

FIRST AID No. 2 FIRST AID

UNCONSCIOUSNESS AND CARDIAC ARREST – WHAT TO DO

Introduction:

Having to deal with a comrade who is unconscious or one whose heart and breathing has stopped is difficult, especially for the first time. It is important therefore that comrades wishing to acquire first aid skills practice the techniques and manoeuvres described in the articles. Get together a group of comrades who are interested in learning first aid and ask a skilled health worker (doctor or nurse) to go through the various situations and techniques with you. S/he will probably have useful tips on how to improve your management of the problems. The essential thing is to practice before you find yourself in the real situation so that you already know what to do and what to expect.

A. Unconsciousness

By "Unconsciousness" we mean a person who looks asleep but cannot be woken up. There are many causes of unconsciousness e.g, a direct blow or injury to the head; severe injury elsewhere (chest or belly); too much alcohol or occasionally fits (convulsions). Sometimes people fall unconscious when they get a big fright, or have been standing up in a hot crowded place for a long time. This is called a "faint" and the person recovers very soon after falling down. It is usually harmless.

If you see someone who you think is unconscious, do the following:

(1) Try and wake her/him up by calling them or shaking them (don't shake the comrade violently as s/he may be injured)

(2) If you cannot wake the comrade get help. You need at least one other person to help if someone is unconscious. Also send someone else to call a nurse or doctor if this is possible.

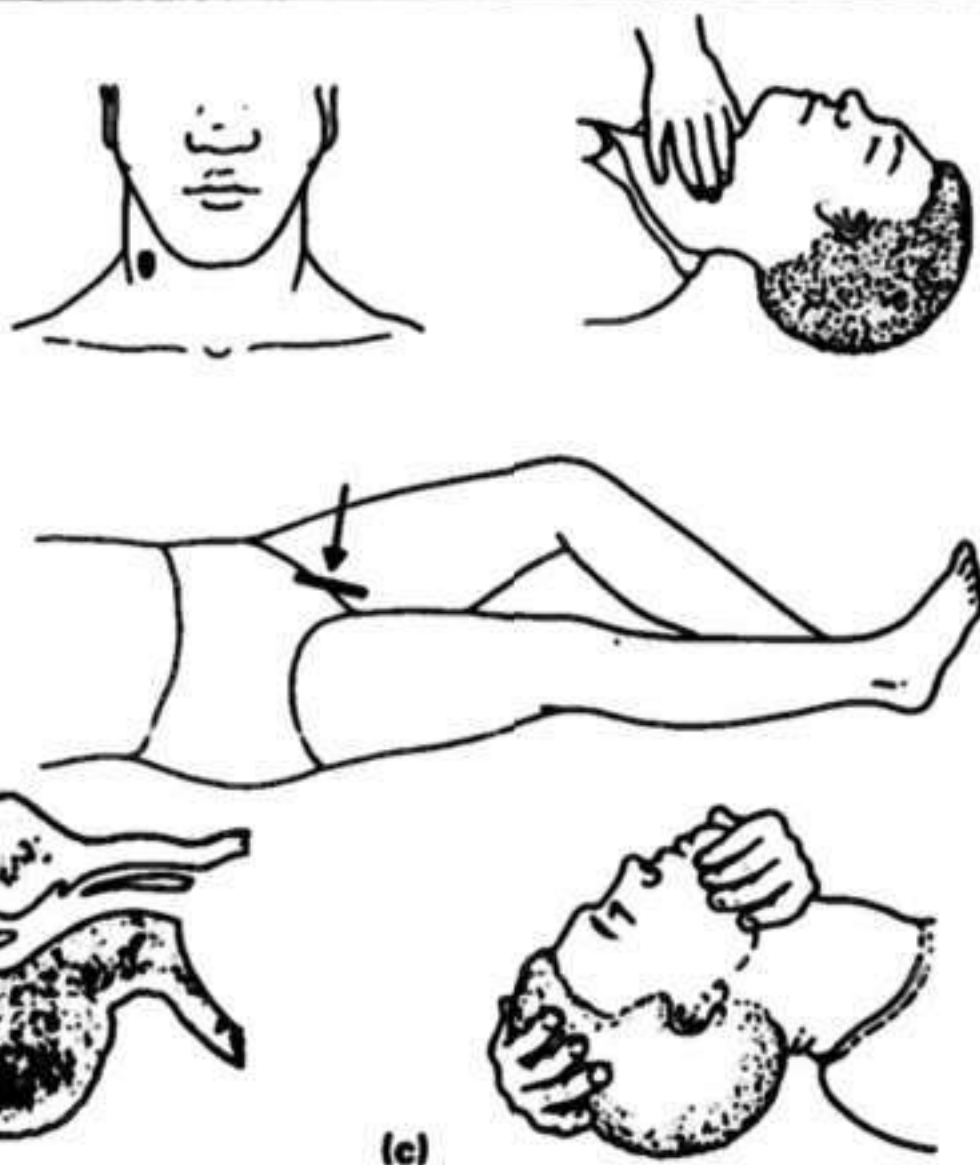
(3) Then check to see if the unconscious

comrade is breathing. Look at the comrade's chest to see if it is moving up and down as the comrade breathes, and also put your ear close to the comrade's mouth and nose – you will hear as the comrade breathes and feel warm breath on your face as s/he breathes out. Sometimes a very severe injury causes the breathing to stop completely, or the breathing may be noisy, as though there is a blockage in the throat. If the breathing is noisy it means that the comrade's tongue has fallen back and is blocking the throat so that only a small amount of air is able to get through to the windpipe and then down the lungs. The other cause of noisy breathing is vomit or broken teeth in the back of the throat (sometimes people vomit when they are unconscious.

(4) **If the breathing has stopped:** When the breathing has stopped completely very often the comrade's heart will have stopped as well. You need to do artificial breathing ("mouth-to-mouth"). Because the heart and breathing often stop together see under "Cardiac Arrest" for what to do.

(5) **If the breathing is noisy:** Sometimes you can see that the comrade is struggling to breathe – the chest is going up and down but only a little air is going in and out. You need to turn the comrade over to lie on his/her back if s/he is lying face down or on the side, so that you can feel the blockage in the throat. You have to be careful how you turn the comrade over because there may be injuries elsewhere – put the comrade's arms by her/his side, straighten the legs and roll the comrade over. Do this gently, but don't take too much time because the breathing is obstructed and you must unlock the airway (back of the throat and the windpipe) as soon as possible.

Once the comrade is on his/her back open the mouth and put your fingers in to the back of the throat — if there is any vomit or broken teeth take this out with your fingers. Then you must "extend" the head and neck — this means lifting up the chin, just like when you bend your head back to look at the sky overhead. The effect of lifting the chin up is to cause the tongue to lift from the back of the throat and this allows air to pass easily into the windpipe (see diagram below).



(a)



(b)



(c)

Airway (a) blocked by the tongue, and (b) cleared by extending the patient's head and neck. (c) external view.

Extending the head and neck is easy to do — kneel next to or behind the comrade's head and put the fingers of both hands under the jaw and then gently but firmly pull the jaw up so that the head is bent back. As the diagram shows, this lifts the tongue from the back of the throat and unblocks the airway.

The breathing will then be quiet and regular. You may have to keep gently pulling on the jaw to keep the breathing normal. This manoeuvre of freeing the airway is extremely important and can save lives. Even if the comrade is breathing normally it is a good idea to extend the head and neck to make sure that the airway remains clear. An obstructed airway is a common cause of death in unconscious people.

(6) While you are checking the breathing you can check the pulse to see if the comrade's heart is beating. Don't feel at the wrist for the pulse — there are bigger arteries in the neck and the groin which are much easier to feel. The position of these is shown in diagram:

neck (carotid) pulse. And the position of the leg (femoral pulse).

You will probably have to loosen the comrade's clothes to feel properly. Press gently with the tips of your fingers to feel the pulse — it should be strong and regular. If you cannot feel it straight away, keep calm, concentrate and feel carefully. If you still can't feel it after 15–20 seconds then the heart has stopped beating i.e there is "cardiac arrest" and you will have to do the cardiac massage (see later).

(7) If the comrade is just unconscious but the breathing is OK and the pulse is nice and strong and regular then s/he is relatively safe and you have more time. If there are no serious injuries to the chest, belly or limbs the comrade should be placed in the "recovery position" (see diagram).

The reason for this is again to protect the airway — if the comrade is left lying on her/his back there is a danger of the tongue blocking the airway, or if there is vomiting the vomit will be breathed into the windpipe. (It is not necessary to put

The position (a) and palpation (b) of the



The recovery position

a comrade who is awake and conscious in the recovery position because s/he is able to protect her/his own breathing). When turning a comrade who is unconscious you need to be careful in case there is an injury to the spine. Turn the comrade in the following way:- Put the arms by the sides and straighten the legs. One person must hold the head and another the hips and then together gently roll the head as the body turns and don't bend the back. Then bend one arm and leg on the same side so that the comrade is in the position shown in the diagram. Finally you must check to see if the breathing is OK in the new position — extend the head and neck by pulling up on the jaw so that you can feel the warm breath on your hand. You may need to keep gentle pressure on the jaw to ensure that the breathing is OK. The comrade is then in a safe position while you wait for help to arrive — while you are waiting regularly check the pulse and breathing.

Summary

All of the above is not difficult or complicated to do. You must go through it though by practising beforehand — you and 3 or 4 other comrades can take turns in being "unconscious" while the others go through all the steps discussed above. The things to remember are:

- (a) If the comrade is awake and talking then the pulse and breathing are OK. It is only with unconsciousness that there is a risk of immediate danger from the pulse and breathing.
- (b) If the comrade looks unconscious try and wake her/him up.
- (c) If you can't — check the breathing. If there is no breathing, do artificial

breathing (see later). If the breathing is obstructed extend the head and neck by pulling up on the jaw.

(d) Check the pulse (carotid or femoral) — if it is absent do "cardiac massage" (see later), if it is present check it from time to time.

(e) Place the comrade in the recovery position (carefully).

B. CARDIAC ARREST.

Sometimes the injury is so severe that the comrade stops breathing or the heart beat and the breathing stop. Often the two occur together. This is obviously an emergency — people die within 3-4 minutes after the heart and breathing stop if nothing is done for them. You need to do the following:

- (1) Try to wake up the comrade.
- (2) If you can't, get help (at least one more person, preferably 2 or 3).
- (3) Check the breathing and extend the head and neck by pulling up on the jaw. If there is no breathing:
- (4) Turn the comrade onto her/his back — put the arms at the sides and roll the comrade over.
- (5) Check the pulse — if it is absent then the heart has stopped and you are now dealing with a situation of "cardiac arrest". Speed is now vitally important — don't panic but do the following as rapidly as possible:
- (6) Loosen the clothing and bare the chest — you must be able to see the whole chest and abdomen (belly).
- (7) Then do artificial breathing (mouth-to-mouth breathing) and cardiac massage. It is possible theoretically for one person to do both of these but it is extremely difficult and tiring to do alone. You need at least one other person, preferably 2 or 3 others.

MOUTH TO MOUTH BREATHING

- (a) Clean out the mouth and throat if there is any vomit or anything else (broken teeth etc) blocking the airway.
- (b) Kneel at the side of the comrade's

head.

(c) Put one hand under the comrade's neck and the other on top of his/her head. Then lift up with the hand under the neck and push with your hand on the top of the head so that the head and neck are extended to clear the airway (you can also do this by lifting the comrade's chin). However you do it you must free the airway by extending the head and neck.

(d) Keeping one hand under the comrade's neck put your other hand over the nose and squeeze the nostrils shut so that no air escapes. air escapes.

(e) Put your mouth over the comrade's mouth and press firmly, making an air-tight seal (see diagram):



Mouth to mouth artificial respiration

(In the diagram note the following: 1. The hand under the neck, lifting up to keep the airway free; 2. The nose is being squeezed shut to prevent air escaping; 3. There is an air-tight seal at the mouth.)

(f) Then blow air into the comrade's chest, about as much air as you normally breathe. Then take your mouth away to let the air out. NB. As you are blowing in look at the chest — it must expand as you blow in air and it must fall back as you let the air out.

You must make the chest move up and down in this way otherwise you are doing it wrong and the comrade is not getting any air into the chest and therefore no oxygen. If you can't make the chest move as you blow in then extend the neck more by pulling up your hand under the neck, and try again. You will know when you are doing it right — the chest rises and falls as you blow the air in and then let it out. You may have to work hard to keep the head and neck extended in the right position. Also the comrade's skin colour will improve — it will look healthier and not so grey. To repeat once again the only way you can be sure that you are doing the artificial breathing correctly is to look at the chest — it must rise and fall as you breathe for the comrade. Don't blow too hard — the chest should rise 3–4 cm with each breath.

(g) Continue to breathe for the comrade in this way 15–20 times per minute, i.e. one breath every 4–5 seconds.

(h) Check the pulse while you are doing the breathing — if it stops you will need to do cardiac massage as well.

(i) If it is a child who has stopped breathing, the technique is only slightly different: you need to cover the child's nose and mouth with your mouth (see diagram) and do about 25 breaths per minute, i.e. once every 3 seconds. Be more gentle with the child, but remember that the same rule applies here — you must make the chest move as you blow in and out.

CARDIAC MASSAGE

This must be done when the comrade's heart has stopped beating, i.e. when you cannot feel the pulse. The aim of cardiac massage is to compress the heart between the breast bone and the spine so that the blood is forced out the heart into the big arteries. In other words you have to do the job of the comrade's heart for him/her.

When you do cardiac massage you must



Note: the baby's chest should be exposed so that you can see it move.

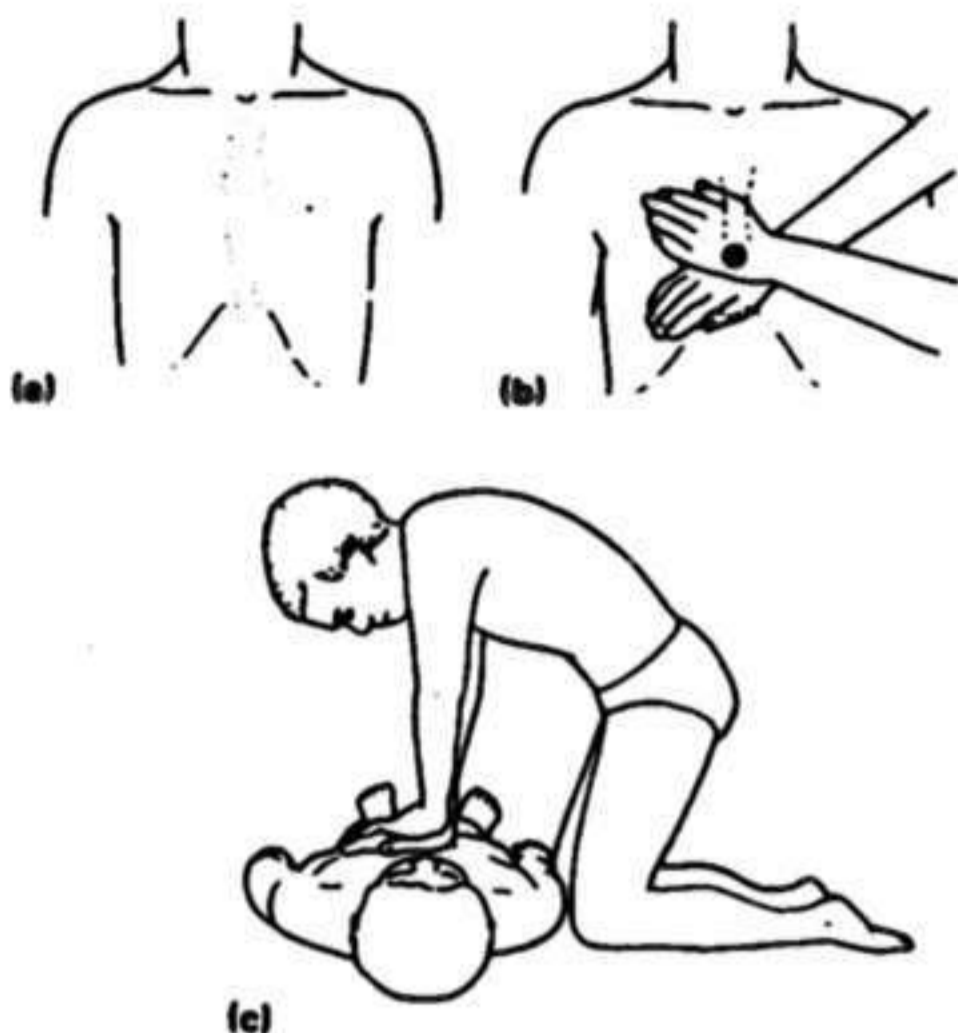
pay attention to detail, because the technique is often done wrong, even by skilled nurses and doctors. However, if you remember a few points it is not difficult to do correctly::

(b) The position of your hands is important. Put the heels of your hands (one on top of the other) on the middle of the chest, on the lower one-third of the breast bone, as shown in the diagram

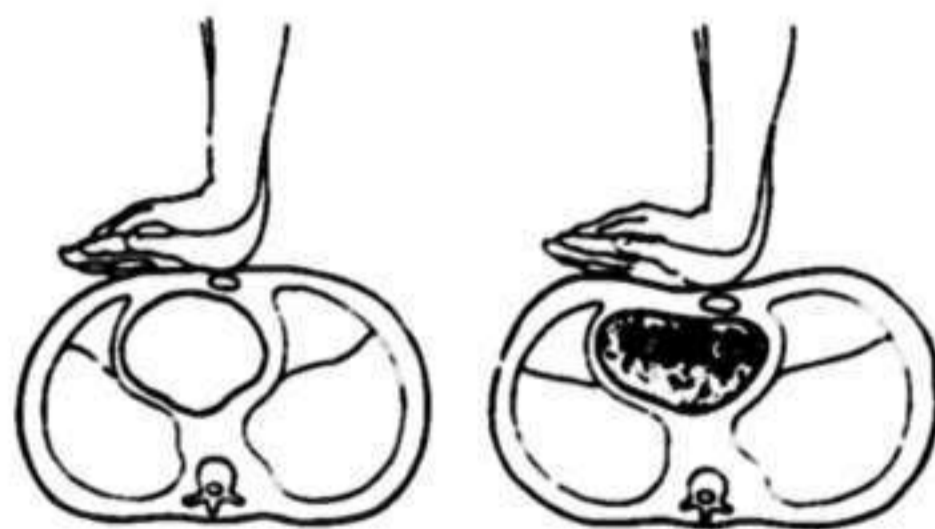
The heart is in the middle of the chest not on the left side, so you must press on the middle of the chest.

(a) The comrade must be put flat on his/her back on a firm surface, either on the floor or a hard bed. A soft bed which sinks in the middle is no good because you will be unable to compress the heart properly. Then kneel down at the side of the comrade's chest as shown in the diagram above and lean over the chest so that you can push down vertically onto the chest. Also loosen the clothing so that the chest is bare.

(c) Keep your arms straight, i.e. don't bend your elbows, and use your body weight to compress the chest. Press down sharply, hold the chest compressed for a split-second and then release. Don't press down slowly as though you are



External cardiac massage: (a) the position of the sternum showing the area (shaded) to be compressed:(b) the heels of the hands on the lower third of the sternum and (c) the straight arms working from the shoulders.



Pressing the heart between the breast bone and the spine.

trying to slowly squeeze the blood out the heart — when the heart beats normally itself the action is rapid so that the blood shoots out into the big arteries. You need to try and do the same, therefore give a sharp compression of the chest. (d) You need to do about 70 compressi-

ons per minute, i.e. about one every second.

(e) Continue doing the cardiac massage non-stop until the heart starts beating again. Don't stop for breaks or to see if the comrade is recovering — when you stop the comrade's heart stops as well and then no blood is being pumped to the brain and the other vital organs. There are only two occasions when you can stop, and then only for a second or two: firstly, if the other comrade doing the artificial breathing is finding it difficult to inflate the chest while you are doing the cardiac massage. You will then have to pause every 4–5 compressions to allow the chest to be inflated with air, but press

ndly, to check to see whether the pulse has started again — feel in the neck or groin, but again only for 3–4 seconds. If the pulse is back stop the cardiac massage, if it is still absent continue straight away. The diagram shows the technique of doing cardiac massage and artificial breathing on an adult.

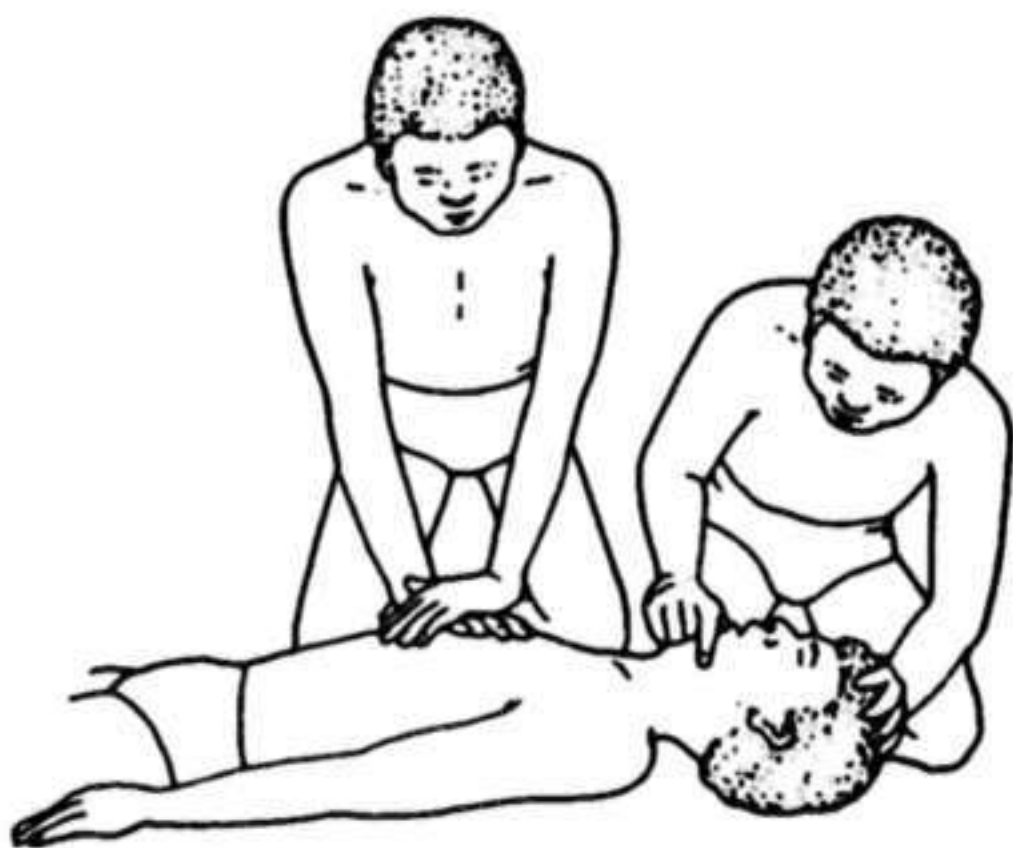
(f) For a young child use only one hand to compress the chest and for a baby use only two or three fingers (see diagram below). Also use less pressure when you push down. You must increase the rate though, to about 100 compressions per minute, i.e. almost two per second.



External cardiac massage on a child.



External cardiac massage on a baby.



External cardiac massage on an adult with two operators.

down straight away again as soon as the chest has been inflated each time. Seco-

When to stop: Clearly a situation where a comrade needs artificial breathing and cardiac massage to keep him/her alive is a life-threatening one. The comrade is obviously very seriously injured or ill and some of these comrades will die despite possible emergency first aid. If the comrade is going to recover s/he usually does so in the first five to ten minutes after you start the resuscitation (bringing back to life).

The longer it takes before the comrade

shows any signs of life, such as a gasp for breath or the heart starting to beat again, the less likely s/he to recover. If there are no signs of life within 30 minutes of starting resuscitation you should stop the procedure because the chances of the comrade recovering are almost zero. With a child or baby however it is worth continuing for longer, up to an hour, because children withstand the stress of cardiac arrest better than adults. If the comrade does show signs of life then you must continue for thirty minutes after that and work hard to try to save him/her.

With artificial breathing and cardiac massage it is possible to save comrade's lives, so it is always worth trying to resuscitate someone. Some comrades will die, it is true, but you will be able to save some. Therefore learn the technique well by practicing often so that you can go into action as quickly as possible.

Summary of cardiac massage

1. Try and wake the comrade up.
2. Get help — two or three other comrades.
3. Check the pulse and the breathing
From now on move fast.
4. Put the comrade flat on his/her back on a firm surface.
5. Kneel at the side of the comrade, put both your hands on the middle of the chest and, keeping your arms straight, press down sharply, hold compressed for a split-second and then release.
6. Do 70 compressions per minute.
7. Stop the cardiac massage only (i) to check the pulse, (ii) to allow artificial breathing to be done if this is difficult during cardiac massage. If it is not then continue doing both at the same time.
8. Cardiac massage and artificial breathing are hard work — take a break by letting someone else take over when you get tired.

NEXT ISSUE: Wounds, bleeding, and shock.



ADVANCE

Fast! Fast! Faster!

Molefe, Radebe, Ndlovu, Naidoo, Smith.

Pick up those spears!

Pick them up!

Come now, come! Stab fast, faster!

Continue, yes, continue! exactly, stab.

Continuously.

Don't stop! until we have completely

Eradicated this brutal monster,

Massive as it is, it's also mortal

Always bear that in mind!

This is one of those occasions

When these spears should be picked up

With greater haste.

Oh! What a loss!

What a loss!

But Botha, don't make a mistake!

These tears being shed now

Are definitely and surely

Not tears of sorrow,

They are hot tears of anger.

The people are fuming with anger.

Whow! Uyadela Botha,

Uzwe ngobani ukuthi UMKHONTO

Would let you get away with this?

Dedicated to comrades Cassius and Paul.

—Beauty Khuzwayo