

# 16 CASUALTY EVACUATION

*Rod Stables*

**T**horough preparation and planning of all phases of an expedition are essential for a successful venture. This is particularly important in the handling of emergency evacuation. Casualty evacuation (casevac) procedures must be established and perhaps even rehearsed before deployment.

Expeditions vary in their destination, scale, complexity, duration, risk, isolation and levels of support. Beyond this each evacuation case will present its own problems, varying from the self-caring “walking wounded”, to patients requiring continuous and intensive care.

The aim of this chapter is to provide a framework for sound planning. To do this the process of casualty evacuation has been broken down into several phases.



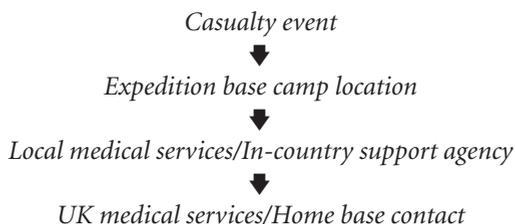
## **Preparation**

All aspects of the casualty evacuation process must be considered. An initial risk assessment should be undertaken to review expedition-specific factors. The aim and

nature of an expedition often define key objective risks related to activities, terrain, climate and isolation. All expeditions must entertain the possibility that multiple casualties may be sustained either in a single incident or over the duration of the expedition. Other factors to consider are the size and composition of the team, and the age, physical capabilities, experience, training and specific medical needs of individual team members. All expeditions must strike a balance between the proposed level of intrinsic medical support and reliance upon external assistance. To some extent this dictates the requirements for medical specialists, rescue aids, medical supplies, communication systems and other equipment. For the 1992–3 Everest in Winter Expedition, the high level of objective danger and the isolation of the base camp location over the winter months demanded a high level of medical provision. In preparation, blood samples from all members were examined to identify opportunities for emergency transfusion between individuals.

Seek information from all available sources, paying particular attention to local agencies and those with recent experience of your expedition area. Reports from previous trips are often a useful reference. The Royal Geographical Society houses an extensive reference collection of past expedition reports. It has also published the results of a long-term survey of medical problems experienced by expeditions (*Journal of the Royal Society of Medicine* 2000;93:557–62).

When writing an outline casevac plan consider the evacuation chain. This usually involves a collaborative effort co-ordinated, in sequence, by key individuals or agencies (see Chapter 8).



Establish contact by telephone, email or fax with relevant external agencies and aim to involve them in your planning process. On arrival in the country allow time for personal visits to ensure close liaison with groups or individuals whom you may have to call on for support. Consular or other diplomatic officials have sometimes acted as local agents, but except in the case of a dire emergency their availability should not be assumed and alternative arrangements must be secured. Modern communications usually allow an effective link to be established between the home country contact and the local agent, but communications with the expedition group may be less secure and will vary from expedition to expedition (see “The call for (or move to) help”, page 184).

Each element in this evacuation chain will require copies of key documentation. The basic requirements include (but are certainly not limited to) the following:

- A complete list of expedition members and their personal details, including nationality, passport number, full next-of-kin contact details, information about pre-existing medical problems and blood group information.
- Copies of all insurance policies relating to medical and evacuation cover.
- Contact details of involved travel and transport agencies, including international medical evacuation services.
- Contact details of local consulate or other diplomatic or home government officials for all nationalities represented on the expedition.
- Precise contact details of the other link agencies. This should include alternative contact individuals and fallback alternative telephone and fax numbers.

A similar but more personalised document pack should be produced for each expedition member. This should be kept readily available together with a passport and some cash, credit cards or other financial guarantee. An emergency casevac may separate an individual from the rest of the party and these documents should accompany the injured party. This “snatch bag” can be further enhanced by including a structured proforma to allow recording of the immediate medical history, clinical



Figure 16.1 *Stretcher casevac in the Khumbu Icefall on Everest in winter. The victim had bilateral compound fractures of tibia and fibula from the fall (R. Stables)*

observations and treatment regimes and a copy of the patient's personal medical questionnaire.

### **Casualty event and immediate rescue**

Expedition leaders and medical officers must consider the equipment that might be required in the immediate recovery of a casualty following an accident or sudden illness. Normal trauma packs are usually required, but steep rock, snow and ice, caves or the open sea may demand the procurement of specialist items. Improvisation and persistence can overcome most obstacles, but in difficult terrain there is no substitute for high-quality, purpose-built equipment.

### **Stabilisation**

Once back at base camp an attempt can be made to stabilise the patient's condition. A decision on the need to evacuate and the timing of any such move must then be made. These can be difficult issues to resolve and involve a series of value judgements based on the patient's condition, the level of care immediately available and the complexities and rigour of the casevac chain. Good communications with the local agent and hence with specialist professional advice can be of great value in this setting.

It is important to document clearly the details of the case and to record key clinical observations and treatments administered. These data should be sent back with the patient.

Ideally, an expedition member should accompany the patient, taking all the patient's personal equipment with him or her. This is rarely possible but should be considered if personnel and other circumstances permit.

### **The call for (or move to) help**

Expeditions with no means of summoning outside help will have to move their casualty to the nearest human habitation or aid post. The most appropriate means for this move should be considered in the planning phase. Pack animals or stretcher carriers can be slow and present great problems for a severely injured patient.

Even large and well-equipped expeditions may face this problem if they are operating in remote or high-altitude areas, beyond the range of helicopter operations. Everest Base Camp, for example, is inaccessible to helicopters in the winter months and casualties must be moved to lower altitudes down the valley. It is important to remember in planning helicopter tasks that there is a relationship between range and payload (or freight). When the aircraft is operating at the limits of its range or altitude ceiling payload limitations may mean that the casualty has to move alone with minimal equipment.

The most usual means of summoning help is by radio communication, although local runners can provide a remarkable service in some areas. Traditional HF or VHF radio links to a local agent have previously been the mainstay of expedition



Figure 16.2 *Aeromedical evacuation (S. R. Anderson)*

communications, although in regions that are frequently overflown, such as the Denali National Park in Alaska, ground-to-air UHF systems can provide an effective alternative for emergency transmissions.

Satellite communication systems have revolutionised the potential for long-range communications. Secure voice and fax links across several continents are now readily available as are, increasingly, email links. This equipment is, however, expensive to hire or purchase and satellite air time is also charged at premium rates. For smaller expeditions, interested only in emergency communications, a number of companies now offer for hire a satellite emergency beacon transmitter device. This can be triggered to produce one of a number of coded signals to a central base. This central base will then notify the expedition's nominated agent that the expedition has, for example, transmitted "Message 2" logged as "Request immediate casevac at this location".

### **In-country casevac and international recovery**

The involvement of established agencies usually makes this the least problematic part of the process. Aeromedical evacuation is expensive and appropriate insurance cover should be established for all expedition members. Most insurance companies insist on being involved from the earliest stages of a claim and should be contacted at the first opportunity.

### **Companies that provide air ambulance services**

#### *Europe and Africa*

Cega Air Ambulance Ltd, Goodwood Airfield, Chichester, West Sussex PO18 0PH, UK  
Tel. +44 1243 538888, fax +44 1243 773169

## EXPEDITION MEDICINE

Compagnie Générale de Secours, Paris, France

Tel. +33 1 47 47 66 66

East Africa Flying Doctors Society (AMREF), 11 Old Queen Street, London SW1H 9JA, UK

Tel. +44 20 71233 0066, fax +44 20 7233 0099

Europ Assistance, Sussex House, Perrymount Road, Haywards Heath, West Sussex RH16 1DN, UK

Tel. +44 1444 411999, fax +44 1444 415775

International Assistance Services, 32–42 High Street, Purley, Surrey CR8 2PP, UK

Tel. +44 20 8763 1550, fax +44 20 8668 1262

Swiss Air Ambulance, Zurich, Switzerland

Tel. +41 1 3831 111

### *United States*

Air Ambulance International, San Francisco, CA

Tel. +1 800 2279996, +1 415 7861592

Air Ambulance Network, Miami, FL

Tel. +1 800 327 1966, +1 305 447 0458

Air Response, Box 109, Fort Plain, NY 13339

Tel. +1 518 993 4153

International SOS, Box 11568, Philadelphia, PA 19116

Tel. +1 800 523 8930, +1 215 244 1500

Life Flight Hermann Hospital, Houston, TX

Tel. +1 800 231 4357

National Jets, Fort Lauderdale, FL

Tel. +1 305 359 9900, +1 800 327 3710

North American Air Ambulance, Blackwood, NJ

Tel. +1 800 257 8180

Nationwide/Worldwide Emergency Ambulance Return (NEAR), 450 Prairie Avenue, Calumet City, IL 60409 Tel. +1 800 654 6700