Guidance document

'Considerations for the planning of youth expeditions at high altitude'

Intro and definitions

The effects of 'high altitude' on humans are considerable. When combined with other environmental stresses[1] or situation factors[2], high altitude can greatly affect the performance, health and wellbeing of expedition participants.

2500m is widely recognized as the lower limit of 'high altitude'. Although physiological changes and occasionally altitude illnesses occur below this height, changes and illnesses become common enough above 2500m to warrant mitigation.

"Expedition participants (clients) include students, travelling teachers, expedition leaders, and in country staff.

Considerations

Expedition providers planning activity above these heights must consider their; approach, provision and support to all involved. The following is a list of advisory points for consideration:

- Prior to departure a risk assessment should be completed by the provider, seeking expert advice if necessary. This should be shared with expedition planners and expedition leaders, and consideration given whether to share it with travelling teachers, in country staff, and students.

- Informed decision making - Clients should be provided with sufficient information, and signposting to enquire further, to allow an informed decision on travelling. This should include a basic insight in to the physiological and psychological effects of high altitude; the potential risk for becoming unwell (and impact on itinerary delays/changes); and the possible vs. the company's chosen mitigation methods to decrease risk of negative effects on performance, health and wellbeing.

- Medical 'screening' – Consideration should be given to medical conditions that predispose a client to increased risk of reduced performance, health, or wellbeing at altitude. Clients should be asked about previous altitude experiences (if any) to determine inherent susceptibility.

- Acclimation profiles[3] – Recognised as the single most important factor is the managed approach to altitude gain. These protocols provide structure to the trek planning and will reduce the risk of altitude related illness. However it should be noted that altitude illnesses can still occur.

- Contingencies – Should altitude problems occur, descent is always the first and best treatment of choice. Therefore escape (descent) plans should be in place (e.g. alternative trek routes; knowledge of evac transport availability (helicopter; porter, animal, rescue team); or travelling in convoy with spare capacity (e.g. in case of group splits or vehicle breakdown).

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[1] UV exposure, extreme heat and cold

[2] Dehydration, traveller infections, disrupted sleep, poor diet, psychological stress

[3] e.g. above 3000m, the increase in sleeping altitude from one night to the next should not exceed 300m with a rest day (nor further sleeping altitude gain) after every 3rd day (or for every 1000m height gain (whichever is sooner).

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- Medical interventions & medical advice – Presentation with serous altitude illnesses (e.g. HAPE or HACE) is rare in altitude-educated clients, but these illnesses can occur despite mitigation methods and plans for descent being in place. These illnesses are life threatening and therefore medical interventions should be available to all clients whilst above 2500m. Providers should seek expert advice: consequently medical interventions may include access to one or more of the following: supplementary oxygen, gamow bags and prescription medicines. Consideration should also be given as to how medical advice is available to aid the leader's decision making (e.g. in house on-call medical advisor or external tele-med company).

- Prophylaxis - Some medicines are known to reduce altitude illness symptoms and/or artificially aid the body's acclimatisation to altitude. However, there are ethical, physical performance, cost and side effect issues that should be considered. Providers should seek expert advice and be aware that this advice may be contradictory (e.g. a client's GP may advise differently to a provider's medical or altitude expert).

- Profile exceptions – It is common to find treks do not conform to recommended ascent profiles e.g. camp/hut locations are dictated by park authorities or local topography, or where dynamic hazards present greater risk e.g no access to water, exposure to rock fall etc. In these instances a judgement must be made balancing risks and benefits of each trek itinerary. A conservative and common approach is to stay within the protocol rather than exceeding it (e.g rather than ascending to a camp 500m higher, instead push the daily height and return to the same camp for a second night and trek to the higher camp on the day after). Providers could seek expert advice and/or consult others with experience of that particular trek to guide decisions.

- 'Informed Commentator' (aka Technical Advisor) – It's worthy to note that higher NGB awards (e.g. IML or even BMG) and medical training do not necessarily mean an individual will be an altitude expert. Informed commentators should be selected based on various criteria including NGB qualifications; physiology training; psychology training; medical training; specific wilderness and altitude medical training (e.g. Diploma in Mountain Medicine); and/or experience of leading groups at altitude.

- 3PP providers - Knowledge of, and culture towards performance, health and wellbeing of expedition participants is an important vetting consideration. Scrutiny of their approach to the issues raised within this document will help determine the 3PP provider's competency. Clear delegation of responsibilities should be agreed before departure.

- Leader Requirements – Leaders should have relevant training and/or experience. Consider asking them to elaborate and provide context (e.g. trek height and duration; group member or leader; adult or student group; problems encountered;).

- Leader information & briefing – Knowledge is key and should be shared through briefings, paperwork and/or other media formats prior to departure. Content should include:

    - Provider's approach to altitude travel
        - Risk assessment
        - The providers approach to the issues detailed in this document.
        - Delegation of responsibilities between the provider, 3PP Provider, expedition leader, travelling teacher, and students.

    - Altitude knowledge

- The altitude environment and how it impacts upon performance, health and wellbeing
- Pre expedition mitigation methods (e.g. practicing procedures at sea level; enhancing fitness, health and wellbeing)
- During expedition mitigation methods (e.g. self-care and self-assessment (of hygiene; nutrition; hydration); altitude illness prevention, identification and treatment).
- Learnt from experience considerations (e.g. pacing; summit fever; anxiety; anorexia).
- Signposting to further exert advice.

Summary
High altitude will cause a decrement to client performance, health and wellbeing. Providers should risk assess their altitude treks and determine their altitude policy before departure. Clients should discuss and practice mitigation methods whenever possible before departure. Client education and conservative ascent profiles reduce but never completely abolish risks of high altitude. Utilising technical advice to review plans; competent, equipped and well informed leaders, and robust in country providers further reduce likelihood.

References
- MEDEX handbook - http://medex.org.uk//medex_book/about_book.php
- Cicerone – Pocket First Aid and Wilderness Medicine
- UIAA medical advice sheets - http://www.theuiaa.org/medical_advice.html

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