8 RISK ASSESSMENT AND CRISIS MANAGEMENT

Clive Barrow

"Climb if you will, but remember that courage and strength are nought without prudence, and that a momentary negligence may destroy the happiness of a lifetime. Do nothing in haste; look well to each step; and from the beginning think what may be the end."
From Scrambles Amongst the Alps *by Edward Whymper, 1860*

Risk assessment is increasingly becoming a prerequisite for organisers of expeditions and outdoor activities in the UK and overseas. It is now a legal requirement for commercially organised outdoor activities for under 18s in the UK. There is currently no law in this country governing the organisation of expeditions overseas. Many see this as a good thing. Fortunately, the number of serious incidents among participants in overseas expeditions is very small; at 0.3 per 1,000 person-days (source: *Journal of the Royal Society of Medicine* 2000;93:557–562). Recently published data on medical problems seen on expeditions are shown in Table 8.1.

However, the climate of opinion in the UK is changing in several ways:

- The public is more circumspect about safety and risk as a result of increased media coverage of expedition or outdoor activity accidents.
- As a nation, the UK is adopting a more litigious culture in line with the United States.
- Expectations of safety amongst the parents and guardians of young people are becoming higher as a result of the introduction of stringent safety procedures and Health and Safety regulations in educational establishments.

Given this risk-adverse climate, planners and leaders of all overseas expeditions should be conducting a systematic, careful and responsible safety management assessment. Risk assessment is the first and perhaps most important part of this. This chapter is intended to provide a brief practical guide to risk assessment coupled with

TABLE 8.1 **INCIDENCE OF EXPEDITION MEDICAL PROBLEMS**

Category	*Sub-category*	*Number of incidents*	*Incident total per category*	*Incidence per 1,000 person-days*
Gastrointestinal	Gastrointestinal	275	275 (33%)	2.12
Medical	General medical	98	179 (21%)	1.38
	Malaria	23		
	Dengue fever	7		
	Skin	31		
	Pharmaceutical	16		
	Psychiatric	4		
Orthopaedic	Orthopaedic	22	142 (17%)	1.10
	Back	16		
	Trauma	104		
Environmental	Environment	1	117 (14%)	0.90
	Sun / Heat	40		
	Cold	13		
	Water	5		
	Altitude	58		
Fauna	Animal	19	63 (8%)	0.49
	Insect	44		
Feet	Feet	30	30 (4%)	0.23
Surgical	General surgical	6	29 (3%)	0.22
	Dental	10		
	Eye	13		
TOTAL		**835**		**6.44**

Taken from *Journal of the Royal Society of Medicine* 2000; 93:559.

the key considerations involved in crisis management planning for medical officers. Expedition leaders will use similar ideas to those outlined below but on a larger and more general scale.

RISK ASSESSMENT

Hazard and risk on overseas expeditions

Hazard and risk are inherent in everything we do and the degree of hazard and risk is dependent on the activity and environment in which that activity takes place. In the UK the degree of risk is considerably less than overseas, particularly in developing countries where our knowledge of and our ability to control the environment are less strong. Risk assessment of overseas projects must therefore consider a wider array of hazards, and must always allow for the unexpected (see Table 8.2). The expedition organiser must always be prepared to adopt alternatives and/or completely abandon an activity if the risk assessment suggests that control measures cannot reduce the risk to an acceptable level.

In attempting to qualify and quantify risk, it is important not to worry unnecessarily about trivia. A risk assessment that is too cluttered with minor concerns will be discarded in the field as a bureaucrat's folly, and will be of less value than not doing one at all. Any severe and persistent risk must appear in the risk assessment document, together with appropriate control measures.

Acceptable risk

On an overseas expedition, risk can never be completely eliminated. Indeed, it is through the management of both perceived and real risks that expeditions of all types can be of such beneficial effect to the participants. Most expedition organisers speak of reducing risk to an *acceptable* level. This is extremely difficult to define since opinions about acceptability may differ greatly among individuals. The experience, age, ability and technical competence of the participants on an expedition or overseas project must be considered, since this will affect the level of risk considered acceptable. When considering the concept of acceptable risk, think first of to whom the risk should be acceptable? To whom are you accountable? Examples might include your peers, participants, parents, school governors, local education authorities, teachers, sponsors, research bodies etc. In order to qualify acceptable risk in the context of your own project or expedition, it is important to ask key individuals and groups what they feel is acceptable to them. Don't ever assume! The greater the challenge and promise of achievement (e.g. first conquest of a new mountain peak), the greater the acceptable risk.

Control measures

Control measures are the backbone of the risk assessment process. They are what the expedition leader or medical officer (MO) initiates to reduce or eliminate a particular risk. Some examples would be as follows:

- Providing first aid training before the expedition starts.
- Getting immunised before exposure to disease.
- Preventing bites by disease-transmitting insects.

TABLE 8.2 **HAZARD AND RISK ON OVERSEAS EXPEDITIONS**

Hazard	*Risk*
1. The team	
Health and fitness (including previous/existing medical conditions)	Increased risk of health problems on expedition leading to serious illness/death
Attitude and behaviour	Increased risk of ignoring control measures resulting in illness/injury
Experience and training	Lack increases risk in all activities
Personal equipment	Serious injury/illness due to inadequate equipment/equipment failure
2. The environment	
Mountains/sea/desert/jungle	Altitude sickness/drowning/heat problems
Climate and weather conditions	Heat and cold-related injury/death
Wildlife (including insects)	Attack/poisoning through bites/stings/disease
3. Health	
Endemic disease (dengue fever/ Japanese encephalitis)	Serious illness or death
Malaria	Serious illness or death
AIDS/HIV	Serious illness or death
Polluted water	Serious illness
Contaminated food	Serious illness or death
4. Local population	
Political climate	Political instability/coup/kidnapping/ imprisonment (e.g. UK plane spotters in Greece!)
Attitudes to foreigners/cultural differences	Attack/rape/theft/access to drugs
Hygiene/living conditions	Disease
5. Expedition activity	
Trekking/climbing/mountaineering	Altitude sickness/falls from height
River crossing	Serious injury/drowning
Water-based activities (diving/kayaking/sailing)	Drowning/leptospirosis
Underground activities (caving/cave-diving)	Drowning/suffocation/starvation
Equipment failure/inappropriate use	Serious injury/death
Games/sports activities	Injury/incapacitation
6. Travel and camp life	
Transport (public/private)	High risk of serious injury/death
Road/water conditions	Increased risk of accidents
Other road users	Increased risk of accidents
Camp hazards (stoves/fires/flooding/ avalanche/wildlife)	Burns/drowning/suffocation/injury/death
Accommodation/hotels	Fire/electrocution/serious injury/disease/ mugging/attack

In most cases, many control measures can be implemented before the expedition as part of the planning process. However, once the expedition or project actually starts there may be many more control measures to consider.

The five steps to risk assessment

The UK Health and Safety Executive refers to the process as one of five steps. These are as follows:

1. Identify the hazards and associated risks.
2. Identify who is potentially at risk and how.
3. Identify the precautions or control measures to minimise the risk, including any further action required to reduce the risk to an acceptable level.
4. Record your findings.
5. Review the risk assessment periodically.

This process is clear and straightforward and can be applied to any expedition overseas.

A convenient format for risk assessment is a table with each of the five steps as a column heading (Table 8.3).

TABLE 8.3 **RISK ASSESSMENT**

Hazard	*Risk level*	*Control measure*	*Additional action*	*Review mechanism*
Data collection activities Trekking/river crossing	High	• Careful route selection • Use of guides • Competent, experienced group leaders • Use of ropes/training in river crossing techniques • No activity after dark • Safety and medical kit carried at all times • Group risk assessment before each day's activity	Leader/staff approve activity or, if necessary, halt progress if new risk arises, rendering it unsafe to proceed	Post-expedition report with information about incidents and changes to risk assessment

Involving others in the risk assessment process

Never presume that members of an expedition team will observe or abide by the contents of a risk assessment in which they have had no involvement. The key to effective risk assessment stems from clarity and commitment on the part of all of those who may potentially be at risk. It is strongly recommended, therefore, that team members play a part in compiling the assessment at some stage of the planning process. This risk assessment is an essential part of turning a piece of paper into a living process for managing day-to-day risk on an expedition.

Reviewing a risk assessment

Because of frequent changes in environment, the risk assessment must be reviewed regularly to remain effective. Changes to the assessment on paper are useless if they are not properly communicated to staff and participants, or if staff and participants cannot see a reason for the changes.

Golden rules of risk assessment

Always consider the CRISIS acronym when conducting your risk assessment(s).

C Clarify the hazards and risks
R Reassess and revise it where necessary
I Involve all participants in the process
S State it simply in writing
I If it's too risky – don't do it!
S Share the knowledge and experience

CRISIS MANAGEMENT

An expedition crisis generally involves an accident, illness or injury to expedition members. Crisis management comprises those processes and systems developed to foresee, avoid and, in the worst case, manage a crisis on an overseas expedition.

The principle adopted in crisis management planning is always to concentrate on the worst-case scenario. It is the expedition leader's role in planning an expedition to foresee and avoid a crisis in the making and to facilitate the handling of a crisis if it occurs.

The role of the MO in crisis management is to:

- organise adequate medical training for all expedition members, including him- or herself;
- provide an appropriate medical kit;
- investigate the availability of local medical support (doctors/hospitals);
- investigate access to casualty evacuation locally, nationally and internationally;
- consider the use of an international assistance agency or emergency centre.

To be able to achieve the above, attention must be paid to the skills of the expedition members and accompanying staff. There must be sufficient first aid skills among the team to deal with the immediate care of a casualty. Several courses are now available, from organisations such as Wilderness Medical Training (see Appendix 5), which concentrate on more advanced medicine for remote foreign travel for competent first aiders.

The investigation and enlistment of locally and nationally available medical support form another essential part of the MO's role. Embassies in the host country often have lists of recommended doctors and dentists in the capital city, but rarely have information about the more remote areas likely to be frequented by expedition teams. For this reason, detailed research is necessary to produce a support network of medical contacts in the areas in which the expedition will be operating, perhaps through an appointed local agent. Support may come from local aid projects with medical back-up, clinics and dispensaries, local hospitals, or, on a national basis, the GPs and hospitals commonly used by the expatriate population of the country. It is important to identify a recommended dentist.

Communication is an important part of crisis management and the more options that are researched and made available the greater is the chance of establishing and maintaining links with the outside world. Essentially, the expedition team relies either on its own communications brought in from overseas (radios, distress beacons, satellite telephones) or on local systems (telephone, runner, telex, local radio communications and, increasingly, email). In practice, some or both will be involved, depending on the nature of the expedition and the size/budget of the organiser.

Whatever the size of the expedition, it must have a 24-hour contact in the UK capable of responding and assisting in a crisis. For smaller or one-off trips abroad, this may be a family member or colleague who is fully conversant with the expedition medical and contacts network, as well as its itinerary and emergency procedures. This individual must have contact details for all next of kin/closest relatives of all expedition members (including staff). For larger organisations, this back-up may take the form of a duty officer and/or assistance agency or emergency centre. The function of the UK back-up is to liaise with all the relevant parties in the UK. This may include relatives, sponsoring organisations, insurers, assistance agencies and the press. The potential scope and extent of this role in a crisis require the UK back-up to be highly capable and responsible, and fully briefed by the expedition's organiser. Further information on communication and practical crisis management can be found in Chapter 16.

An example of a crisis management plan can be found in Appendix 2. It gives one way of implementing a process to ensure that the most important areas of the crisis management plan have been considered and action taken. This crisis management plan is of the type used by expedition leaders, so some areas may not be relevant to MOs/staff.

TABLE 8.4 **EMERGENCY COMMUNICATION NETWORK**

Casualty

↓

Expedition leader

↓

Local representative/doctor
(contacted by runner, radio, local transport)

↓

Assistance agency/national contact point
(contacted by telephone/radio/telex/fax)

↓

UK back-up link/emergency centre
(contacted by satellite distress beacon/telephone/telex/fax/email)

↓

Media/public/relatives
(contacted by telephone)

SUMMARY

It is important to reiterate the small number of serious accidents recorded on overseas expeditions to date. Well-planned expeditions conducted by suitable and properly trained teams with the right back-up stand a very small chance of sustaining a tragedy. The potential benefits for participants and host country alike of expeditions still far outweigh the risks of disaster. Through practical risk assessment and sensible crisis management planning, the balance can be continually weighted in the right direction.