



INTEGRATED CENTRE FOR DISASTER MANAGEMENT (ICDM)

EMERGENCY METHODS OF RESCUE

Introduction

Rescue will be conducted under almost every conceivable adverse condition. The method used for casualty removal will depend on the location of the casualty and the type of injury sustained. In some rescue operations, casualties will have to be lowered from the upper floors of buildings. In others, hoisted from below through holes in floors, or removed by a combination of those techniques. When casualties are handled by rescue personnel, take care to ensure that further aggravation of injuries does not occur.

Be aware that the safety of the casualty is paramount, even when immediate evacuation from a hazardous environment is necessary.

Make a careful assessment of the casualty's injuries, condition and possible entrapment and make a final check to ensure that the casualty is actually ready to move and is not caught or entangled in an unseen object.

After removal, many casualties will have to be carried over piles of debris and uneven ground before being handed over to the ambulance service or first-aid station. Speed of removal is important, but it must be consistent with safety and proper handling to prevent further injury.

The method used will depend on the immediate situation, the condition of casualties, types of injury and available equipment. Rescue leaders should conduct frequent exercises in the removal of casualties, using live people as casualties to give team members understanding and confidence in the various methods, enabling them to make decisions promptly in times of emergency. As important as learning the methods, rescuers should experience the physical effort required in transporting casualties, either by stretchers or by some improvised method. The transportation of casualties over long distances is a very tiring task and requires fit personnel.

Rescue techniques using no Equipment

This subject is covered under two headings:

- a. One-rescuer handling techniques.
- b. Two-rescuer handling techniques.

Clearly understand that the following techniques are for use in an emergency and that seriously injured casualties should, where possible, be placed on a stretcher. Conditions such as fire or imminent danger of building collapse may, however, dictate that removal from the scene is the first priority. In some cases, this may even take precedence over life-sustaining first aid.

Single-Rescuer techniques

- **Single-rescuer Human crutch** – For this method to work, the casualty must be conscious and capable of giving the rescuer some assistance. Figure below clearly indicates how to affect the single-rescuer human crutch. Note the position of the rescuer's hands, one holding the casualty's wrists and the other taking a firm grip of the clothes at the waist on the far side of the body. The injured side of the casualty should be closest to the rescuer.



- **Pick-a-back** - This is an effective method when conducted correctly and the casualty is lighter than the rescuer. When the casualty has been loaded (must be conscious), take care to ensure the casualty is supported well up on the rescuer's hips, with the body literally draped across the rescuer's back.



- **Firefighter's Crawl**

This is an invaluable method where a casualty has to be removed from a burning or smoke-filled building. As shown in Figure below, both rescuer and casualty have their heads low down where the clearest and coolest air is to be found if the building is on fire. The entire weight of the casualty does not have



to be supported by the rescuer. Cross the casualty's hands and tie with a bandage or similar. Vary the firefighter's crawl method according to personal preference. Probably the most effective method is for the rescuer to place an arm, shoulder and head through the casualty's arms as shown below and support the head with his palm to avoid injury dragging.

- **Removal Down Stairs Method**

This method is used to recover a heavy casualty down stairs, when the rescuer cannot use the pick-a-back or other methods. However, its use need not be restricted to staircases.

With the casualty lying flat, first tie the wrists together using a triangular bandage or similar. Next, come to the head and lift the casualty into the sitting position. Reach through



under the casualty's arms and grasp the wrists. The rescuer is then in a position to drag the casualty backwards and, if a staircase has to be negotiated, a large measure of support can be given to the casualty's trunk by the rescuer using a knee to ease over each successive step. Remember that the strongest part of any staircase is close to the wall.

Two-Rescuer techniques

- **Two-Rescuer Human crutch**

As can be seen from Figure below, this method is similar to the single-rescuer human crutch, except that the casualty is supported on both sides with the arms of the rescuers crossed over on the casualty's back and grasping the clothing on the opposite sides of the body.



- **Two-Handed Seat**

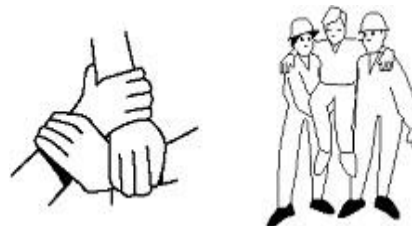
Rescuers kneel on either side of the casualty, get the casualty into a sitting position, place one arm under the knees and link up with the hand-to-wrist grip. They cross their free arms over the casualty's back, where they get a firm grip on the clothing (Figure below).



The leader gives the normal orders for lifting and lowering.

- **Three-Handed Seat**

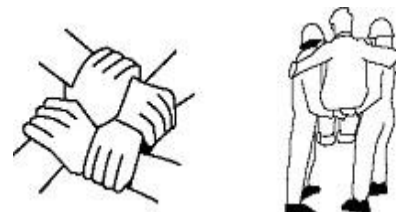
This method gives the casualty good support and is reasonably comfortable for the rescuers. It has the added advantage that the two-rescuer team has a spare hand for steadying.



One rescuer grasps their left wrist with their right hand and the second rescuer places their hand and wrist as shown in Figure. This forms a seat. If the casualty is capable of standing for a short period, load the casualty by placing the seat under the buttocks. If not, the rescuers place their hands under the casualty's knees first and then join up. In either case, the result should be as in Figure below.

- **Four-Handed Seat**

This is a method where each rescuer grasps their left wrist and join hands as in Figure. This provides a comfortable seat for the casualty and places a minimum strain on the rescuers. However, as can be seen in Figure below, the casualty must be sufficiently conscious to hold on.



- **The Fore and Aft Method**

This is perhaps the most suitable way in which two rescuers can handle an unconscious casualty.

Prepare the casualty in the same way as for the removal down stairs method. That is, tie the wrists together. The first rescuer stoops at the rear of the casualty. Reaching under the casualty's arms, the first rescuer grips the casualty's wrists. The second rescuer stoops between the casualty's legs, grasping the casualty underneath the knees. Following the standard lift orders, lift the casualty to the carrying position (Figure). If the casualty has a leg injury, minimize the effects of this by having the front rescuer cross the casualty's legs over and carry the casualty to one side as in Figure at below



The advantage of this method is that the rescuer supporting the casualty's feet has a free hand with which to open doors, clear debris etc.

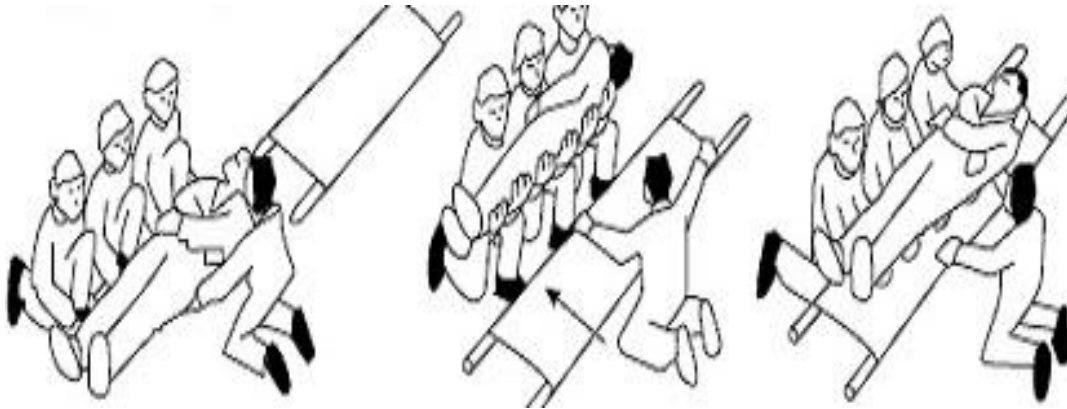


It is again stressed that the foregoing one and two-rescuer techniques are generally confined to emergencies where removal from the scene is the first priority.

The Four-rescuer Techniques

When using four rescuers **use a stretcher** and where spinal injuries are not suspected, use the following method:

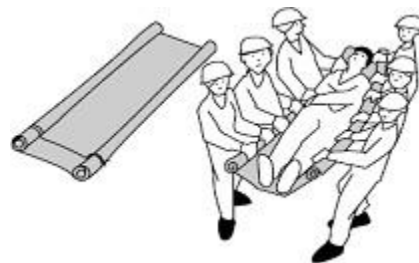
- Make ready the stretcher and place near the casualty's head or feet.
- The leader details three others to kneel down on one knee, on one side of the casualty (casualty lying flat on back). They all have the knee up closest to the casualty's head (Figure below).
- The leader kneels near the casualty's hip on the opposite side to the three others and eases the casualty on to one side.
- The other three place their hands and arms underneath the casualty and the leader lowers the casualty onto their arms.
- The leader gives the order '**Prepare to lift**' and, if no one dissents, follows it with the order '**Lift**', whereupon the other three, assisted by the leader, lift the casualty up.
- If necessary, the casualty can be briefly supported on the rescuers' knees (Figure 2 below). The leader then places the stretcher under the casualty.
- Final orders are given: '**Prepare to lower**', followed by '**Lower**'.
- The three rescuers, assisted by the leader, lower the casualty on to the stretcher (Figure below)



Blanket Lift (Four or Six rescuers)

The blanket lift is an effective method to load or move a casualty in a confined space:

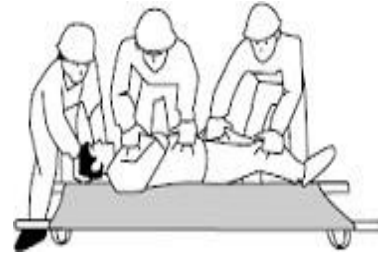
- Make a stretcher ready using one blanket only.
- Roll a blanket lengthwise for half of its width and lay the rolled section along the side of the casualty (casualty flat on back).
- The leader then directs two (or three) rescuers to kneel down on each side of the casualty. The rescuers on one side ease the casualty over and the rolled section of the blanket is pushed well underneath the casualty.
- With the rolled up section of the blanket now under the centre of the casualty, ease the casualty over in the opposite direction and unroll the blanket. The casualty should now be lying flat on two thicknesses of blanket.
- Roll the sides of the blanket up close to the casualty's body to provide handgrips for the bearers (Figure below).
- On the order from the leader, lift the casualty waist high and carry to the stretcher.
- On the order from the leader, lower the casualty onto the stretcher.
- Complete the blanketing with one blanket, leaving the lifting blanket in position.
- This 'blanket carry' can also be used as an improvised stretcher for carries over moderate distances.



Clothing Lift (three rescuers)

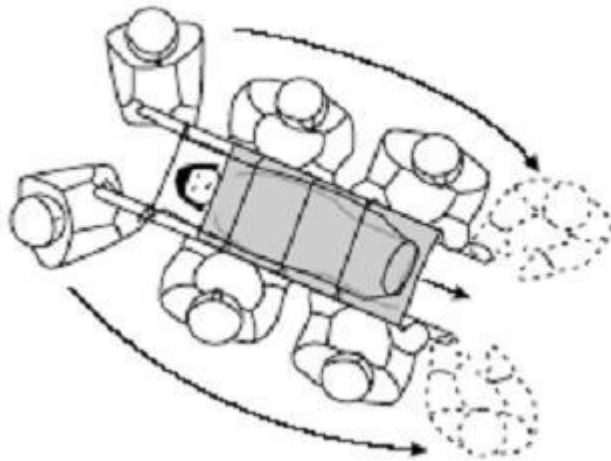
This is an emergency method that can be used when the casualty's injuries are not too severe and time is critical:

- Blanket a stretcher and place it close to the side of the casualty.
- Tie the casualty's hands together with a triangular bandage or similar material if unconscious.
- Roll the casualty's clothes together along the center of the body.
- Three rescuers take up position on the opposite side of the casualty to the stretcher and position their hands as illustrated in Figure below.
- The normal commands are given ('Prepare to lift' etc), then place the casualty gently on the stretcher.



Specialist Lifting/Loading devices

Specialist lifting/loading/extrication devices such as timber or synthetic spinal boards, scoop stretchers and spinal immobilization devices or harnesses are readily available from rescue equipment suppliers. Always use these devices in compliance with manufacturers' specifications and recommendations, and follow appropriate specialist training.



Lashing the Patient to the Stretcher

In many cases, casualties will have to be firmly secured to the stretcher to enable it to be handled in difficult places. No hard or fast rule can be laid down as to when a casualty should or should not be lashed in; however, the nature of the rescue should provide the answer. **if in doubt, lash the casualty in.**

The ideal size and length of rope for stretcher lashing is 12 m of 11mm or 12mm rope.

- To commence the stretcher lashing, form a Figure of Eight loop around one of the top stretcher handles and through the 'D'. From this point take three Half-hitches around both the casualty and the stretcher, the first in the region of the chest, the second in the vicinity of the wrists and the third hitch just above the knees (Figure below).
- Take a Round Turn around the feet and apply three Half-hitches to those already formed on the opposite side of the casualty's body. Finish the lashing with a Round Turn and Two Half-hitches on the remaining top stretcher handle.
- Vary the position of the three securing Half-hitches according to the location of the injuries that the casualty has sustained. In the case of a female casualty, place the top securing hitch just below the breast line.
- Place bricks or timber under the stretcher 'Ds', before lashing commences, to enable the rope to be passed under the stretcher more easily.

