Litter handling and Belay

Introduction: Instructor introduces him/herself

Objectives:
1. Demonstrate litter handling techniques
2. Demonstrate the ability to act as Litter team member in a semi-technical rescue and describe the personal equipment required.
3. Demonstrate the ability to act as the litter captain in a non-technical rescue using toenailing, laddering, and rotation of litter bearers.
4. Demonstrate proper belay techniques
5. Demonstrate the ability to properly load a patient.

Course outline:

Litter handling techniques
- Litter lift, lower, and carry
- Litter bearer rotation
- Laddering and toenailing
- Calls

Litter team member
- Equipment needed

Litter Captain
- Equipment needed
- Responsibilities

Belay
- Anchoring
- Belayer tie-in
- Stance
- Aim
- Up hill/down hill
- Tree wrap/mechanical brakes

Patient loading

Course:

Litter handling: Simi-technical evacuation is defined as an evacuation where the terrain is so difficult or dangerous that the litter needs to be belayed, but not so steep that the litter bearers also need a belay. Sloop of 20 to 45 degree when the footing is risky due to ice, snow, leaves, mud, etc… is considered a technical rescue. An example of a technical
rescue is a wet sloop that would let a litter slide but yet a person on foot could recover them self.

**Litter lifts, lower and carry:** Whenever the team needs to move the litter with the patient in it commands must be used for everybody’s safety. Six people should be used to carry a full litter each one should have on a helmet and gloves in addition to their regular gear. There should be three people on each side of the litter down on one knee facing the same way, and each litter handler is tied to the litter with a prusick. When each person is tied on and checked by the person across from them the Litter Captain (LC) will shout *ready to lift* and the give a brief pause before saying *lift*. At this point all litter handlers will lean back and stand up at the same time. In order to lower the litter the LC will use the command **Ready to Clear.** When the clear command is given all litter handlers will sweep under the litter with one foot to clear out sticks and check for stumps or large rocks. Then the LC will shout **Ready to lower.** and the team will reverse what they had done earlier by leaning back and lowering the litter to the ground.

**Litter bearer rotation:** A rotation cannot be done on semi-tech terrain, but is more likely to be used in a real search at some point so we will cover this material. When the LC is ready he will shout **Ready to rotate** at this point the two relief handlers (that have been clearing a path for the team) will fall back to the end of the litter and place one hand on the litter and one hand on the person there going to relieve, at this point each litter handler will put a free hand on the shoulder of the person in front of them. When the LC feels a hand on his shoulder he will look around to make sure everybody has a relief handler then shout the command **Rotate.** The two handlers at the head of the litter will take over the responsibility of clearing a path. Relieve handlers should switch sides before getting back on the litter. The litter should never stop during this rotation.

**Laddering and toenailing:** Laddering and toenailing are two techniques used to overcome obstacles.

Laddering is used to get over obstacles such as a large fallen tree. Laddering is done ahead of the litter resting on the tree while the four litter handlers closest to the head hold the litter up, and the handlers at the back of the litter go around and get back on the head, while the back four push forward until the last two can’t control the litter at which point they run to the other side and reattach to the litter. This cycle continues until everybody is on the other side of the obstacle. The command **Ready to ladder.** should be used each time two people leave the litter to cross the obstacle.

Toenailing is used for steep slopes and in the same manner as laddering, with the exception of the litter moving up instead of across. The head of the litter is dug into the slope, while the litter is being held level. Use caution not to kick rocks and debris down onto the patient and team when repositioning, be sure to have good stability before grabbing onto the litter. The command for toenail is **Ready to toenail.**

**Calls:** verbal commands we haven’t covered yet.

- On belay- are you ready to belay me?
- Belay on- yes I am go ahead
- Off belay- I no longer need a belay
- Belay off- I am no longer belying you
- Slack- rope is to tight, give me three feet
- Tension- remove slack from rope
Pre load- litter team wants to test system, belayer should be locked off
Down slow – allow team to descend slowly
Down fast – allow team to descend fast
Up slow- allow team to ascend slow
Up fast- allow team to ascend fast
Stop – a command any person can use when there is a unsafe condition at this point the belayer should lock off
Two Oh- roughly 20 feet of rope remains and a new belay point should be found.
One Oh- 10 feet of rope remains and a new belay point must be found.
Rock- the sky is falling the litter team should brace them self and protect the patient, belayer should lock off
Clear- danger has passed continue on
Falling –team member fell or is falling belayer should lock off
Vomit- patient is getting sick, lock off system (belayer), turn patient to face medic and remove face shield.

**Litter team member** any one of the 5 people on a litter that is not the captain.

**Equipment needed** ability to listen and follow commands, gloves, helmet, and prusik.

**Litter Captain** The individual in charge of the litter, stands to the left at the head of the litter.

**Equipment needed** confidence and loud voice is needed along with gloves and helmet

**Belays**

**Anchoring** the key to a successful system is the anchor. In most areas a tree is usually the fastest and safest anchor. The tree should be alive and at least 6 inch in diameter.

**Belayer tie-in** usually in a semi-tech rescue it is unnecessary for the belayer to be tied in. If necessary a looped webbing around the tree should be a sufficient safety device.

**Stance** the belayer should have the rope across his back at waist level and should back him/her self around the tree to the desired friction (normally one wrap will be enough), at the same time the belayer should be far enough from the tree to not get pulled into the tree if the team should fall.

**Aim** refers to the belayer being in stance and still be able to

**Up hill/down hill travel** belaying up or down hill work opposite of one another. Up hill is referred to as DUB: Downhill goes to Uphill, Uphill goes to Belayer, and belayer goes to downhill. Down hill is the opposite BUD: Belayer goes to Uphill, Uphill goes to Down hill, down hill goes to belayer.

To define the jobs: the down hill is below the litter clearing a path of travel and the up hill is between the litter and belayer looking for the next belay point and making sure the rope is not being compromised.
Tree wrap/mechanical brakes: tree wrap was explained earlier, with stance and anchoring. Mechanical brakes that could be use are gibbs, brake bar, or prusik knot although for a semi-tech evacuation none of these should be needed.

Patient loading: when dealing with patient loading two teams would be ideal. One team should be preparing the litter while the other team is tending to the patient. Let's start with the team working on the patient. After all the ABC have been check along with a hemorrhage sweep and check for motor skills, the patient should be removed from any wet or soiled clothing and rewrapped in warm dry clothes or blankets (keep in mind at this time the patient could be in a c-collar or have a splinted limb so you may need to get creative). The patient might also need a spine board or air splint.

In the mean time the litter team will be making the “burrito wrap” making layers in the litter they should start with a waterproof layer to protect the patient from getting wet. Then a sleeping bag for warmth, remember the medic might need to get to different parts of the patient so keep the zipper up, and be prepared to cut holes in the bag as needed. The third layer should again be a water proof layer to protect the bag from being soiled.

When both teams are ready the litter should be brought over to the patient. The patient should be lifted carefully and the litter brought underneath the patient. At this point the patient can be lowered into the litter. Once the patient is in the litter he or she should be secured in the litter by first closing all the layers of the “burrito wrap” leaving the head open. Then you may secure the patient by tying them in with webbing in an X fashion there should be an X over the chest thighs and lower legs. If the patient is short some support around the feet will be needed to stop them from sliding around in the litter you may also need to pack the negative space for the same reason. When attaching the litter to the belay line you will use a backed up figure 8 on the belay line and 2 large carabineers closed opposite of one another to attach it to the litter line. This will be demonstrated for the class to ensure every body understands.

Logistics/Personnel:
All instructors if possible.
Static rope
Helmets
Litter
biners x6 small x2 large