

When bad things happen. By Gavin Raubenheimer from Mountain Rescue in KZN copied form his Facebook page.

This week I will run a series of what happens when things go badly wrong and how you should handle it. These are skills and knowledge that you are unlikely to ever hear on a 1st Aid course and which I have learned from 3 decades of dealing with mountain rescues and having handled several emergencies myself, while in the mountains. Anything from a broken ankle to a death of a friend, to an asthma attack of a client, to a Puff adder bite to my own leg.

These posts are an extract from the Mountain Leader and Walking Group Leader courses. But they would equally apply to a rock climbing or mountaineering situation.

We are going to look at a few aspects that are vital in handling emergencies in the mountains or any other wilderness type situation in Southern Africa. By wilderness, I would however not include a game reserve situation where dangerous animals could be thrown into the situation.

Part 1. As a leader of a party what should you do.

Part 2. Dealing with an emergency situation. (not the 1st Aid aspect)

Part 3. If a helicopter is being used, know what it can do and more on what it CAN'T do.

Part 4. How to search for a missing person and what goes on when a search is escalated.

Part 5. Improvised patient carrying methods.

Part 1. As a leader of a mountain group what should I do.

When an emergency occurs, it is obviously going to be a difficult time for everyone and in particular, the leader of the group will often carry the brunt of the stress. Firstly, realise that very often, what seems terrible at first, can start to be seen more clearly after a short time of thought and analysis of the actual situation. That means you need to force yourself to understand what is the actual situation.

Let us say someone falls and breaks their leg. In those first few minutes everyone is shouting and wanting to know what to do and are trying to help. The victim is also probably screaming. But just try to calm things down. Get the victim into a comfortable position and away from any danger. Now the next part is going to sound a little callus but needs to be understood. The patient will be in terrible pain/shock/trauma, but unless a major artery has been cut, they are not likely to die anytime soon. That means there is time to sit and think about how this situation needs to be handled and including applying 1st Aid to the best of your ability. Then once that is done work out which rescue service to phone and is appropriate to where you are situated. (there are different numbers and rescue structures in different areas of South Africa. Every person venturing out in the wilderness should have an idea of the local rescue structure for that area.)

All this will take good leadership and a calm attitude. A calm plan needs to be worked out. People can be given different jobs. e.g. someone can make a cup of tea; another can act as a message runner in-between the patient's location and cell phone coverage area.

A few don'ts. Once it has been established what to do and who to phone for help, make the call. Once the call is through to the correct source, the group has to sit down and realise the wheels of rescue are now in motion. DON'T then phone more rescue agencies, which then only causes a muddle up of resources and communications!

DON'T allow members of the group to phone out informing family and friends, who then also start to phone for rescue to all kinds of inappropriate agencies. These situations cause huge issues for rescue teams and helicopter coordination.

DON'T move away from the place where you told a rescue team the incident has occurred.

DON'T call for help straight away. Get to grips what the real situation is first. When all is calm, start to ask for help.

On Table Mountain in Cape Town an emergency can be dealt with quickly due to the short physical distance between the mountain the rescue services. But just by the very nature of mountain hiking and climbing, emergencies are often far away from help. In most cases a group sitting with an injured friend is going to wait a long time! Many hours sometimes go past before help arrives. It may even mean spending a night out looking after a person. Try to make yourself and the patient as comfortable as possible, as it is going to be a long stressful time.

Part 2. Dealing with an emergency situation. (not the 1st Aid aspect)

This post around what to do in the first few minutes of an accident or other medical emergency and you are right there trying to deal with it.

To give some insight here. I have personally taken hundreds of rescue calls for help for all kinds of problems. However, one common and un-useful call rescue teams get is from people in a state of panic, asking for help when a companion is not breathing, having a heart attack or pouring blood from an artery. I say un-useful as they don't understand that in virtually every emergency there are 2 distinct situations described in A & B below.

A- if the person is pouring blood from a severed artery (as in litres of blood is just gushing out) or their heart has stopped or they are not breathing- **DON'T PHONE FOR MOUNTAIN RESCUE**. What you need to do is try and save that person's life in the next few minutes, using whatever 1st Aid skills you have. (These are all things covered in 1st Aid courses.) Mountain rescue is going to take far too long get to you. By the time any professional help arrives the patient would have already died. Deal with saving the life yourself, there and then. Only when that has been achieved, calmly phone for help and then do whatever is necessary to help a team find you and the rescue to take place.

B- most other emergencies (there are exceptions) you have time to sit and work out a plan of how to treat the patient and how and to whom you may ask for help. Common hiking and climbing injuries include broken/twisted ankles, broken wrists, cracked knees, hypothermia, dislocations etc. These may mean huge pain and that the patient will need to be taken off the mountain, but do not mean that they are going to die any time soon and a calm, methodical approach is needed.

Tip: one of the most useful items to be carried in a hiking or climbing party is a small pocket sized First Aid book and if it's wilderness First Aid even better. Most of us lay people cannot remember how to treat a 2nd degree burn or dislocated shoulder. But there is time! So, sit down and read about it, then treat the patient.

Part 3. If a helicopter is being used, know what it can do and more on what it CAN'T do.

When you on a hike, in some far and remote valley and your mate is lying there in a desperate medical situation, you will realise that actually God flies in a helicopter! In South Africa he most likely flies in a very specific type! When starting to write this post I decided to split it into two sections: One deals with understanding helicopters and two with how to prepare for a helicopter airlift out of the mountains.

In the context of wilderness and mountain rescue one has to understand some basic facts about helicopters. Firstly, they are extremely fragile, temperamental and expensive machines. They also, just like a road vehicle for instance, have specific capabilities and limitations. What one type is capable of, is different to what the next type can do. As this series is mainly about mountain rescue situations, the overriding aspect of this post will be to do with how a helicopter can or on the other hand, cannot perform well, high in the mountains. Without getting into the science of it, simply consider the following aspects, which all cause a decrease in performance and in simple terms, make a helicopter tend to want to fall back to earth under the pull of gravity.

They are:

- the higher in the air a helicopter flies, the less lift/performance it has, especially at low speeds.
- higher ambient air temperature - less performance.
- high humidity causes lower engine performance. What can be done on a dry chilly morning at dawn, maybe different to what can be done at 2pm on the same day, in hot humid conditions.
- more fuel onboard causes less lift.
- more rescuers onboard cause less lift.
- rapidly descending air from above causes less lift. Common in mountain valleys.
- side winds can cause the tail rotor to be less effective, causing the aircraft to want to spin- especially at high altitude, while at low speed.

Coupled with all these factors is the amount of lift created by forward speed when air passes over the rotor blades, rather like the lift created when a Frisbee is thrown forward. This means that as a helicopter slows down, manoeuvring in and out of valleys and mountains, the amount of lift decreases. If it needs to land or even worse, stop and hover to hoist people down, it's at the point where the most amount of power is needed and the most amount of fuel is being burnt. (pilots will

usually check the available power/lift by standing off the rescue site, in clear air to see if there is enough power to perform a hover, before committing to a landing or hover close in to mountain. Known as a power check)

Then after one considers all these factors there are 4 other aspects.

A - is the pilot/s and crew current and trained for mountain flying.

B - does the aircraft have a winch or some other means of attaching a rope to the air frame.

C- is the crew and ground team actually trained and current in using this technique ?

D- is there actually an aircraft available?

When all these factors are considered, in South Africa there are not many choices for technical mountain rescues, especially in high, remote areas. Therefore, most rescues are carried out by the South African Air Force with Mountain Club rescue members onboard. Then over and above this, one type of helicopter stands head and shoulders above the rest- the legendary Oryx. These aircraft are the number one choice for mountain rescues, loved by the crews who fly them and the rescuers alike.

Comments on the Facebook page I copied this form: **Jürgen Buchelt** It's also worth mentioning that besides the pilots and ELOs the people involved in a helicopter mountain rescue are volunteers. And you don't just hop on and get taken somewhere to rescue someone. There are many hours you will have to dedicate to training and a pretty penny to spend on the required personal equipment.

Part 4. How to search for a missing person and what goes on when a search is escalated.

So, you out in the mountains and something bad has happened. A call has been made for help and after some time you are informed by the rescue team leader that a Heli-borne operation is getting underway.....what next?

First and foremost, as I have said, things usually take time. There are a few places and situations where once it is decided that a helicopter is the best option, then it might lift off in a few minutes and be on scene soon afterwards. But the majority of the time it could be an hour or even several hours. So, sit tight, it's a long wait!

If the South African Air Force is being used, as in many cases, every time a rescue helicopter lifts off, there is long paper trail of requests, orders, authorizations, signals and call signs before the rotors actually start to turn. One reason for this is when a flight is undertaken it's usually at tax payers expense and there better be a good reason for it. The cost per hour for an Oryx helicopter is an eye-watering amount of cash.

As a hiker or climber waiting for a helicopter arrival, you need to do the following;

If it's a patient going to hospital, gather their ID, wallet, medical aid card etc. and make sure it goes with them. Depending on the weight considerations and space on the aircraft, sometimes a friend or family member can go with to hospital.

The down wash of a helicopter is huge, so pack away all tents, sleeping-bags, mattresses, remove your hats and caps, long before it arrives on scene. As a result of down wash, there are several rather expensive tents in various gullies of the Drakensberg, including a valid French passport lying on Rwanqa peak!

Loose items are a huge hazard to a helicopter, as they can get blown sideways or up a slope, then into the air and back down in the rotors.

Contrary to common belief, a hiking party even in bright colours are not easily seen from the air. From an aircraft, people become tiny dots on a vast landscape. People sitting in slight shadows or in rocks, can simply go unnoticed.

Two good ways to show your position is to use the flash of a cell phone / camera, which can be seen for 2-3 km, especially in low light or when in a shadowy valley. Another option, if safe to do so, is make some thick smoke by burning a few leaves. This also has the advantage of giving wind direction to the pilot. Once seen by the air crew they will usually flash their lights.

When reporting your position to a rescue team, again there are some misunderstandings of what is needed. There is a belief that what a rescue team needs are coordinates and are often given from a GPS in decimal degrees or decimal minutes. This idea might be OK if you are floating in a dingy in the middle of the Indian Ocean, but in the mountains a verbal description is number one. The coordinates are a secondary affirmation of your position. e.g. "We are approximately 400m upstream of Tseke Hut, in the riverbed", is far more information than a bunch of numbers. In addition, give the coordinates in good old standard degrees minutes and seconds, even just read off a map.

Pin point accuracy of the coordinates is not needed. A rescue helicopter may have the coordinates entered into the navigation system for the main approach flight, but closer in it's guided by someone in the back who knows the area, with a map in hand saying "go up this valley, over that ridge, look for the group in that area." A mountain rescue helicopter does not fly in with a pilot watching their position on a GPS, then slowly coming to a hover and looking down and finding the rescue scene. The pilot gets to the general area and is then directed by human brains and eyes.

When the aircraft approaches, and if it's in marginal conditions, it will usually stand-off in clear air and a power check will be done, before committing to the landing or to hover. When a helicopter comes in close to a mountain, with less and less lift due to the slowing of forward speed, they enter what is called, 'dead man's curve'. This is the close proximity to the ground and in the event of an emergency, does not allow them to put the nose down, get forward speed and escape the situation. Therefore, as a person waiting on the ground, try to position yourself in such a way that you are either on flat, open ground or on a ridge or buttress, where there is clear air beyond, that an aircraft can escape to in an emergency. The emergency might be simply running out of power to stay in the air at high altitude. Narrow valleys or gullies are a particular hazard for helicopters.

Once the aircraft has landed or if being hoisted out, simply stay calm and follow the directions given by the crew or rescue team. Hope you never have to do any of this!

Part 5. Improvised patient carrying methods.

This part deals with emergencies that perhaps, usually are more low key, but get used all the time and they also have their place in saving lives. There are 4 very easy and basic techniques for hikers and climbers to get themselves out of trouble when the injury/problem is not too serious. They might be used to take a person all the way out to safety or to just move them to a point where there is shelter and a full rescue can take place. How these are actually set and used needs to be demonstrated practically and I will not try to explain them in detail.

Firstly, there is "confidence rope" technique. This is a general guiding skill for getting slow hikers to move faster and confidently. But it can also be used to help a person down a rough slope, who has some sort of injury and is lacking good balance and confidence. As a commercial guide I have twice used this skill for injured people. Once in the southern 'Berg with a broken ankle and once after a roped fall, high on the NE ridge of Mt. Kenya. All the person needed after the final abseil was done, was to be supported by a rope, while hobbling down through a boulder field,

Then there is the split-rope-coil carrying method, where a person carries the patient with the aid of a rope on their back. Then there is the two-person split-rope-coil, which distributes the patient's weight between two people. This technique we used to help a friend down the mountains in the Italian alps, after he fallen down an ice slope. It was a very long 4kms, but was on a good path some of the way and was far quicker than waiting for a rescue team.

A make shift stretcher can be made out of various materials including a length of rope. But all these improvised stretchers are best used only for slightly injured people and who have not back or neck injuries. Lastly of the old-style basic techniques let me mention one that is fairly commonly used in the Drakensberg still today, for easy extraction of people who are not badly injured... the standard 4x4 horse is a good option!

The usual way that a professional rescue team carries a patient out of the mountains, is on a proper stretcher (rescue litter). It's a method often used when bad weather prevents a helicopter being used, or if it is in fact faster, simpler and cheaper to use a ground-based team. There are some major issues when carrying a patient in this manner. Number one it is extremely tiring for the carriers. To carry a person of just 50-60kgs takes a team of about 15 people, rotating in turns of 6 at a time doing the carrying work. The other issue is when traversing a slope or a contour path, the people on the up side of the litter, are walking bending down, while the down side are trying to lift the patient up. While all teams are carrying, they are walking off the path over rocks and bushes. At night this becomes an even bigger issue. A rescue which took place in the northern Drakensberg some years back of a person of about 50kgs being carried from Monte-aux-Sources hut to Sentinel carpark, usually about a 2-hour hike, took an exhausting 7 hours with a team of about 14 people.

A huge improvement of a stretcher carry is when wheels are added underneath the litter of which there are various designs and configurations available. In the southern Drakensberg patients are often wheeled out on just such a stretcher.