NICHOLL JP, BRAZIER JE, LEES-MLANGA S. The costs and benefits of helicopter emergency ambulance services in England and Wales. *J Public Health Med* 1996; **18**(1): 67-77.
3. NORTON R, WORTMAN E, EASTES L, DAYA M, HOYT J. Appropriate helicopter transport of urban trauma patients. *J Trauma* 1996; **41**(5): 886-91.
4. NICHOLL JP, BEEBY NR, BRAZIER JE. A comparison of the costs and performance of an emergency helicopter and land ambulances in a rural area. *Injury* 1994; **25**(3): 145-53.
5. BONATTI J, GOSCHL O, LARCHER P, WODLINGER R, FLORA G. Predictors of short-term survival after helicopter rescue. *Resuscitation* 1995; **30**(2): 133-40.
6. ARNTZ HR, KLATT S, STERN R, WILICH SN, BENEKER J. Sind Notarztdiagnosen zuverlässig? (Are emergency physicians' diagnoses accurate?). *Anaesthetist* 1996; **45**(2): 163-70.
7. HOTVEDT R, *et al*. Which groups of patients benefit from helicopter evacuation. *Lancet* 1996; **347**(9012): 1362-1366.
8. COATS TJ, NEWTON A. Call selection for the Helicopter Emergency Medical Service: implications for ambulance control. *J R Soc Med* 1994; **87**(4): 208-10.
9. DE LORENZO RA. Military and civilian emergency aeromedical services: common goals and different approaches. *Aviat Space Environ Med* 1997; **68**(1): 56-60.