

7 PRE-EXISTING MEDICAL CONDITIONS

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The lure of wild places is attracting people from an ever-widening range of backgrounds. Some have pre-existing medical conditions or a disability. It is neither necessary nor desirable for people to be excluded purely on the basis of these. With careful risk assessment, preparation and appropriate back-up it is possible for most people to enjoy a wilderness experience and take part in an expedition successfully, enjoyably and safely. This chapter is largely intended to help medical professionals give appropriate advice.

Expeditions visit remote and challenging environments where logistics are difficult and access to medical facilities, personnel and equipment ranges from limited to non-existent. It is the element of remoteness that makes expedition medical advice and preparation different from that for general travel. The medical concerns that surround a person with a pre-existing condition on an expedition are:

- They may not be able to participate fully in the physical and emotional challenges that make up expedition life by virtue of their condition or disability.
- The rigours and living conditions of an expedition may worsen their condition and diminish their own enjoyment and achievement while compromising that of others.
- If they become unwell, facilities may not be available to provide appropriate care.
- They may be at increased risk of an illness that could endanger or compromise them or the expedition.

These concerns are real and valid but their magnitude depends on the exact nature of the individual's condition or disability and on the proposed trip. The chapter that follows starts by presenting a general approach that could be taken, regardless of the condition or disability, before a more detailed consideration of common medical

conditions and of disability. The number of possible conditions or disabilities for which advice could be sought is vast. Even for the commonest of these, there is little evidence-based literature on which to base recommendations. A pragmatic approach is presented and the following framework is suggested:

1. Risk assessment
2. Pre-expedition advice
3. Advice during the expedition
4. Post-expedition assessment.

RISK ASSESSMENT

A risk assessment will give some idea of the magnitude of potential medical and logistical problems. It will allow recommendations to be made regarding the degree of pre-expedition assessment and preparation needed as well as the appropriate level of medical support and back-up once in the field. A doctor should review a person with a pre-existing medical condition or disability before they join an expedition and particularly before significantly increasing their level of exercise for pre-expedition training. A summary of this assessment should be sent to the expedition medical officer (MO).

For the potential expedition member with a pre-existing medical condition the emphasis should be on symptoms related to exercise and cardiac risk factors. This may involve investigations like cardiac stress tests, post-exercise spirometry or blood tests, depending on the situation.

For the potential expedition member with a disability the assessment should include consideration of the impact that the terrain and living conditions may have on their usual level of independence and on any mechanical aids they use. For instance, on a sailing expedition, how a person normally independent using a wheelchair would manage in the narrow confines of the boat. On a trekking expedition, what would be the effects for a person with a lower limb amputation and using a prosthesis of walking over uneven ground?

The condition must be stable and not vary day to day. It would be unwise for anyone to consider going on an expedition soon after a serious medical event such as a heart attack, a first seizure or major surgery. As a general guide, waiting until six months after the episode and for the person's return to full fitness seems sensible.

To help assess the risk posed by a pre-existing condition it may be useful firstly to grade its severity and secondly to grade the remoteness of the expedition. Together these help determine the potential risk for serious problems. These risks need to be understood and accepted by the individual and the expedition before they go.

TABLE 7.1 A SIMPLE GRADING SYSTEM FOR PRE-EXISTING CONDITIONS

Mildly affected	A well-controlled and uncomplicated condition amenable to easy self-management, e.g. mild asthma well controlled with inhalers or high blood pressure (hypertension) with no complications
Moderately affected	A condition needing some medical assessment and treatment from time to time, e.g. periodic courses of steroids to control exacerbations of asthma or hypertension with known organ damage
Seriously affected	Previous occurrence or future risk of a life-threatening problem, e.g. recent hospitalisation for asthma or hypertension with a renal transplant on immunosuppressants

TABLE 7.2 A SIMPLE GRADING SYSTEM FOR THE REMOTENESS OF AN EXPEDITION (USING EXPEDITION LENGTH AND THE TIME TAKEN TO ACCESS MEDICAL HELP)

Isolated	Day trip or up to 3 days in the field or medical assistance a few hours away
Remote	Up to a week in the field or medical assistance more than a day away
Wilderness	Greater than a week in the field with medical assistance several days' travel away or unreliable

Terrain and climatic conditions, not just the distance involved, will clearly influence the time taken to get help. A storm, being at altitude or in a forest at night, for example, may mean a helicopter cannot fly in or the expedition team cannot carry out a casualty. These factors and the means by which help will be summoned, e.g. radio, EPIRB (emergency position indicating radio beacon) or satellite phone, need to be considered in a risk assessment. It is best to plan for the worst-case scenarios since medical problems will tend to occur when physical or environmental pressures are greatest.

Using these simple grading systems allows some practical recommendations to be made regarding medical support on the trip. As the potential seriousness increases, it would be appropriate to recommend that the MO accompanying the expedition have a professional medical background or be a doctor with relevant skills. Additional

medical supplies may need to accompany the team and suitable evacuation plans to be made. A thorough risk assessment helps plan for these scenarios and any additional costs involved.

There may be times when the potential risks of participating in an expedition seem to outweigh the benefits perceived by the MO. It falls to the individual with the pre-existing condition or disability and to those accompanying him or her to decide whether to accept these risks and how to act on the advice received.

GENERIC PRE-EXPEDITION ADVICE

- Arrange for a pre-travel assessment (as detailed above) by an appropriately knowledgeable person at least 6 months before departure.
- Allow time to optimise the condition with particular attention to any medications that affect the exercise capacity of the individual.
- Prepare a medical self-management plan and an emergency management plan for the individual.
- Encourage people with a pre-existing medical problem to build up their exercise level gradually to that anticipated for the expedition, initially in surroundings where help is easily available. This will give experience of managing medications and exercise in conditions like asthma and diabetes.
- Encourage individuals with a pre-existing medical problem gradually to build up their time spent in the wilderness, initially with short, low-intensity trips to develop experience of managing in these surroundings.
- Seek help and modify strategies should any problems arise during the initial training.
- Plan the expedition itinerary taking into account the possibility of ill-health. It is wise to have rest days interspersed through the trip that could be used in case of ill-health or if the itinerary needs to be changed. Most expeditions have tight time constraints.
- Decide on the appropriate level of medical support needed to accompany the expedition (this does not necessarily mean a doctor is needed).
- Prepare an evacuation plan, together with a communication list for contacting help.
- Arrange comprehensive and appropriate *medical insurance* and *repatriation cover*. Medical insurance with emergency assistance and repatriation is essential. Those with pre-existing medical conditions must declare them; unless the insurance company has explicitly agreed to provide cover for someone with such a condition they are likely to decline the bill should problems arise. Bespoke cover may need to be arranged at extra expense (see Chapter 6).

- Organise for a letter on headed notepaper from the person's family doctor summarising details of their condition and treatment together with equipment needed, e.g. syringes, which can be shown to officials if questioned or to in-country doctors should the need arise.
- Train all expedition members in relevant first aid for potential emergencies, for example the management of a fit or how to give adrenaline in case of anaphylaxis (as the MO you may want more advanced skills in resuscitation and drug administration).
- Encourage people with a pre-existing medical condition to carry more than enough medication for the entire trip, in divided lots, in case their luggage gets misplaced or damaged, and to carry some medication on them at all times (see Chapter 3).

GENERIC ADVICE TO REDUCE POTENTIAL PROBLEMS DURING AN EXPEDITION

- Encourage people with a pre-existing medical condition to carry with them at all times written details of their condition, treatment and contact details and to consider a means of easy identification such as a MedicAlert bracelet.
- Keep a simple diary, to record doses taken (as doses can easily be missed).
- Expeditions often begin with a long plane journey and the rapid change in time zones means the timing of medication needs to be changed, particularly those taken with meals. Flying west results in a long day and flying east a short one. It is recommended that people who take medication should stay on home-time for the duration of the journey and take doses at the usual time, with a snack if necessary, and adjust timings on arrival at the destination. The few days 'in town' before the expedition heads 'up-country' is often the best time to adjust doses. When travelling eastward it may be easier to shorten the time slightly between doses during travel.
- Monitor the condition carefully and enjoy a trouble-free trip but seek help early should there be any problems.
- Organise a buddy system whereby an expedition member with a pre-existing medical problem has a nominated partner who keeps an eye on them. This can be a good security net as long as it is not too intrusive or inflexible. Being overprotective will not be popular.

GENERIC POST EXPEDITION ADVICE

- Encourage the person to have a medical reassessment on returning home.

- Forward copies of any MO medical records to the person's family doctor.
- Forward copies of your report to the RGS so that your experiences can help fellow travellers in the future.

SPECIFIC ADVICE FOR COMMON PRE-EXISTING CONDITIONS

Asthma

This is probably the commonest pre-existing medical condition that will be encountered, especially on youth trips. The concern on an expedition is that a person with asthma may be restricted physically by their symptoms or have an asthma attack that is difficult to control.

Risk assessment

The extent of asthmatic problems will vary enormously between sufferers. The mildest will have some symptoms on vigorous exercise that are easily controlled, the more severe will need periodic courses of oral steroids to control an exacerbation, and the most severe will have suffered a life-threatening episode in the past or will have symptoms refractory to treatment. Any triggers should be carefully noted. It is difficult to predict what will happen to the asthma during the trip. The best guide to likely response is past history.

Respiratory infections picked up during the outbound journey and exposure to unaccustomed levels of pollution, exhaust fumes, dust and cigarette smoke may make asthma worse soon after arrival. Scuba diving poses special risks for people with asthma because inhaling seawater may induce bronchospasm. Despite the cold and dry air of mountains, symptoms may improve, perhaps because the allergen load is lower. Remember in the tropics that there is an increased risk of chest infections.

Pre-expedition

- Optimise asthma control: spirometry or peak expiratory flow rate (PEFR) monitoring before, during and after exercise, to the intensity needed for the trip, is useful to help adjust medication. Remember, exercise-induced symptoms are often worst 10 minutes after exercise.
- Consider a written management plan for the person, based on past peak flow measurements, with clear guidelines on when to step up treatment and when to ask for help.
- Review medications: first-line treatment for exercise-induced symptoms are salbutamol and cromoglycate taken 5–10 minutes before exercise with the addition of regular inhaled steroids if needed. Encourage people with asthma to carry their own supply of medication for the full expedition.

- Aspirin-like drugs can cause a sudden worsening of some people’s asthma. Ensure these are avoided on the trip as painkillers for people with asthma. Such drugs should be well labelled so they are not used unwittingly.
- Train all expedition members in the first aid management of an acute asthma attack (sit the person up, give multiple doses of inhaled bronchodilator via a large volume spacer device and consider a short course of oral corticosteroid to curtail an exacerbation).
- All people with asthma should receive all relevant vaccinations and take antimalarials. Consider suggesting that they receive influenza and pneumococcal vaccines to reduce the chance of chest infections. (The flu season in the southern hemisphere is May to September and the relevant vaccine will need to be specially arranged.)

TABLE 7.3 ADDITIONS TO THE EXPEDITION MEDICAL KIT FOR PEOPLE WITH ASTHMA

- Lightweight peak expiratory flow (PEF) meter, e.g. Mini-Wright meter
- PEF charts
- Spacer device for the delivery of inhaled medications during an exacerbation
- Spare inhalers – salbutamol and beclomethasone
- Prednisolone 5mg tablets x 50 and instructions for use

Consider oxygen, an Ambu-bag and injectable medications for a person with severe asthma, and a doctor on the trip

During the expedition

- Ensure that individuals carry inhalers in their hand baggage (this is allowed in the cabin).
- Continue regular medication with PEF monitoring and adjust according to the self-management plan. It is best to step up treatment early rather than wait.
- During an exacerbation avoid swimming, ascending to higher altitude or anything that causes breathlessness.
- Triggers should be avoided if possible. Facemasks can be helpful for cold-induced symptoms. Smoking of any substance should be avoided as it increases the risk of an exacerbation and of chest infections.
- For management of an asthma attack see Chapter 15.

Epilepsy

Travellers with well-controlled epilepsy are not necessarily at increased risk during an expedition. Specific concerns are that the person may have a fit and need medical attention, that the fit may occur in a dangerous location or may not be self-limiting, and that the medications may cause adverse effects (some antimalarials e.g. chloroquine and mefloquine, and some antibiotics, e.g. ciprofloxacin, may provoke fits). In addition, diarrhoea may result in reduced absorption of anticonvulsants.

Risk assessment

Any previous history of a fit is important in the assessment of someone planning to join an expedition. Epileptic fits can recur, particularly if the initial episode was without a clear precipitant like a head injury or illness. A thorough medical assessment after a first fit, together with a 6-month observation period to see if the fit recurs, seems a sensible precaution before travelling to a remote location. For those who have had more than one fit it is important to evaluate the degree of control and predictability of the fits with or without medication. In most cases the cause of the epilepsy will not be known but in a small percentage it will be linked to a structural or genetic abnormality, and it is important to assess whether any other elements of this condition have a bearing on the expedition plans.

There is no reason why a person with well-controlled epilepsy should not participate in an expedition. It is important, however, that rules regarding driving, operating machinery and participating in dangerous activities (e.g. in mountaineering or scuba diving) are observed as they would be at home, for the safety of all concerned. A very careful assessment is needed if the person has unpredictable fits or temporal lobe epilepsy, or has had status epilepticus at any time. There may be very real risks if a person has a fit on an expedition while riding on the back of an open vehicle, swimming or rafting, or during climbing.

Pre-expedition

- Review medications: remember that optimisation of seizure control and achievement of therapeutic blood levels of anticonvulsants will take time and may need specialist input. Exercise does not affect blood levels of anticonvulsants.
- Train all expedition members in seizure first aid with the possible administration of rectal diazepam if the fit lasts longer than 5 minutes.
- If travelling to a malarious area, review antimalarial medication: chloroquine and mefloquine can precipitate fits; doxycycline, Maloprim (pyrimethamine and dapsone) or proguanil can be used, depending on the local drug-resistance patterns. Remember that phenytoin, carbamazepine and barbiturates can reduce the blood levels of doxycycline through hepatic

enzyme induction and that several common drugs can affect anticonvulsant levels, e.g. erythromycin and omeprazole. Such drugs need to be well labelled so they are not used unwittingly in people with epilepsy.

- Vaccinate as normal.

TABLE 7.4 ADDITIONS TO THE MEDICAL KIT

- Appropriately sized Guedel airway x 1
- Rectal diazepam tubes x 4–10mg each (2 carried in the person's medical kit at all times and 2 in the base camp kit)
- Possibly intravenous diazepam (with oxygen and an Ambu-bag) if a doctor is part of the expedition team

During the expedition

- Adjust timing of doses on passing through time zones as discussed earlier in this chapter.
- Encourage avoidance of known triggers if possible. Potential triggers are TV screens, flashing lights, excess alcohol and being overtired.
- Fits often occur at the time of falling asleep and waking and when medication has been taken erratically. The changes in time to a person's normal medication routine during the long journey out or back may predispose them to a fit.
- If a fit occurs, move the person only if they are in a dangerous situation, e.g. on a road. Loosen their clothing but do not put anything in their mouth or restrain them from moving. Try to protect the face from rubbing on the ground and monitor how long the fit lasts. If it is longer than 5 minutes, give rectal diazepam. After a fit the person is often exhausted, confused, sleepy or temporarily weak and will need to rest for several hours (see Chapter 15).

Post expedition

- Encourage the individual to see his or her family doctor and have anticonvulsant dosages re-evaluated.
- If a fit has occurred during the expedition a written summary of circumstances, duration and action taken should be sent to the person's own doctor.

Diabetes

Travelling rarely causes problems for people with diabetes as long as they and their expedition team are confident in monitoring and adjusting the diabetic control and accept the slightly increased risks involved. The main concerns for a person with diabetes on an expedition are:

- The storage and availability of medication and monitoring equipment.
- The increased risk of hypoglycaemic (“hypo”) episodes with changes to time zones, diet and exercise, compared to their normal lifestyle, particularly in insulin-dependent diabetics.
- The increased risk of infections and of complications should they become unwell.
- The increased risk of a life-threatening event for people with long-standing diabetes, such as a heart attack or stroke, which would be difficult to manage in a remote place.

Risk assessment

Every person with diabetes should have a medical review and examination with a doctor well before the expedition. The emphasis during the consultation should be on symptoms with exercise, cardiovascular risks and the presence of organ damage, including the sensation and blood supply to the feet and eyesight. Any findings here will need further assessment.

A young, insulin-dependent person is less likely to have complications than someone who has had the disease for over 10 years. Adjustment of insulin will be the main issue. In the older, non-insulin dependent person organ damage is often present at diagnosis. Those with any evidence of organ damage need to be carefully assessed; an ECG is recommended in those with diabetes for greater than 15 years and those over 35 years old. A formal exercise test looking for silent cardiac ischaemia may be helpful.

The expedition should strongly consider taking a doctor or other medical professional as MO, who is able to give injectable medications should the need arise.

Pre-expedition

- Review medications and optimise diabetic control. For insulin-dependent diabetics it may be preferable to be on a four-times-a-day regime of pre-meal insulin as this gives greater flexibility with meals and the effects of exercise.
- Reinforce the message that people with diabetes must never stop their insulin completely or they will rapidly decompensate.
- Ensure they are aware that if they are vomiting and unable to keep down food they must seek help immediately, as intravenous fluids and injectable antiemetics for treatment of the vomiting may be needed.

- As fitness improves during exercise, insulin sensitivity increases and people with diabetes will notice better control and reduced need for medications and insulin. It is important that the blood is adequately monitored and doses are lowered appropriately, otherwise hypoglycaemia is a risk.
- Obtain a letter from the patient’s family doctor detailing the condition and need for syringes (this letter should be carried at all times by the patient).
- Train all expedition members in diabetic first aid, the recognition of a “hypo” and the administration of oral sugar or injected glucagon as needed.
- Vaccinate and recommend antimalarials as normal.
- Inform the food purchaser and cook of the need for a diabetic diet. This may need to be planned for and will not always be possible, especially if the expedition does not have its own kitchen facilities.

TABLE 7.5 ADDITIONS TO THE MEDICAL KIT FOR EXPEDITIONERS WITH DIABETES

- Oral glucose tablets and glucose gel (e.g. Hypostop) carried by the person at all times and also available in the base camp medical kit
- Injectable glucagon kits and instructions for use in an unconscious patient with a low blood sugar can also be useful if immediately available (can easily be given intramuscularly)
- Appropriate antisickness medication in tablet and injectable or suppository form
- Intravenous glucose and fluids
- A plentiful supply of extra insulin and glucose
- Other supplies: blood and urine testing strips, syringes, a “sharps” bin, finger-pricking device and blood sugar meter (with spare batteries)

During the expedition

- Adjust timing of doses – stick with the home-time regime until arrival at the final destination and then adjust by a few hours per dose. The insulin dose could be reduced if doses are moved closer together and a small supplement taken with a snack to lengthen the interval.
- If the expedition has its own kitchen staff they may be able to produce a diabetic diet. Otherwise the person with diabetes will need to choose food appropriately from what is on offer.
- Encourage people with diabetes always to carry a snack in case meals are unexpectedly delayed or sugar levels are low.
- Maintain reasonable control by regularly monitoring blood sugar and

adjusting doses if on insulin. (A change in timing of food intake, different ingredients and different activity patterns can impair control.)

- It will probably be very difficult for the person with diabetes to maintain the “tight” control possible at home. “Looser” control for a few weeks is not harmful in the long term as long as control is reasonable and hypos are not occurring. It may be better to aim to run blood sugars a little “high” since the main danger in the field is from hypoglycaemia.
- Exercise will affect blood sugar levels. Ensure careful monitoring of sugar levels in the pre-expedition period, before, during and after similar intensity exercise. This should give some idea of how to adjust carbohydrate intake and insulin. On average, before moderate exercise of an hour or two, a reduction of insulin dose of up to 30% will be needed, together with a snack of about 50g of complex carbohydrate. For longer exercise a reduction in insulin dose, together with 20–50g of carbohydrate per hour is needed.
- If unwell encourage a person with diabetes to see the expedition medical officer early.
- People with diabetes are more susceptible to infections (skin, urinary and gut) so encourage vigilance with diet and in monitoring skin for early signs of infection.
- Encourage people with diabetes to inspect and clean their feet daily. Toenails

TABLE 7.6 CARRYING AND STORING INSULIN

- There are many different types of insulin and they are not interchangeable
- Ideally insulin is stored in a refrigerator at around 4°C (but not frozen) and will remain effective for up to 2 years. If stored in less than ideal conditions (as is likely on an expedition) insulin decays faster and becomes less effective but will continue to be usable. At a storage temperature of 30°C it is effective for about 2 months. If there are “clumps” in the insulin or it is discoloured it should not be used. The only way to get around the varying efficacy of the insulin is to carry out 4- to 6-hourly blood or urinary glucose monitoring and adjust the amount taken accordingly
- Always keep insulin in hand baggage on the flight, as it is likely to freeze in the hold and may get delayed or lost. Cabin staff will often agree to put it in the plane’s fridge. (Since 11 September 2001, some airlines, such as BA, require a letter of authorisation for needles to be carried in the cabin)
- For long journeys a polystyrene container or vacuum flask designed to carry food can be used. If cool packs are used ensure the insulin doesn’t freeze
- X-rays do not affect the insulin

need to be short. Ensure that any wound infection is treated promptly with antibiotics and dressings.

- People with long-standing disease or with certain types of insulin do not get typical “hypo” warning symptoms when their sugar level is low. It is crucial to know if this is the case for an individual and to measure the blood sugar if anything “doesn’t seem right”.

Note: The main hazard for people with diabetes on an expedition is hypoglycaemia. Always ensure that they are carrying food as well as emergency sugar and that someone is with them who knows how to diagnose and treat hypoglycaemia.

Hypertension

In itself hypertension (high blood pressure) is not a problem for people joining an expedition, but its complications, such as a heart attack or stroke and the side-effects of medication, may be a cause for concern.

Risk assessment

Hypertension with no signs of end-organ damage does not increase risk but patients with evidence of such damage and particularly those with organ failure (e.g. heart failure, kidney failure and ischaemic heart disease) do have a risk of major problems. The stresses, physical and emotional, of an expedition may be sufficient to uncover latent disease. Prior to travel hypertensives should be capable of exercising symptom free to the intensity that will be required on the expedition.

Pre-expedition

- Organise a full assessment of cardiac risk factors and symptoms. A stable blood pressure pre-trip is essential. An ECG is desirable for all people with hypertension, with formal cardiac exercise testing if there are symptoms on exercise or multiple risk factors.
- Review medication and blood electrolytes. Several antihypertensive drugs can affect exercise capacity. Beta-blockers can cause muscle fatigue and lethargy as well as limiting the maximum heart rate response during exercise. They decrease blood flow to the extremities, which will be of concern in those going to cold environments. Calcium channel blockers affect heart rate on exercise, can give dependent oedema and cause flushing that may be particularly uncomfortable in hot climates. Diuretic drugs have the obvious inconvenience of increasing urinary flow but may lead to hypotension if the person is already dehydrated by exercise, diarrhoea or inadequate fluid intake.
- Effects of exercise and training: exercise and weight loss are treatment strategies for the control of hypertension. As fitness increases pre-expedition

weight often decreases and together these may mean the blood pressure is lower. The amount of medication may need to be reduced. Post-exercise hypotension may also occur with angiotensin-converting enzyme (ACE) inhibitors and calcium channel blockers, particularly if the person is dehydrated.

- Hypertensive patients should receive vaccinations as normal, but care should be taken when prescribing antimalarials. There are concerns about the interaction of beta-blockers and the antimalarial, mefloquine.
- Train all expedition members in basic cardiopulmonary resuscitation (CPR).

TABLE 7.7 ADDITIONS TO MEDICAL KIT FOR THOSE WITH HYPERTENSION OR ISCHAEMIC HEART DISEASE

- Aspirin 300mg tablets for cardiac events
- Glyceryl trinitrate (nitrolingual GTN) spray for angina
- Equipment for resuscitation and blood pressure monitoring

During the expedition

- Monitor closely any new symptoms, particularly on exercise
- Do not ascend further, dive or travel to more remote locations if there are new or worsening symptoms

Post-expedition

- Encourage the individual to have a medical review, to optimise control and to check electrolytes.

Ischaemic heart disease

Ischaemic heart disease (IHD) becomes increasingly common as the age of the expedition member rises. On many expeditions it will be the doctor and expedition leader who have the greater risk of IHD. The risks and effects of medication are similar to those discussed for hypertension above. The danger that latent symptoms will be uncovered due to the stresses, physical and otherwise, of expedition life is also similar. Careful assessment pre-expedition and cautious increase in exercise is important, with immediate attention should new symptoms be uncovered.

Even after heart attacks, by-pass operations, coronary angioplasty or stenting it is possible to undertake expedition travel as long as there are no residual ischaemic symptoms and the person can tolerate the required level of activity symptom free.

There will remain a certain increased risk that cannot be eliminated. The remaining advice is as detailed above for hypertension.

Chronic lung disease

Those with significant chronic lung disease are not commonly involved in expeditions. The effects will depend mostly on respiratory exercise tolerance. Aircraft are pressurised to about 2,500m of altitude, which should not give any problems to all but the most severely compromised.

Additional concerns for this group of people are the management of an acute exacerbation with or without infection, a pneumothorax or cardiac disease. These risks should be thoroughly assessed pre-expedition and antibiotics, steroids and inhalers similar to those advised for asthma should be available. Someone with significant respiratory disease will walk and perform other physical activities more slowly than someone with normal lungs, especially at altitude, and this should be taken into account when planning the expedition itinerary.

SPECIFIC ADVICE FOR EXPEDITIONERS WITH DISABILITIES

Over the last few years there has been a growing interest in wilderness travel from people with disabilities. The medical establishment may have been guilty of “benevolent” overprotection of people with disabilities in the past; now they have an important role in increasing access for those people who wish to participate in expeditions and in demystifying medical issues and disabilities. By assessing the abilities different people possess, MOs and expedition leaders can help individuals with disabilities participate successfully in an expedition and help the expedition identify appropriate and challenging projects.

The major challenge is to design an expedition that tests abilities and resources while maintaining a person’s independence and dignity by accommodating any adaptations he or she requires. One aspect in which expeditions are unlike competitive sport is that the “playing field” need not be exactly the same for each participant. The relative strengths and skills of the individual expedition members combine to make the expedition team and disability need not be relevant.

There are only a few medical issues that differ for people with disabilities. As for able-bodied expeditioners, trauma, blisters, bites and infections remain the most common reasons for consultation and the majority of preventative care is the same. The striking difference may be the way in which a person with a disability achieves the tasks of daily living. “Normality” for this person may be mobility with a prosthesis or in a wheelchair, communication with adaptive techniques and eating with modified implements. Table 7.8 suggests areas of ability that the MO should explore with an individual. The specific expertise of healthcare professionals, such as occupational therapists, physiotherapists, nurses, rehabilitation physicians, prosthetists,

TABLE 7.8 **AREAS OF ABILITY TO EXPLORE WITH AN INDIVIDUAL**

Transfers	How do they move from one surface to another in a safe manner? For example, floor to chair or on and off the toilet
Mobility	How do they move from one place to another and are any aids required to do this safely, e.g. wheelchairs, prosthetic limbs, calipers or walking aids? It is important to note that techniques used over short distances may be different to those used over longer ones: a person may be able to take a few steps inside but need a wheelchair outside. Levels of endurance and fatigue should also be considered
Self-care	How are toileting, bathing, grooming, dressing and eating achieved? Are assistance or adaptive aids required?
Continence	How is bowel and bladder continence achieved? For instance, is intermittent self-catheterisation or a bowel regime needed?
Skin care	Is extra care needed for insensate areas, wounds or vulnerable skin, e.g. pressure areas, the skin below the level of a spinal cord lesion or the skin on an amputation stump?
Communication	How is effective two-way communication achieved – are sign language, large print or other aids needed? Are there any sensory impairments, such as vision and/or hearing?
Cognitive and behavioural issues	Does the individual have any impairments of thinking, behaviour or psychological health, e.g. intellectual disability in a person with cerebral palsy?
Medical issues and effects of medications	Does the individual have any associated medical conditions or medications, e.g. a person with cerebral palsy who also has epilepsy, or an amputee with diabetes? Each of these pre-existing conditions would need to be assessed as discussed earlier in this chapter

recreation officers and neuropsychologists, may be needed to help make these assessments.

The different terrain and environments faced on an expedition may alter the disability and therefore a person's experience, for better or worse. A person with a hearing impairment may have difficulty lip-reading in a foreign language but on a diving expedition has no disability underwater, as everyone uses dive sign language. On the other hand, a wheelchair user's usual level of mobility may be very limited by the uneven ground on a mountain trekking expedition yet they may not have the same degree of difficulty on a sailing or horse-riding trip.

TABLE 7.9 POTENTIAL CHALLENGES FACED BY EXPEDITIONERS WITH A DISABILITY IN A VARIETY OF ENVIRONMENTS

<i>Environment</i>	<i>Potential challenges</i>
Airports and plane trips	Long distances to traverse inside the airport; dehydration, excessive pressure to vulnerable skin areas and bladder/bowel management problems during long delays; difficulty boarding small craft; difficulty of transferring or of being assisted in the narrow aisles, toilets and seats of planes
Car, train or bus journeys	Difficulties getting in and out of vehicles, limited availability of space; long journeys with limited breaks on scheduled services, security problems for vital equipment
Hotels	Lack of disability access; steep stairwells with no lifts; squat toilets; marble or polished floors; less-than-ideal hygiene conditions; unfamiliar locations/languages for the visual or hearing impaired
Campsites	Transfers, especially floor to chair in sleeping and mess tents; difficulties of self-care with pit latrines and improvised bathing facilities, unmarked hazards like cliff edges or water nearby; finding the way around camp; disposal of soiled dressings or continence items
Mountain or polar regions	Exposure of insensate skin to sun, cold or wind; effects of the uneven terrain on mobility, rescue and safety concerns
Sailing, diving or river trips	Safe transfers on and off boats; transfers and movement in the cramped conditions onboard; the effects of water motion on balance; rescue and safety concerns, corrosive effects of salt water on mechanical aids
Tropical or desert regions	Dehydration and heat illness; increased risk of skin damage and infection of moist vulnerable skin; mobility problems on uneven or overgrown terrain; hygiene problems with limited water supplies

The effect of a new environment on the expeditioner's abilities needs to be considered. The trip often starts with negotiating an airport and a plane flight, followed by a stay in a hotel, then a road/train journey before heading into the field. The help of various professionals may again be useful during this assessment process. Table 7.9 covers briefly some of the environmental issues an expeditioner with a disability may face during an expedition.

By working through Table 7.9, the feasibility of an individual participating in a proposed expedition, the problems they will need to overcome and the amount of support that will be needed should become evident. Solutions will need to be found to each of these problems for the trip to be safe, enjoyable and dignified for the person involved and the team as a whole. The steps mentioned earlier in the chapter with regard to trying out these strategies on smaller trips close to home apply equally well here.

SUMMARY

This chapter has provided a framework for assessment of the needs of expeditioners with pre-existing medical conditions and of those with disabilities. Some indication has been given of the kinds of difficulties that may be faced and some practical solutions have been suggested. It is hoped this will allow people from a broader range of backgrounds to experience the joy of a wilderness experience, to participate in the shared purpose and camaraderie of an expedition, and to return safely. Often much more is possible than thought at first glance. Remarkable journeys have been undertaken in the past by people who just happen to have a pre-existing medical condition or a disability. Long may this continue.