



EXPEDITION HEALTH ADVICE

Health risks

The aim of this document is to provide information regarding the risks to health that may be encountered whilst on expedition in Nepal and how to minimise them.

1. Political situation

In Nepal there are frequent strikes, rallies and demonstrations, which can be violent (some have resulted in injuries and deaths of participants) and cause widespread disruption. **Action:** *you should remain vigilant and avoid demonstrations.*

2. Local laws and customs

Illicit drug use and trafficking are increasingly a problem in Nepal. In addition to the associated health risks, penalties for drugs related offences are severe e.g. possession of small quantities of marijuana can lead to a prison sentence in excess of five years. **Action:** *you should never become involved with illegal drugs whilst in Nepal.*

3. Terrorism

There is a general threat from terrorism including incidents of bomb attacks and shootings in which Nepalese civilians and foreign travellers have been injured and occasionally killed. **Action:** *You should exercise caution in public places and heed local advice.*

4. Crime

Although most visitors to Nepal experience a trouble-free trip, crimes such as assault and theft e.g. pick-pocketing and bag-snatching (sometimes by motorcyclists) against foreigners are increasing. There have been reports of trekkers being robbed where violence or the threat of violence has been used and also isolated incidences of rape on trekking routes. **Action:** *be particularly vigilant in airports, buses, hotel rooms and in poorly lit areas after dark. Avoid walking on your own, carrying large sums of cash and keep valuables safe and out of sight. Do not leave valuables unattended in a hotel room. If trekking, avoid becoming separated from your group at any time and remain vigilant, especially females.*

5. Travel

Traffic in Nepal drives on the left, as in the UK but the standard of driving is generally poor. Many drivers are not properly licensed, trained or insured and vehicles are poorly maintained. Roads in Kathmandu are very congested. There are few pavements outside central Kathmandu and motorists do not give right of way to pedestrians. Road conditions are generally poor. Bus travel is hazardous and multiple-fatality accidents are common. You should also be aware that there have been a number of recent fatal air crashes in Nepal. There is a positive correlation between long distance travel (particularly long haul flights) and DVT (blood clot formation in the legs causing swelling, redness, warmth and tenderness of the calves) although the risk is relatively low. However, the risk of DVT may be greater for certain groups of people including those with a past history of DVT, with a blood disorder, who are obese, who have had recent surgery (up to two months prior to departure), who are taking oestrogen therapy (e.g. the combined oral contraceptive pill) or who have a malignancy (cancer). **Action:** *avoid using public transport after dark; prevent dehydration by drinking water and avoiding alcohol; regularly move your legs and feet and walk (if possible) during travel; wear properly fitting flight socks; females might wish to consider changing their method of contraception and in this instance should seek advice from their GP.*

6. Natural disasters

Earth tremors are a frequent occurrence in Nepal and can cause landslides and avalanches in mountainous areas. You must be aware that on the 18th September 2011 an earthquake of magnitude 6.9 on the Richter Scale struck Nepal, Tibet and North East India, with its epicentre 270km east of Kathmandu, destroying a wall at the British Embassy and killing three people. After shocks may occur for some time following earthquakes. The weather can change rapidly in mountainous environments. Snowstorms and avalanches can occur unexpectedly and on 14th October 2014 killed approximately 40 people and necessitated the evacuation of approximately 384 people in the Annapurna region.

7. Food and water

Contaminated food and water will be a problem whilst on expedition in Nepal due to poor sanitation and a lack of purified drinking water. **Cholera, hepatitis A, polio and typhoid fever** are diseases transmitted by contaminated food and water but can be prevented by immunisation. You must be aware that there have been recent **cholera** outbreaks in Kathmandu! Most people will suffer with travellers' diarrhoea during the expedition; this can lead to dehydration. **Action:** *prevention is better than cure! Ensure that you are immunised against the aforementioned diseases. Practise hand hygiene i.e. wash your hands thoroughly using soap and water and follow this with use of alcohol gel after using the toilet and before eating. Food should be piping hot when eaten and certain foods should be avoided i.e. salad, vegetables and fruit that have not been boiled or peeled, shellfish, raw or undercooked fish and meat and unpasteurised dairy produce e.g. milk, ice cream, yoghurt and cheese. Jellies and ice cubes may contain contaminated water and should, therefore, be avoided. Bottled water is safe to drink but ensure that the seal on the cap has not been broken*

since some water vendors are known to re-fill bottles with tap water. Water can be purified by bringing it to the boil or using commercially available products e.g. chlorine dioxide tablets or drops. Should you choose to use a hydration system e.g. a CamelBak, you should be aware of the problems associated with keeping the tube and mouth piece clean. If you suffer vomiting and/or diarrhoea, you must ensure that you drink sufficient fluid to replace that lost in addition to the volume that you should normally drink. This fluid should consist of rehydration salts dissolved in purified water.

8. Human vectors

Humans (locals, other travellers and even your fellow expedition team members!) may be carriers of disease. **Meningococcal meningitis, tuberculosis, diphtheria, measles, mumps and rubella** are air borne diseases. **Meningococcal meningitis** and **tuberculosis** are usually transmitted when in close contact with an infected individual. **Diphtheria** can also be spread by contact with infected objects or fluid leaking from an infected break in the skin. **Measles, mumps and rubella** are transmitted by respiratory droplets or direct contact with nasal secretions from infected people. **Hepatitis B** is transmitted via body fluids e.g. during sexual intercourse and via blood. This is a hazard in all developing countries, especially if medical treatment involving the use of non-sterile instruments and blood transfusion is required. These diseases can be prevented by immunisation. HIV (also transmitted via body fluids) affects 4 in every 1000 adults in Nepal (compared with 2 in every 1000 adults in the UK). This disease cannot be prevented by immunisation and cannot be cured. **Action:** *Ensure that you are immunised against the aforementioned diseases. Avoid acquiring new piercings and tattoos during the expedition and be aware that casual, unprotected sexual intercourse (i.e. whilst not using a condom) poses significant risk of any sexually transmitted infection.*

9. Bites and stings

Bites and stings can be potentially life-threatening or transmit serious diseases. Mosquitoes are carriers of dengue fever, lymphatic filariasis, Japanese encephalitis and malaria. Dengue fever and lymphatic filariasis cannot be prevented by immunisation. Cases of Japanese encephalitis have been reported in the Terai (southern lowlands) and western Nepal during the rainy season (from June to September). Therefore, immunisation against Japanese encephalitis has not been recommended for our expedition based on current medical guidance, including that of the World Health Organisation (WHO). Malaria rarely occurs in the mountains or in Kathmandu and therefore prophylaxis using anti-malarial medication has not been recommended. Leishmaniasis is spread by the bite of an infected sandfly. We may encounter venomous creatures whilst in Nepal including snakes, spiders, scorpions and insects e.g. bees, wasps, hornets, ants, beetles, moths and caterpillars. You should also be aware that **rabies** is transmitted via the saliva of an infected wild or domestic animal (usually following a bite, although a licked wound could also cause infection). Even if pre-exposure immunisation has been received, prompt post-exposure treatment is still required (ideally within 24 hours) but more time is available in order to access such treatment, which will be essential when exploring in a remote location. Finally, do not forget that yaks, whilst extremely useful, bite,

kick, crush and bolt! **Action:** *Insect bite avoidance is essential in the prevention of disease. This can be achieved by leaving as little skin exposed as possible i.e. wearing light coloured long sleeved shirts and long trousers during daylight hours and after dark. Exposed, non-sensitive areas of skin should be rubbed or sprayed with insect repellent containing N-N-diethyl-m-toluamide (DEET). The higher the concentration of DEET, the longer the protection lasts but there is no benefit in using concentrations greater than 50% (which affords approximately 12 hours of protection). You should be aware that there is no scientific evidence to support the use of alternative insect repellents e.g. garlic, yeast extract etc. Sleeping under a mosquito net treated with a pyrethroid insecticide e.g. permethrin also helps to prevent bites. Bites and stings from creatures such as snakes, spiders and scorpions can be prevented by wearing socks and covered footwear at all times; always shake out footwear, clothing and bedding prior to use and pack bedding away immediately after rising. Avoid snakes (and snake charmers!). Do not disturb, corner, attack or handle a snake, even if it appears to be dead. If you encounter a snake, keep absolutely still until it has slithered away. Always carry a light at night. Never dislodge logs or boulders with your bare hands or push anything into holes or burrows. Avoid climbing foliage-covered rocks or putting your hands on unseen ledges. Avoid any form of contact with domestic or wild animals. Ensure that you are immunised against **rabies**. When trekking, ensure that you permit beasts of burden e.g. Yaks to pass you on the downhill side. If you plan to travel elsewhere prior to or post expedition, consult your GP or a travel clinic regarding other immunisations you may require and malaria prophylaxis.*

10. Wounds

Spores of the bacteria that cause **tetanus** are present in soil and manure and are introduced into the body through even insignificant cuts and puncture wounds. This disease can be prevented by immunisation. Blisters can become a significant risk to health – they are not only extremely painful but can become infected and lead to septicaemia (“blood poisoning”). **Action:** *Ensure that you are immunised against **tetanus**. Blisters are best prevented by ensuring that footwear is properly fitted and worn in prior to the expedition. You should wear comfortable, thick, loop-knit socks for walking and climbing. Some people may also wish to wear a thin, inner lining sock. Keep toe nails short to prevent injury during descent. You should practise foot hygiene i.e. at the end of each day, you should wash, dry, inspect and powder your feet before putting them into a specific pair of socks (dry and clean) in which to sleep. This pair of socks should be reserved for this purpose only. At the first sign of chaffing, the area should be covered with a blister dressing of your choice.*

11. Altitude

The availability of oxygen decreases with ascent and can cause symptoms of Acute Mountain Sickness (AMS) above approximately 2500m. The human body requires time to adapt (acclimatise) to the decreasing availability of oxygen so the risk of acquiring AMS is dependent upon the rate of ascent, the altitude attained and individual susceptibility. The symptoms include headache, dizziness, poor appetite, nausea, fatigue and

poor sleep quality. AMS can progress to High Altitude Cerebral Edema (HACE) (accumulation of fluid in and around the brain) and High Altitude Pulmonary Edema (HAPE) (accumulation of fluid in the lungs), both of which are life threatening. HACE is characterised by severe headache, behavioural changes, hallucinations, visual disturbances, ataxia (clumsiness and a staggering gait), falling level of consciousness (drowsiness), nausea and vomiting. HAPE is characterised by increased breathlessness even at rest and when lying down, a productive cough of white, frothy sputum which may become blood stained, chest pain and blue discolouration of nails, lips or tongue. **Action:** *Physical fitness (whilst an essential pre-requisite for the expedition!) does not prevent altitude related illness. Note, “fit and impatient young people can be more at risk of altitude illness than unfit and patient older ones!”. It is essential that all team members are vigilant for symptoms and signs of altitude related illness in themselves and other team members. Any team member suffering with AMS (that is unresponsive to treatment or worsening), HACE and / or HAPE will have no choice but to descend. Drugs and a hyperbaric bag used to stabilise a patient for descent will be carried. Acetazolamide (Diamox) can be used in the prevention of AMS in “at risk” individuals and in its treatment. Its use would adversely affect the results of the research being conducted on our expedition and the ascent profile has been planned to allow adequate time for acclimatisation. We would, therefore, request that the use of prophylactic Acetazolamide is avoided. However, if a member of our expedition team feels strongly that they wish to take it, they should discuss this with the lead researcher and notify their trekking team Medical Officer.*

12. Cold

The extreme cold and wind chill that we will face on the expedition may cause hypothermia and / or cold injury i.e. non-freezing cold injury, frostnip and frostbite. Hypothermia is the result of a fall in core body (vital organ) temperature, which occurs when heat is lost at a greater rate than it is produced. This can cause multi-organ failure and can consequently lead to death. Mild hypothermia is characterised by feeling cold, involuntary shivering, lethargy, loss of manual dexterity, mild confusion and poor judgement. As the core temperature continues to fall, shivering ceases. The patient’s lips appear blue, behaviour becomes more irrational (e.g. paradoxical undressing may occur), a staggering gait, slurred speech and cold-induced urination occur. The level of consciousness becomes reduced. A further reduction in core temperature is typified by progressive loss of consciousness and cardiac arrest. Cold injury mainly affects the extremities of the body. Non-freezing cold injury (trench foot) occurs in cold, wet conditions and results in reduced blood flow to the feet or hands and loss of sensation. Re-warming results in a flushed appearance of the affected extremity and severe pain. Frostnip is characterised by numb, white, waxy patches of skin. It is painless and may go unnoticed. It is caused by reversible freezing of the skin’s surface. Frostnip can re-occur. Frostbite is characterised by white, cold, hard and numb extremities. The affected body part may eventually become purple and / or blister. It is caused by the freezing of body tissues. **Action:** *Hypothermia can be prevented by adequate clothing (a warm hat is especially important since 70% of heat loss occurs via the head), keeping clothing dry and consuming sufficient food and drink. It is essential that all team members are vigilant for*

symptoms and signs of hypothermia in themselves and other team members. Non-freezing cold injury can be prevented by foot hygiene as previously described. This is especially important when wearing impermeable boots. It is also essential that all team members are vigilant for symptoms and signs of frostnip and frostbite. The face and hands should be protected from the elements e.g. using a hood, balaclava, buff, gloves etc. Attach gloves to clothing so that they cannot be lost when removed and ensure that you carry a spare hat and gloves. Be aware that any metal item in contact with the skin e.g. metal-framed spectacles, piercings etc. can cause cold injury.

13. Sunlight and heat

Snow blindness and sunburn are a hazard in the mountain environment since less ultra-violet (UV) light is absorbed by the less dense (“thinner”) atmosphere at altitude and it is also reflected by snow and ice. Snow blindness is sunburn of the conjunctiva (the membrane covering the front of the eye) and cornea. It can take just a few minutes of unprotected exposure to cause debilitating snow blindness on a glacier at altitude, although there is a delay between UV exposure and the onset of symptoms so by the time that the patient realises that they have snow blindness, the damage has already been done. It causes the eye lids to swell (so that the eyes cannot be opened), red eyes, photophobia (an aversion to light) and a sensation of having sand ground into the eye. There is a great risk of sunburn and due to the reflection of UV light off the snow and ice, the undersides of the chin, nose and eye lids are prone to burning. Remember, whilst sunburn and premature aging of the skin are not life threatening, malignant melanoma (skin cancer) accounts for 2000 deaths per year in the UK. Due to the cold air temperature and wind chill effect, you will not be aware that your skin is burning. Altitude and exposure to the sun and wind cause drying of the skin. **Action:** *Team members should wear sunglasses that are close fitting and wraparound in order to cover the eye surrounding the eyes as much as possible. You should only buy sunglasses which conform to European Union Standard EN 1836-1997 and Australian Standard 1067-1-1990 and have category EN 3 or 4 lenses. A wide-brimmed sun hat/umbrella is recommended. Sunburn can be prevented by wearing sunscreen on exposed areas of skin (including lips). A water resistant sunscreen which protects you from harmful UVA and UVB rays is recommended. Sun Protection Factor (SPF) 50 would be ideal with a UVA protection star rating of 5. A skin moisturiser is also recommended.*

Advice

The check list below is to help you to ensure that you are prepared for the expedition.

1. Immunisation

- If you haven't already done so, visit your GP surgery or a travel clinic **now** to obtain the required immunisations (these should ideally be completed at least two weeks prior to travel). Take the list of recommended immunisations with you. You should be aware that there is no scientific evidence to support the substitute of

immunisation for homeopathic preparations.

- Ask your GP to provide you with a copy of your immunisation history once you have received all of your pre-departure immunisations.

2. Pre-existing medical problems

- Complete the pre-expedition medical questionnaire and medical consent form **now**. This should be done honestly and accurately (to enable the expedition Medical Officers to pre-empt any problems that might occur during the expedition) and will need to be signed by yourself.
- Should you have any pre-existing medical problems, you should discuss your plans to travel to high altitude with your GP and / or hospital specialist as soon as possible.
- Should you have any pre-existing medical problems (e.g. asthma, allergy, diabetes etc.), you may wish to consider wearing a medic alert.
- It is essential that if you take any regular medications, you ask your GP to prescribe two sets (each sufficient for the length of the expedition) and some spare (in case of delays) - one set should be carried in your hand luggage (in case of lost luggage). The second set should be packed in your hold luggage and given to your trekking team Medical Officer as spares on arrival in Nepal. Please note, you should ensure that you carry the prescriptions (preferably showing the generic drug name rather than the brand name) and ideally, a letter from your GP explaining your medical condition and listing the medications (name, dose etc.) you take to avoid legal problems in transporting drugs between countries. All medications should be carried in their original packaging with clear labels so that the contents can be easily identified and should be transported in a waterproof bag or pouch e.g. a zip lock bag, clearly labelled with your name.
- All team members should visit their GP for a health check at least two months prior to departure.

3. Dental check up

- All team members should visit their dentist for a check up (and X-rays) at least two months prior to departure.

4. Pre-existing eye problems

- Individuals who have had refractive surgery may experience transient changes in their vision at altitude and should discuss their intention to travel to high altitude with their ophthalmologist. It might be necessary to take glasses with you to ensure you can see clearly. Do not undergo refractive surgery within three months prior to the expedition as refraction can be unstable and the eye is at risk of infection.
- If you have any problem with your eyesight which requires correction by spectacles or contact lenses, you should continue to use the same method of correction.
- Contact lens wearers may experience dry eyes, blurred vision (due to corneal swelling caused by the reduced oxygen supply to the cornea) and corneal infection. Contact lenses should not be worn for more than eight hours per day and users should observe strict hand hygiene. Spare contact lenses should be taken on expedition, in

addition to a pair of spectacles for use when not wearing lenses. Daily disposable soft lenses are preferred since they have a high water content, allow a high transmission of oxygen to the cornea and require less handling with no cleaning, making infection less likely. If you are a contact lens wearer and suspect you have developed an eye infection whilst on the expedition, you **must** consult your trekking team Medical Officer as a matter of urgency.

- Spectacle wearers should take a spare pair and get their prescription built into a pair of sunglasses and / or glacier goggles.
- Diabetics should have a full eye examination as soon as possible in order to allow time for any necessary treatment to be undertaken.

5. Further sources of information

- <http://wwwnc.cdc.gov/travel/>
- <http://www.fitfortravel.scot.nhs.uk/home.aspx>
- <http://www.nathnac.org/travel/index.htm>
- <http://www.thebmc.co.uk/Category.aspx?category=19>
- <http://www.fco.gov.uk/en/travel-and-living-abroad/staying-safe/health/>

6. Personal medical kit

All team members must carry their own personal medical kit (to be kept in their hand luggage or day pack at all times) as recommended in the accompanying list. It is likely that personal medical kits will vary from person to person due to individual preferences and needs. Please do not rely on the expedition medical kit for the items listed since it is unrealistic to expect an endless supply of sunscreen, blister dressings, pain relief etc. Please remember that you will need to remove any sharp items e.g. safety pins and temporarily place them in your hold luggage prior to arrival at the airport.

- Sunscreen i.e. SPF 50 *****
- Lip salve i.e. total sun block
- Aloe Vera gel
- Moisturiser e.g. E45
- Vaseline
- Blister dressings e.g. Compeed
- Zinc oxide tape
- Anti-septic spray or wipes
- Plasters (variety of sizes)
- Low adherent dressings e.g. Melolin
- Gauze
- Adhesive tape
- Crepe or elastocrepe bandage 10cm wide

- Triangular bandage
- Pain relief e.g. Paracetamol or Co-codamol (32 tablets)
- Anti-inflammatory e.g. Ibuprofen (32 tablets)
- Anti-fungal cream e.g. Canesten
- Foot powder
- Anti-histamines (cream & non-sedating tablets e.g. Cetirizine, Desloratidine)
- Insect repellent i.e. 50% DEET
- Mosquito net (pyrethroid (e.g. Permethrin) treated)
- Decongestant e.g. Pseudoephedrine
- Throat lozenges e.g. Strepsils
- Loperamide e.g. Imodium (6 tablets)
- Oral rehydration salts (6 sachets)
- Laxative e.g. Docusate, Movicol
- Antacid e.g. Gaviscon, Ranitidine
- Travel sickness medication if required
- Alcohol hand gel
- Disposable gloves (at least 2 pairs)
- Safety pins
- Scissors
- Tick removal tweezers
- Condoms
- Water purification i.e. Chlorine dioxide drops or tablets
- Regular medications (two sets and spares)
- Prescription stating generic drug names
- Doctors letter stating pre-existing medical problems and their treatment on headed notepaper
- Record of immunisations
- Yellow fever certificate (if necessary)
- Emergency card (printed on bright green card and laminated) detailing blood group, any known allergies, next of kin & home health care provider contact details – this should be kept in your personal medical kit at all times
- Medic alert (if necessary)

PLEASE DO NOT BUY OVER THE COUNTER MEDICATIONS WHILST IN NEPAL SINCE THE PRECISE CONSTITUENTS OF THE DRUGS YOU BUY WILL BE UNKNOWN.

Medical care on expedition

As a member of the expedition team you have a duty of care to every other member of the group. In addition to taking responsibility for your own health, you should be able to recognise the effects of illness and injury in others around you. If you are or you suspect anyone else is injured or unwell, you must immediately notify your trekking team Medical Officer. Please remember, we would rather know if you are injured or unwell since we do not want you to struggle on in discomfort that spoils your expedition experience. It is also in your (and the team's) best interests to treat medical problems promptly before they become more serious. We are approachable people! Furthermore, it is also essential to inform your trekking team Medical Officer if you plan to self-medicate for injury and/or illness since some medications may impact upon the results of the research being conducted on our expedition.

Whilst there will be qualified doctors on the expedition, if you become injured or ill you must accept that the medical care available to you may be less than the standard normally expected within a modern acute NHS unit within the UK. The standard of healthcare is poor in Nepal, particularly once outside the Kathmandu Valley and Pokhara. Due to the remote nature of the expedition, all team members will require travel insurance that covers helicopter evacuation in the event of serious injury or illness. It is essential that when purchasing travel insurance you declare pre-existing medical problems since should you require evacuation for such a problem that has not been declared, your travel insurance will be null and void. You should be aware that it might not always be possible to evacuate someone immediately by helicopter due to adverse weather conditions.