RANGER LIFE SAVER
COACH MANUAL
FACT SHEETS

LEADRANGER

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RLS MANUAL FOR LEAD RANGER
DATED 18 JANUARY 2021

LESSON 1 | INTRODUCTION TO RLS

INTRODUCTION

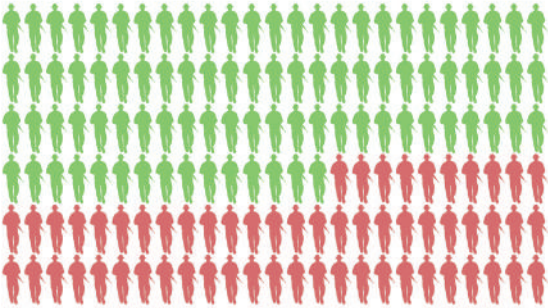
Every year, on average 150 (2020) rangers and scouts lose their lives in the line of duty. We know from the limited data available there are five main mechanisms of injury (MOIs) that cause these deaths. They are:

1. Gunshot wounds, either from confrontations with criminals or from the accidental/ negligible discharge of firearms.
2. Stab and cuts from confrontations with criminals.
3. Large mammal attacks from dangerous game, including buffalo, elephant, rhino, hyena and large cats.
4. Motor vehicle accidents, and
5. Venomous snakebites.

Some trauma (damage) sustained in the field is so severe it will lead to the casualty losing his/her life, regardless of the level of medical care available at the point of injury. For example, if the casualty has sustained severe trauma to the head from a gunshot wound and critical parts of the brain have been destroyed, there is nothing we can do in the field. Even if the patient would be brought to a medical facility with the best trauma surgeons in the world, this casualty would probably lose his/her life.

Kenya Wildlife Service Ranger being evacuated by helicopter after being struck by a Eastern Black Rhino. Note the C-A-T tourniquet applied to the lower left leg. Due to a quick intervention in the field this ranger survived the ordeal and has returned to service.
Photo courtesy of Sheldrick Wildlife Trust, © 2019

That said, we know that there is trauma which, if treated immediately in the field with the right skills and equipment, can be stabilized (slowed down or temporarily stopped to allow a casualty to be evacuated to definitive medical care). We know from research into emergency field care, and the limited data available from ranger deaths, that about 40% (2020) of all ranger deaths are preventable if we know what to do when it happens in the field and have the right equipment available. These so-called ‘preventable deaths” amount to approximately 60 ranger deaths per year (2020).



Therefore, it is important for all rangers and scouts to learn what to do when confronted with a casualty in the field. In these modules you will learn valuable lifesaving skills. If you learn and practice the skills taught, you will be able to effectively treat injuries - sustained from confrontations with criminals or large mammal attacks - and potentially save the lives of your fellow rangers, scouts or members of the community.

Aside from these lifesaving skills, in this module we will cover the treatment of venomous snakebites in the field

Snakebite on the heel of a juvenile victim.
Venomous snakebites are a major cause of deaths in Africa and Asia.

The late Royjan Taylor from BioKen in Kenya extracts venom from a Puff Adder in a process called milking. Venom is extracted to produce antivenom, helping to reduce the mortality rate of snake bite victims.

LESSON 2 | THE RANGER LIFE SAVER KIT

INTRODUCTION

The LEAD Ranger Life Saver Kit is provided as part of the LEAD Ranger Life Saver curriculum. As rangers we should be familiar with the kit, it's content and how we can service and maintain the kit so it is ready for deployment into the field. The kit needs to be taken with every team going into the field at all times so that if an incident happens the kit is available and ready for use.

RANGER LIFE SAVER KIT CONTENTS

1. RLS Card

This RLS Field Card serves as a reminder in the field during an incident

2. Pouch

The Ranger Life Saver Kit comes in a sand-colured pouch. The back has male velcro strips to attach the kit to other equipment like a backpack. It cas also be worn on a Molle vest or belt.

3. QuikClot Combat Gauze

Hemostatic dressing. Comes in a green vacuum packed packaging.

4. Bear Claw Gloves

Two sets of North American Rescue Bear Claw Glove Kits. These nitrile gloves are packed per two per kit with a brown paper wrapping.

5. Compressed Gauze

North American Rescue Compressed Gauze. Comes in a clear vacuum packed packaging.

6. Smart Snake Bite Bandage

This bandage is used to apply pressure to a limb when the casualty is bitten by a Black Mamba or one of the non-spitting Cobras (only!)

7. C-A-T

North American Rescue Combat Application Tourniquet in orange for ease of identification. The C-A-T is prepared in the Quick Launch Configuration.

8. Pressure Dressing

North American Rescue 4" Emergency Trauma Dressing. Comes in a green vacuum packed packaging.

9. Chest Seals

North American Rescue HyFin Vent Chest Seal Twin Pack. Comes in a white vacuum packed packaging and consist of two separatily packed Chest Seals which can be separated along the perforated line.

10. Trauma Shears

Trauma Shears, black plastic handles and steel with black coating.

11. Rescue Sheet

Gold and silver colored two-sided Rescue Sheet. Comes in clear plactic packaging.


1. RLS Card
2. Pouch
3. QuikClot Combat Gauze
4. Bear Claw Gloves
5. Compressed Gauze
6. Snakebite Bandage
7. C-A-T
8. Pressure Dressing
9. Chest Seals
10. Trauma Shears
11. Rescue Sheet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SERVICE AND MAINTENANCE

The Ranger Life Saver Kit is low maintenance. However, immediatly after every patrol the contents should be inspected to ensure the contents are ready for deployment on the next patrol. During inspection, pay close attention to the following:

1. Are all the listed contents present in the kit? If not, contact management for replacement before deploying the kit in the field.
2. Are there any damages, rips, tears or missing buttons on the Carry Bag and/or Pouch? If so, contact management for replacement or repairs.
3. Are the carry bag and contents dry? If not, dry in a shaded place, not in direct sunlight!
4. Are the C-A-Ts in the Quick Launch Configuration? If not, put the C-A-Ts in the Quick Launch Configuration.
5. Is the packaging of the contents of the RLS Kit clean and undamaged? Pay special attention to the vacuum packed packaging. If dusty or muddy, gently clean with water. If vacuum packaging is damaged, contact management for replacement.

If done correctly, this will only take about 5-10 mins, and ensures that the kit is ready if needed in an emergency situation. Team leaders should inspect before and after every patrol.

PATROL USAGE

In a low to medium risk environment, every independant team going into the field should carry one Ranger Life Saver Kit. In a high risk environment, it is highly adviced that at least one kit per 4 teammembers is carried. Alternatively, in a high risk enviroment the choice can be made to carry one C-A-T per patrol member, and two RLS Kits per patrol.

IMPORTANT!

The Ranger Life Saver Kit can only be used in case of an emergency if the kit is taken on patrol every time. Management and teamleaders have a responsibility to enforce the carrying of the RLS Kit on every patrol!

LESSON 3 | SCENE SAFETY

What is Scene Safety?

Scene Safety is the freeing of an emergency scene of immediate dangers and hazards. In other words, it is the steps we take to ensure that the scene of the incident is safe for the team to attend the casualty.

Why Scene Safety?

We need to make sure the scene of the incident is safe to enter, and the team can reach the casualty safely and start the treatment.

A scene that is not safe can result in more casualties.

Guiding principles

To render a scene safe while the threat is still active, we need to:

1. Avoid further casualties
2. Remove the threat from the team, or
3. Remove the team from the threat

These actions may take time, depending on the circumstances. As we deal with the threat, treatment for our casualty is limited to applying a hasty tourniquet in case of life-threatening bleeding in one of the extremities. We may also need to carry or drag the casualty away from the threat to a position of cover. Once the threat is neutralized, we establish an all-round defense.

Communicate!

During a chaotic incident it is very important to communicate with your other team members. Know where the other team members are, where the patrol leader is, where the threat is, and if anyone is injured. Don’t wait until you are called. call out to the team members close to you and the patrol leader, and let them know where you are, what your situation is and what you see. Only then can the team make a good plan how to deal with the situation.

Remove the threat

If you can not remove yourslef and the team from the threat, you will have to try to remove the threat. depening on the situation, this can mean chasing away or killing an animal, and arresting or chasing away suspects. When the situation is life-threatening, you may have to be prepared to defend your life and the life of others with any means necessary.

Remove the team

If you can not remove the threat, you will have to remove the team. You may have to run or crawl away to a position of cover, remove a casualty from a burning vehicle or take cover from shots fired by a suspect. Don't leave anyone behind, and carry casualties to a position of cover. Casualty drags and carries are covered in lesson LESSON 4 | DRAGS AND CARRIES.

Secure the area

Once the threat is neutralized or we have reached a position of cover, we establish an all-round defense. Members of our team who are not directly needed to attend the injured, will have to position themselves around the casualties and observe outward. It may be possible that the threat returns, and the all-round defense ensures that the team is alerted early and can take protective measures.

Alert HQ

At the earliest opportunity, send a brief message to command by any available means. Make sure to include the W5H - as covered in LESSON 21 | COMMS1 | W5H. The sooner command knows about the situation, the sooner they can task people to support you.

Task other to help.

If you are treating a casualty, don't hesitate to ask other people to asssist you in the treatment. even if they are not Ranger Life Saver trained, they can assist with talking to the casualty, put pressure on a wound or immobilise the head.

LESSON 4 | DRAGS AND CARRIES

What are casualty drags and carries?

When we are not able to remove the threat, we will have to move the team to a position of cover and relative safety. Casualty drags and carries are methods we use to move a casualty to a position of cover quickly and as safely as possible.

When do we use these drags and carries?

We use these methods when there is still an active threat and we have to quickly move a casualty to a position of cover, while minimising the risk to ourselves and the casualty.

For reference of the techniques, watch the following videos on **my.leadranger.org**:

One-Person Assisted Walk
The one-person assited walk is a quick and easy method to assist a casualty that can still walk (with support)

Two-Person Assisted Walk
The same as the one-person assited walk, the two person assisted walk is faster and will give the casualty more support.

One-Person Underarm/Equipment Drag
When the casualty is no longer able to stand up, you can drag by grabbing under the arms, or grabbing any vest or clothing and drag him/her to safety.

Two-Person Underarm/Equipment Drag
Same as the one-person underarm/equipment drag. With two people you will be faster and able to go a further distance without resting.

Neck Drag
This method can be used when you soemone as shooting in your direction, and you need to move a casualty to safety.

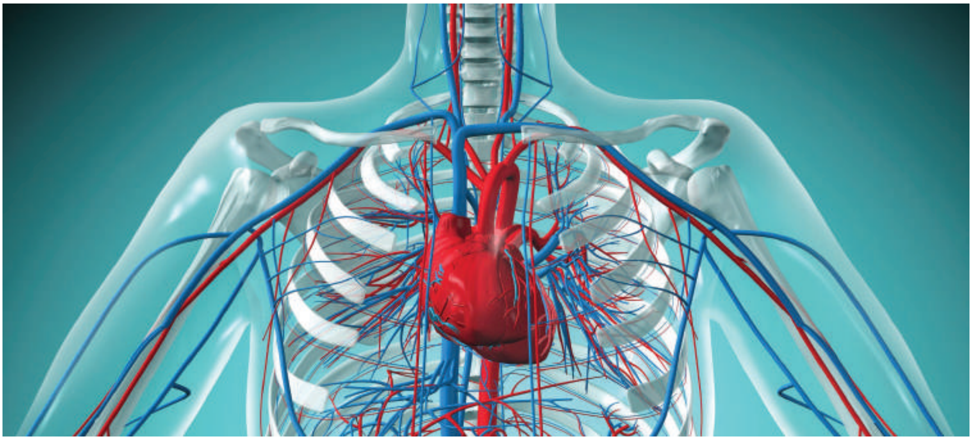
LESSON 5 | STOP THE BLEED

INTRODUCTION

Casualties with severe injuries can bleed to death in as little as 3 minutes. Because rangers often operate in remote areas and it takes a considerable amount of time to get someone evacuated, we must stop any catastrophic bleeding as quickly as possible and keep as much blood in the body as we can. Treating catastrophic bleeding, therefore, is our immediate priority.

BLOOD, HEART AND VESSELS

The blood in our bodies is crucial for our survival. It transports nutrients and oxygen to all the cells in our body and carries waste away from those cells. Without enough blood, oxygen and nutrients are no longer able to reach our cells, and those cells will start dying. When cells die, our tissue and organs are damaged and will ultimately stop working. When that happens, our casualty is dying.



Blood is transported through our body through the cardiovascular (cardio = heart, vascular = vessels) system. The heart pumps blood, and arteries and veins transport this blood to all cells in our body.

As the blood comes from the heart, the pressure in these arteries is high, and the blood is bright red because of the high oxygen content. The cells will use the oxygen and nutrients and the waste products from the cells are transported back to the heart through veins. The pressure in the veins is lower, and the blood is a darker red as there is a lower oxygen content.

Adults have between five (5) to seven (7) liters of blood in their system. If we start losing blood, our body will begin to shut down. Casualties with severe injuries can bleed to death in as little as 1 minute!
It is, therefore, of the utmost importance to find any wounds and stop massive life-threatening bleeding to ensure that as much of the blood stays inside the body.

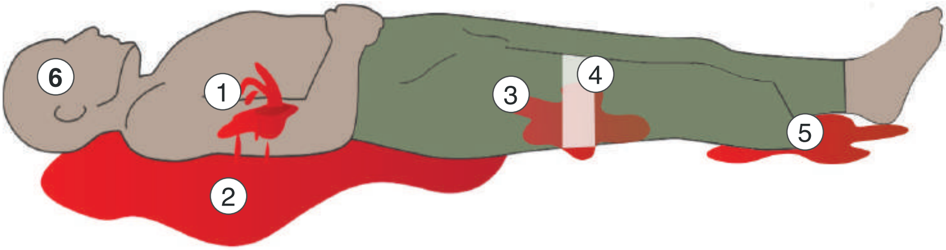
WHAT IS CATASTROPHIC BLEEDING?

Catastrophic bleeding is bleeding which, if not controlled, will lead to death.

HOW TO RECOGNISE CATASTROPHIC BLEEDING

Signs of catastrophic bleeding are:

1. There is pulsing or steady bleeding from the wound.
2. Blood is pooling on the ground.
3. The overlying clothes are soaked with blood.
4. Bandages or makeshift bandages used to cover the wound are ineffective and steadily becoming soaked with blood.
5. There is an amputation of an arm or a leg.
6. There was prior bleeding, and the patient is now in shock (i.e., unconscious, confused, pale).



Internet Search Words
- Cardiovascular system
- Circulatory system
- Catastrophic bleeding
- Massive bleeding
- Hypovolemic shock

LESSON 6 | THE BLOOD SWEEP

THE BLOOD SWEEP

The **BLOOD SWEEP** is a sytematic way of checking for catastrophic bleeding in our casualty. We pay special attention to the areas where the arteries are closest to the surface of the skin. These are:

- Neck
- Armpits
- Groin
- Inside of knees

The **BLOOD SWEEP** is performed in the following way:
Using both hands, start by feeling the front/back of the neck, looking for blood on your hands. From the neck, move down to sweep each arm, one at a time starting at the arm pit, stopping every few inches to look for signs of blood on your hands. Continue down to sweep each leg, one at a time starting at the groin, stopping every few inches to look for signs of blood on your hands.

If during the sweep, you encounter any massive bleeding, immediately apply tourniquet(s) (see LESSON 7 | THE C-A-T TOURNIQUET). If the injury is in a location where a tourniquet cannot be used (groin, armpit or neck) pack wound(s) and apply pressure bandage (see LESSON 8 | WOUND PACKING) Continue the blood sweep until all the extremities have been checked.

For reference of the techniques, watch the following videos on **my.leadranger.org**:

The Blood Sweep
A quick casualty assessment to find any catastrophic bleeding.

LESSON 7 | THE C-A-T TOURNIQUET

BASIC ORIENTATION TO A TOURNIQUET

There are different types of tourniquets, but the most common tourniquet is the Combat Application Tourniquet (C-A-T). This is also the tourniquet that is provided as part of the Ranger Life Saver Kit.

The C-A-T has several notable parts:

1. Windlass rod (used to twist and tighten the tourniquet)
2. Windlass clip (used to secure the rod)
3. Windlass safety strap (to keep the rod from becoming unsecured)
4. Routing buckle (for routing the tourniquet band after it has been looped around an arm or a leg)

C-A-T tourniquets come in three colors; black, orange and blue.
The black one is often used in a tactical environment. In RLS kits we use the orange C-A-T because of its visibility. The blue C-A-T is used for training. The blue (training) tourniquet is exactly the same as the black and orange ones.The blue color is used to show a training C-A-T which may be used repeatedly to practice which may potentially weakening the tourniquet.

TOURNIQUET APPLICATION OVERVIEW

Let’s review how a tourniquet works and when a tourniquet should be applied.

A tourniquet cuts off the flow of blood to the arm or leg past the application site and is the best method to control massive bleeding from an arm or a leg.

Tourniquets can be self-applied or applied to a casualty using either a one-handed or two-handed technique. Self-application of a tourniquet might also save your life.

A tourniquet will hurt when applied correctly, because it must be tight enough to stop the blood flow.

Remember to tell the casualty that pain is expected and is an indicator that the tourniquet is being applied properly (tight enough).

IMPORTANT!

The application of a tourniquet to a massive bleed is time-sensitive! The tourniquet should be applied to stop bleeding within 1 minute and be fully secured within 3 minutes. **A casualty with massive bleeding that is not controlled can die within 3 minutes!!!**

DURATION OF TOURNIQUET PLACEMENT

Optimal time is less than 2 hours (considered safe duration), after 3 hours, tissues begin to die. After 6 hours of application, limb loss can occur.

COMMON ERRORS WHEN APPLYING A TOURNIQUET

1. The self-adhering strap is NOT pulled tight enough. There is slack in the strap.
2. The windlass rod is NOT twisted tight enough to stop the bleeding. Note: It typically takes several twists to stop the bleeding.
3. The tourniquetis NOT applied, and bleeding is NOT stopped within 1 minute. Tourniquets can loosen over time; keep a close eye on even after the tourniquet has been fully applied.

HASTY VS. DELIBERATE PLACEMENT

A HASTY C-A-T PLACEMENT is applied during an active threat situation. This type of tourniquet is placed “high and tight” and over the clothing on a casualty’s extremity. During this phase there is very little time for anything else, as the team needs to deal with the threat first. By placing the tourniquet high and tight over the clothing, we ensure that - regardless of the location of the wound on the extremity - the blood flow to the wound is stopped and the bleeding is controlled.

Once the casualty is in a safer position, you should reassess the source of bleeding and the effectiveness of the hasty tourniquet and reapply if necessary. Also, if no tourniquet has been placed yet and you need to control massive life-threatening bleeding on an extremity you use the trauma shears to open equipment and clothing and identify the source of bleeding. You then place a tourniquet three (3) fingers above the wound. This is called a DELIBERATE C-A-T PLACEMENT since its placement is more targeted.

HASTY TOURNIQUET
“high and tight” and over the clothing on a casualty’s extremity.

DELIBERATE TOURNIQUET
Use the trauma shears to open equipment and clothing and identify the source of bleeding. You then place a tourniquet three (3) fingers above the wound.

For reference of the techniques, watch the following videos on **my.leadranger.org**:

C-A-T Field Configuration

C-A-T One-handed Application

C-A-T Two-handed Application

C-A-T Hasty Placement

C-A-T Deliberate Placement

LESSON 8 | WOUND PACKING

INTRODUCTION

Depending on the type of injuries, you may also need to pack wounds and apply a pressure bandage. Wounds should be packed with a hemostatic dressing, which contains a special chemical agent that promotes blood clotting.

BASIC ORIENTATION TO QUIKCLOT COMBAT GAUZE

There are different types of hemostatic dressings, but the most common gauze is QuikClot Combat Gauze. This is also the gauze that is provided as part of the Ranger Life Saver Kit.

QuikClot Combat Gauze has several notable parts:

1. Vacuum packed wrapping.
2. 7,5 cm X 3,7 m hemostatic dressing, z-folded for ease of wound packing. Impregnated with Kaolin to promote clotting.
3. Blue X-ray reflective line.

Wound Packing

WOUND PACKING OVERVIEW

Let’s review how wound packing works and when wound packing should be applied.

First and foremost, by wound packing a wound we apply pressure into the wound by packing the gauze tightly into the wound. This pressure allows the flow of blood to significantly slow down and even stop. It is important to identify the point of bleeding inside the wound, so that the gauze can be pressed directly into the point of bleeding. We then pack the wound tightly with gauze to apply pressure. The Kaolin - the mineral that promotes clotting - then aids the body in forming a clot.

Do not pack wounds to the chest or the abdomen.

After the wound is tightly packed, we need to apply at least three (3) minutes of continuous pressure to allow the Kaolin to work. After three (3) minutes, we apply a pressure bandage to keep pressure on the packed wound.

IMPORTANT!

After tightly wound packing with hemostatic gauze, you will need to apply three (3) minutes of steady pressure to allow the Kaolin to aid the body in forming a clot. Don’t move the gauze while you’re applying pressure. It may dislodge the clot and the bleeding will continue.

IMPROVISED WOUNDPACKING TECHNIQUE

If you don’t have access to a hemostatic dressing, you can use any gauze - like the Compressed Gauze provided in the Ranger Life Saver Kit - or a clean cloth to pack wounds. The technique is the same.Remember, pressure is a form of treatment. In those cases, holding firm direct pressure will be the best option until a medic arrives.

When using non-hemostatic gauze or clean clot, we have to apply at least ten (10) minutes of continuious pressure. It is recommended to ask a teammember to apply the pressure while the blood sweep and further casualty assessments are being done.

LESSON 9 | THE TRAUMA DRESSING

PRESSURE BANDAGE

Generally, you should apply a pressure bandage over a packed wound. Use short tugs as you wrap the bandage and continue to wrap using tension. Be careful not to wrap too tight and always check below the dressing to ensure the skin is still pink and warm to the touch. Ensure that a pulse is still present.

The ETD can also be used to sling and swath an arm, to secure splints to an extremity or to perform in any other function requiring an elastic wrap.

In Ranger Life Saver, we use the Emergency Trauma Dressing (ETD) 4”. It has some great features to allow for ease of application.

The Emergency Trauma Dressing

LESSON 10 | KEEP THEM BREATHING

INTRODUCTION

After catastrophic bleeding is controlled, you move on to Airway.

You must ensure a casualty's airway is open. If they are awake and talking to you, this means their airway is open. However, the casualty may still have difficulty breathing.

If the casualty is unconscious, you need to inspect the airway for any obvious blockages.

The signs and symptoms of airway obstruction include:

- Severe trauma to the face.
- Blood or foreign objects in the airway.
- Casualty is indicating that they can't breathe.
- A casualty making snoring or gurgling sounds.

If a foreign body is seen in the airway, you can attempt to remove it; but, do not put your fingers in the mouth to try to find or remove any unseen objects that might be causing an obstruction. Do not do a blind finger sweep!

Obstruction in the airway. For example, this can be bone fragments or teeth, or blood or vomit. You will hear a weezing or gargling sound.

When an unconcious casualty is on his back, there is a big chance that his/her tongue will fall back into the airway and block it. You will hear a snoring sound.

Internet Search Words

- Airways
- Airway management
- Blocked airway

LESSON 11 | OPEN THE AIRWAYS

When do we use the airway management techniques?

We use these methods when the casualty has a compromised airway. By using these techniques, we open the airways and ensure oxygen can reach the lungs of our casualty.

For reference of the techniques, watch the following videos on **my.leadranger.org**:

Posturing
We can aid a conscious casualty by positioning him/her to help keep the airways open.

Safe Airway Position (SAP)
Putting someone in the recovery position will keep their airway clear and open. It also ensures that any vomit or fluid won't cause them to choke.

Chin-Lift Maneuver
This maneuver will open the airway and lift the tongue off the back of the throat.

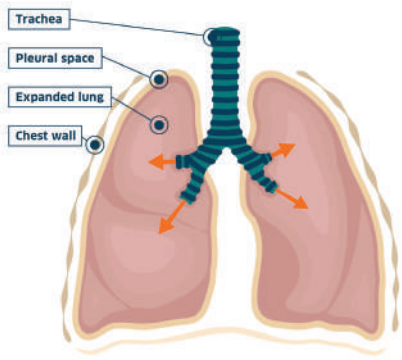
Jaw Thrust Maneuver
A jaw-thrust maneuver should be used if there is a suspected neck injury.

LESSON 12 | CHEST TRAUMA

INTRODUCTION

After the airway is open, you assess if the lungs can function. Exposure to smoke or toxic inhalants can cause difficulty breathing, but other injuries can also lead to respiratory distress.

Signs of respiratory distress include:

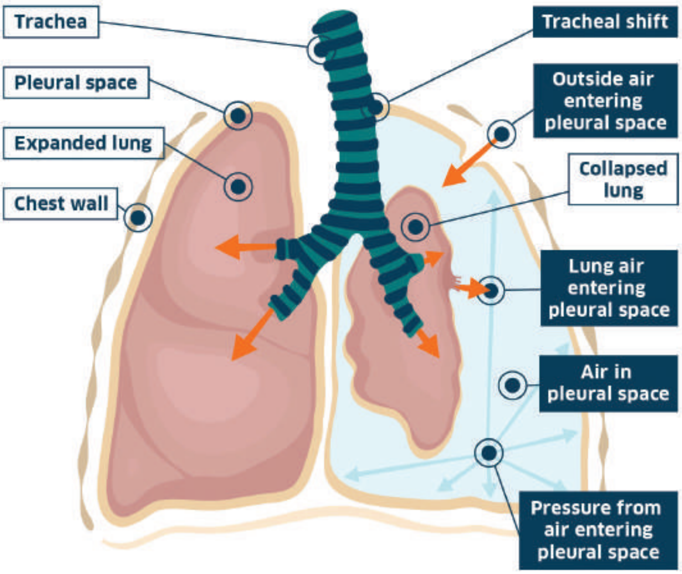


- Difficulty breathing
- Struggling to get air in and out
- Breathing too weak to be effective (breathing less than 6 times per minute)
- Rapid breathing (greater than 20 times per minute)

Casualties having a hard time breathing may also have penetrating chest wounds. It is critically important to report findings of RESPIRATORY DISTRESS to medical personnel at the scene or enroute to the casualty.

TENSION PNEUMOTHORAX

Tension pneumothorax can also result in respiratory distress. There are two types of chest injuries that can lead to a tension pneumothorax. Penetrating injuries, like those seen in gunshot wounds or shrapnel, or blunt trauma vehicular accidents or large mammal attacks.



At this stage it is time to perform a CHEST EXAM. This can either be done sitting up if possible or by rolling the casualty to examine the front and back of the torso to check for chest trauma (in case of suspected spinal or neck trauma).

If you notice any holes, do not pack these chest wounds with a hemostatic or other dressing as highlighted earlier. Any penetrating chest trauma should be covered with a CHEST SEAL.

BASIC ORIENTATION TO A CHEST SEAL

There are different types of chest seals, but the most common one is the Hyfin Vent Chest Seal. They come in a twin pack and are provided as part of the Ranger Life Saver Kit. Chest seals are used to close any penetrating chest injuries, while still allowing air in the chest cavity to escape through a vent.

The Hyfin Vent Chest Seal has several notable parts:

1. Vacuum packed wrapping, twin pack.
2. Three-vented channels to allow air to escape but not enter the chest cavity.
3. Hydrogel technology to allow the chest seal to be applied to a casualty covered in blood, sweat, hair etc.
4. Red tabs for identifcation and ease of application

The Chest Exam

Hyfin Chest Seal Application

Internet Search Words
- Respiratory system
- Tension pneumothorax
- Open chest wounds

LESSON 13 | HYPOTHERMIA

INTRODUCTION

Massive bleeding leads to hypothermia and, in turn, hypothermia leads to MORE bleeding because the blood cannot clot when the casualty is cold. This can occur even in hot environments. You must break this vicious cycle!

Hypothermia is a medical emergency that occurs when your body loses heat faster than it can produce heat, causing a dangerously low body temperature. Normal body temperature is around 37 °C. Hypothermia occurs as your body temperature falls below 35 °C.

It is important to identify the signs of hypothermia. Some easily recognizable signs of hypothermia are: slurred speech or mumbling, slow breathing and drowsiness, and shivering.

This is not hypothermia due to cold weather, but you can prevent it by:

- Keep clothing/uniform on the casualty.
- Replace extremely wet clothing if possible and keep the casualty dry.
- Keep the casualty off the ground, by placing a barrier between the casualty and the ground or lifting them off the ground, if possible.
- Use dry blankets, poncho liners, sleeping bags, or anything that will retain heat.
- Minimize the casualty's exposure to the environment.

TRAUMA TRIAD OF DEATH, or LETHAL TRIAD

Severe bloodloss leads to hypothermia, which in turn causes a lesser ability for the body to form a clot (decreased coagulation) which leads to coagulopathy (inability to form a clot). Due to processes in the body this leads to a build-up of lactic acid in the blood (acidiosis) which causes the heart to perform less well. This triangle needs to be broken by hypothermia prevention!

IMPROVISED THERMAL WRAP

We can use the Rescue Sheets in the Ranger Life Saver Kit to improvise a Thermal Wrap. This technique can be used to retain as much heat in the casualty as possible. For this technique you will need three Rescue Sheets.

IMPORTANT NOTE!

Putting the casualty next to a fire or in direct sunlight does not improve the core temperature of a hypothermic casualty. Remember, he/she lost a ot of blood and therefore the heat on the skin can not be transported to the core of the body. There is actually a higher chance of burns.

The Thermal Shield

Internet Search Words

- Lethal triad
- Trauma triad of death.

LESSON 14 | BREAKS

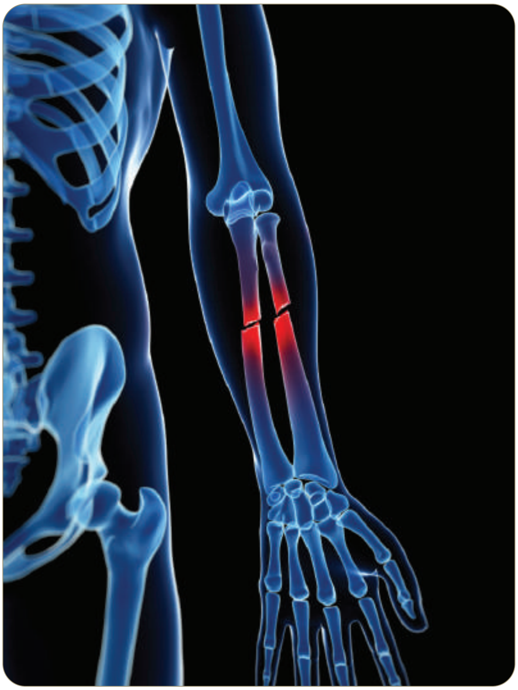
INTRODUCTION

A fracture is a broken bone. It can range from a thin crack to a complete break. Bone can fracture crosswise, lengthwise, in several places, or into many pieces. Most fractures happen when a bone is impacted by more force or pressure than it can support.

As rangers, we need to know about the following types of fractures:

- Open fractures; an open fracture is a fracture where the breaks through the skin.
- Closed fractures; the bones is broken but it has not gone through the skin.

A fracture can be very painful for the casualty and may make it difficult to evacuate him/her. The sharp edges of fractures can damage tissue, nerves and blood vessels, and may become a life-threatening problem. In order to relieve pain, avoid further damage and allow the casualty to be evacuated, we need to know how to plint a fracture.



Splinting a Fracture

BASIC PRINCIPLES FOR SPLINTING A FRACTURE

The indicators that a casualty has a fracture are the following:

- Pain. Often the casualty, if concious, can pinpoint the exact location of the fracture.
- Severe bruising
- A false joint; the extremity is bending in unnatural locations or positions.
- Reduced range of movement below the fracture.
- An open fracture, where the bone has protruded out.
- The casualty or bystander reports a snap, crack or popping sound, or a sensation of grinding.

Once a fracture is suspected, follow these steps:

1. Ask the patient to hold and stabilise the fracture, or ask a fellow ranger or bystander. Hold it as comfortable for the casualty as possible, and avoid any unnecessary movement.
2. Assess CMS
3. Decide how to plint, and gather resources. In case of a bone fracture, immobilise the joint above and below. In case of a joint - for example the elbow - immobilise the bone above and below.
4. Size the splint on the uninjured extremity.
5. Move the splint to the fractured extremity. It is important to communicate clearly with the casualty and take over the stabilisation.
6. Use the snakebite bandage to wrap the splint around. You can use a sling if required.
7. Recheck CMS. If reduced, unwrap the bandage and resplint; it was probably too tight.

CHECKING CIRCULATION, MOTION AND SENSATION (CMS)

1. Circulation; pinch the top of a finger or toe of the fractured extremity. The color should return within 2 seconds.
2. Motion; ask the casualty to move his/her fingers or toes, or squeeze your hand.
3. Sensation; gently touch the tips of all fingers or toes. The casualty shoul dbe able to feel it. A tingling sensation in the hand is not normal and the spinlt may be too tight.

Important note: if CMS is not normal, the casualty may be at risk at losing the extremity. Reapply the splint, if the splint has not been placed yet prioritize evacuation.

Internet Search Words

- Splinting
- Fractures
- CMS

LESSON 15 | BURNS

INTRODUCTION

A burn is an injury caused by thermal, chemical, radiation or electrical energy.

Thermal burns are the most common cause of burns. Not only does it cause damage to the skin, it also carries a risk of inhalation injury. An inhalation injury refers to a burn anywhere in the respiratory system. The signs of inhalation injury include singed nasal hairs, carbon particles in the sputum (coughed up phlegnm and hoarseness. If there is concern about significant airway injury the casualty needs to be transported to the hospital as soon as possible. Swelling of the airway worsens over the first 24-48hrs after acute injury. An example is burns from boiling water, or a vehicle fire.

Electrical burns cause injury by a combination of thermal injury and the direct effects of the electrical current to the tissues. They are often more serious than they may appear on the surface. Muscle is typically the most affected in this sort of injury. An example is electrocution from exposed wires.

Chemical burns cause damage by reacting to the tissue proteins which ultimately leads to tissue death. Chemicals that remain in contact with the skin will continue to cause damage until they are removed or neutralised. An example is a casualty drowsed in fuel from a vehicle accident or an aircraft crash.

STEPS TO TAKE:

1. Stop the burning process by removing all clothing from the affected area (do not peel off adherent clothing)
2. Rinse with copious amounts of warm tap water
3. Cover the area with gauze soaked in clean drinking water.

Burn Treatment

DETERMINE DEPTH OF THE BURN

Burns are classified as first, second and third degree depending on the depth of the injury.

Superficial (1st-degree burn)

Injury to the superficial surface of the skin (like a sunburn). The epidermis remains intact. Features include erythema, pain and absence of blisters. Normally heals within 1-2 weeks with no scarring.

Partial thickness (2nd-degree burn)

Involves the dermis which can range from superficial dermal to deep dermal. Blisters, severe pain, hypersensitivity and weeping skin are features. Takes 2-8 weeks to heal (depending on depth).

Full thickness (3rd-degree burn)

Complete destruction of the dermis and may extend to the subcutaneous tissue. Clinical features include a thick leathery feel, pallor, loss of sensation and absent capillary refill. This type of burn usually requires skin grafting and surgical management.

4th-degree burn

Involves the fat, muscle and sometimes bone. May require amputation.

Note:

Burns tend not to be uniform, there may be areas of 1st, 2nd, 3rd-degree burns in any given area.

They are also dynamic and need constant reassessing in the first 48 to 72 hours as their depth can change due to inadequate treatment or superadded infection.

2nd-degree burns or higher, and any bruns covering more than 20% of the body need to be attended in a hospital.

LESSON 16 | BELLY

Some penetrating abdominal wounds can result in evisceration, a protrusion (coming out) of the organs outside the abdominal wall.
This is a commonly occuring injury when the casualty has been attacked by a bufallo. As a method of defense, buffalo's will try to attack the soft underbelly of their threat with their very sharp horns. Although common this is not limited to buffalo attacks. Other animals may cause similar trauma, as well as gunshot wounds.

In order to protect the organs that have protruded out of the abdominal wall, we need to consider the following:

Dressing an Abodminal Evisceration

- Don't try to push any organs back into the body.
- If possible clean the area with clean water
- Cover the protruded organs with a bandage that has been wettened with clean water, or;
- Cover the wound with cling film.

By doing so, we protect the protruding organs from infection, drying out and any further complications.

Internet Search Words

- Abdominal evisceration
- First aid for abdominal eviscerations

LESSON 17 | OTHER BLEEDING

INTRODUCTION

At this point in the RLS protocol, we treat any other bleeding.
It’s important to clean a wound before applying a dressing. This will reduce the risk of infection and encourage the healing process. A dressing is then used to stop any bleeding and protect the wound.

WOUND INFECTION

Wounds heal best when they are clean and free from germs. Normally, many germs live harmlessly on our skin and in the environment around us. Normally the germs live on our skin, or in areas such as our nose, without causing any problems.

Usually the skin acts as a barrier. If the skin is broken germs may spread into the more sensitive tissues underneath. This is how an infection can start. This makes the tissues sore and swollen, and less likely to heal. Open wounds are more likely than closed wounds to develop infections. This is because the break in the skin provides a route for the germs to travel from the outside to the inside.

By cleaning and dressing any other bleeding, we prevent further bloodloss and help prevent infections. This is very important for the healing process of the casualty.

LACERATION

A laceration is a wound that occurs when skin, tissue, and/or muscle is torn or cut open. Lacerations may be deep or shallow, long or short, and wide or narrow. Most lacerations are the result of the skin hitting an object, or an object hitting the skin with force.

PUNCTURE

A puncture wound is a deep wound that occurs due to something sharp and pointed, such as a nail, knife or sharp piece of wood. The opening on the skin is small, and the puncture wound may not bleed much. Puncture wounds can easily become infected.

ABRESION

An abrasion is a type of open wound that’s caused by the skin rubbing against a rough surface. It may be called a scrape or a graze. When an abrasion is caused by the skin sliding across hard ground, it may be called road rash. Abrasions are very common injuries.

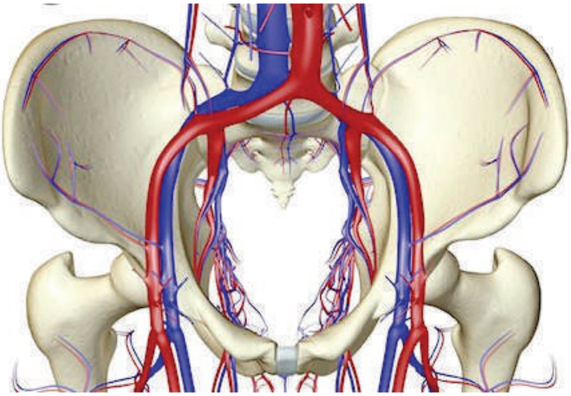
Puncture wound

Laceration

Abresion

LESSON 18 | PELVIC INJURY

PELVIC INJURY



Due to the large arteries and veins running along the pelvis a fracture in the pelvis can be life-threatening and lead to massive internal bleeding. Internal bleeding can't be treated in the field, so we need to ensure that any fractures in the pelvis will not damage arteries and veins.

When spinal cord injury is suspected and we have decided that we are going to immobilise the casualty, we should always apply a pelvic binder.

We should also apply a pelvic binder if:

- There is a High Risk Mechanism of Injury
- Casualty not alert?
- Pain in the pelvic area

The Improvised Pelvic Binder

Internet Search Words

- Pelvic fracture
- Pelvic injury
- Improvised pelvic binder

LESSON 19 | SPINAL CORD INJURY

INTRODUCTION

Spinal cord injury is damage to the spinal cord that causes temporary or permanent changes in its function. Spinal cord injury can be potentially very dangerous, and may result in the casualty losing permanent function in parts of his/her body.

HIGH RISK MECHANISMS OF INJURY

Not every mechanism of injury (MOI) has a high risk chance of spinal cord injury. For instance, we know that the chance of spinal cord injury in gunshot wounds (GSW) is negligable. There are however mechanisms of injury that carry a high risk of spinal injury:

- Fall from two (2) meters or higher.
- Vertical load to the spine – diving into water and bumping head on rocks or pool bottom.
- Motor Vehicle Accident (MVA), faster than 60 km/h, or with rollover,being thrown from the vehicle, pushed into oncoming traffic or a motorbike collision.
- Large mammal attack, i.e. elephant, buffalo, rhino.

Treatment for spinal cord injury in the field is very limited. However, we can immobilise the casualty and prevent further damage to the spinal cord. Immobilising the casualty will slow down his/her evacuation considerably. This can be a problem if other injuries require the casualty to be evacuated immediatly, or there is a limited availablity of air assets. We therefore have to be smart and precise in deciding if the casualty needs to be immobilised.

▶ **The Log-roll**

▶ **Immobilising a Suspected Spinal Injury**

CONSIDERATIONS WHEN DECIDING TO IMMOBILISE THE C-SPINE

When assessing for spinal cord injury, we consider the following factors:

Is there a High Risk Mechanism of Injury? And;

- Intoxicated?
- Unconcious?
- Confused, disoriented or slurred speech?
- Midline spinal pain anywhere along the length of the spine?
- Loss of sensation, or “pins and needles”?
- Loss of normal color, sensation and movement in extremity?

C-SPINE IMMOBILISING THE CASUALTY DURING MARCH

When spinal cord injury is suspected and the decision is made to immobilise we need to start with immobilisation as early as possible in the treatment. During the RLS protocol we need to ensure we minimise any movement to the neck, spine and pelvis. Voluntary spinal movement - if the casualty moves him/herself - within the patient’s normal range of motion is safe and can be allowed. Don’t pin the casualty down if he / she wants to move voluntarily.

NOTE! If there is still an active threat and we can not remove the threat, we will have to move the casualty to safety. This is more important than protecting the spinal cord!

Restrict movement of the head first, then spine and then pelvis. From head to toes!
During Airway, we use the jaw thrust technique to open the airway if required. During the chest exam, we log-roll the casualty on his/her side to check the back for any penetrating chest injuries. For the rest of treatment, we try to restrict movement to the casualty as much as possible.

Once we have taken care of the immediately life-threaetening injuries, we can now assess more precisely whether immobilisation is necessary using the considerations above.

Internet Search Words

- Spinal cord injury
- CSI injury

LESSON 20 | COMMS 1 | W5H

INTRODUCTION

It is important to communicate any incident with command as soon as the situation permits. Command can then coordinate any required responses and can send other ranger units, medical assistence, additional security units or air assets to your location. Additionally, medical facilities can be alerted about the incident and can be put on standby.

WHAT INFORMATION NEEDS TO BE SEND

Command will need factual information about the incident to organise an appropriate response. In order to cover all important information, we send the so-called W5H. Some organisations use standardised incident reports to cover the W5H.

W5H

W5H stands for Who, What, Where, When, Why and How.

WHO

Command needs information about who is involved in the incident. Which unit is involved, and are there any injured personnel? Clearly state your callsign.

WHAT

What happened? Give a brief description about the incident, the current situation on the ground, the threat-level, and what the injuries are of the injured personel. Also state currect medical treatment that has been given. State what kind of support you require.

WHERE

Where is the incident. Be as specific as possible. Either use a grid coordinate, or a specific landmark or known location to let command know where the exact location of the incident is.

WHEN

When did the incident happen? This can be either a precise time, or related to your current time (“twenty minutes ago”).

WHY

Briefly state why the incident happened. The cause of the incident may still pose a threat to the other personnel coming to your aid. An example is an attack by an elephant, and the elephant may still be in the area. Command may decide to warn other ranger units in the viscinity.

HOW

You are the team on the ground, and you may have a good idea on how best to go forward in securing the area and evacuating the casualty or casualties. Briefly tell command what you need, and how they can support you best.

LESSON 21 | COMMS 1 | RADIO

INTRODUCTION

Once W5H has been compiled we have to send this information over any means available to command. In the initial confusion during and after an incident, it is very easy for information to be misunderstood. As the team on the ground, it is therefore of the utmost importance to communicate clear, concise and unambiguous.

CLEAR

When sending a message, make sure you speak slow and with a clear voice. Regardless of the stress you are experiencing, try to calm yourself. Your job now is to get help by communicating clearly.

CONCISE

Talking on a radio is not the same as a phone. When you are sending your message, no one else can use that radio channel at the same time. Command may need to reach other units to task them to your location to support you. A long, conversational message will block all other communication. Make sure your message is concise, i.e. it contains all important information but is as short as possible.

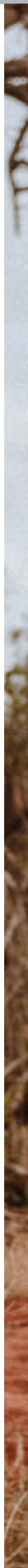
UNAMBIGUOUS

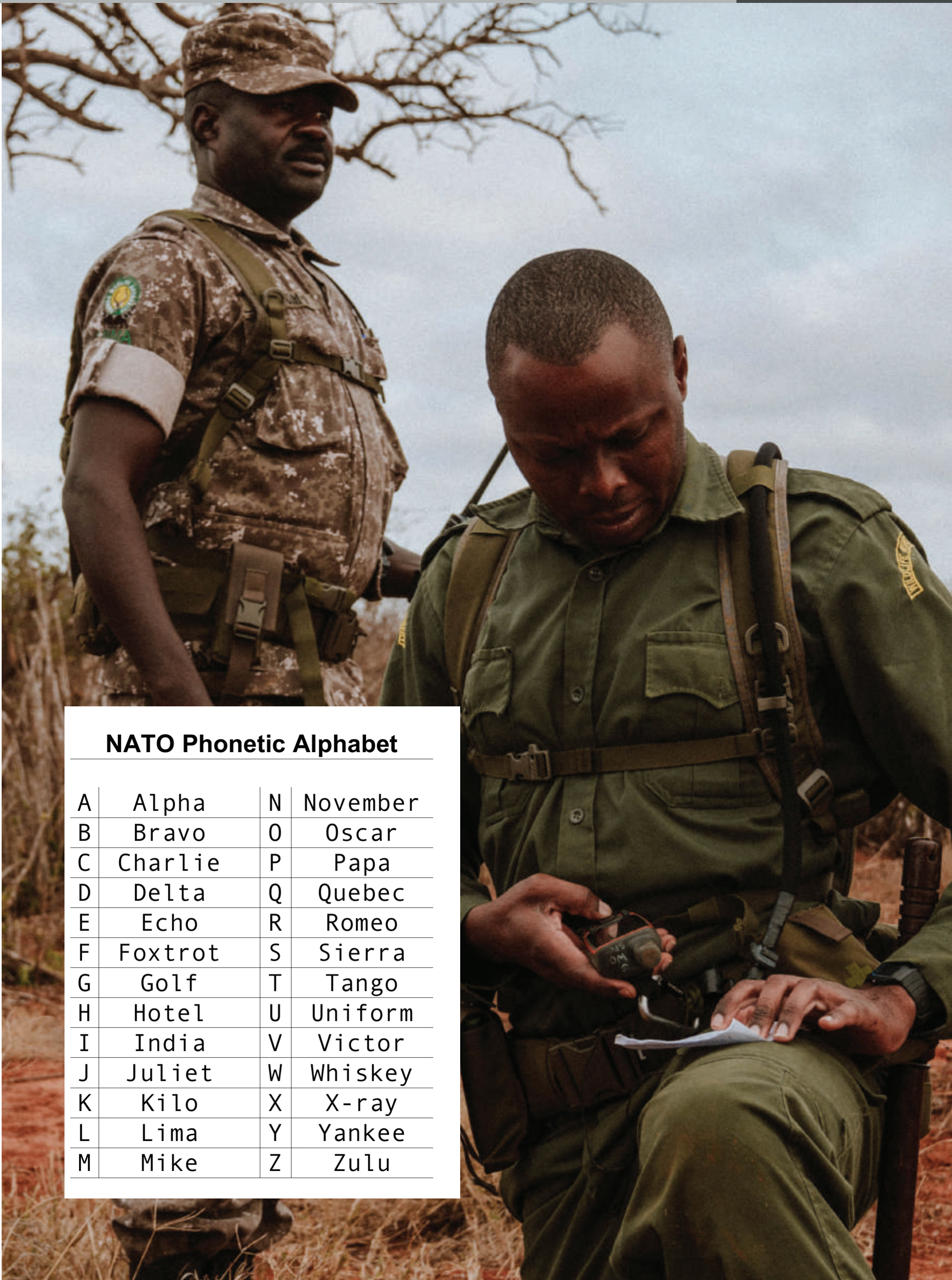
For a message to be unambiguous means that the information you provide can not be interpreted as something else. Try to be as accurate and factual with your information, and don’t relay information as facts you are not hundred percent sure about.
By speaking clearly, you also avoid confusion about the information you are trying to send.

If you need to spell names or words, you can use the so-called NATO Phonetic Alphabet.

WRITING DOWN

If you have time, write down the message you want to send before sending it. By doing so you can ensure all information is included, and you are able to repeat your message if asked without changes.
Also, remember the receiver of the message will be writing down the message. Tell them you are about to send important information and speak slowly.





NATO Phonetic Alphabet

A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

LESSON 22 | EVACUATION ON FOOT

EVACUATION ON FOOT

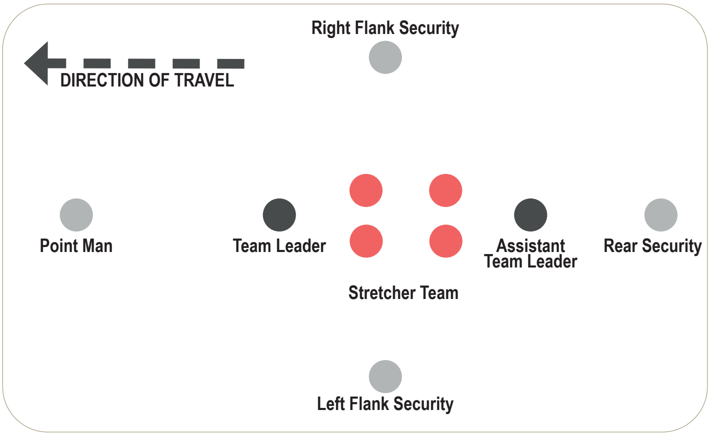
When you have to evacuate the casualty on foot, you should organise the team in a CASEVAC party.

A CASEVAC (CASualty EVACuation) party is a group of rangers who are organised in such a way that the casualty can be evacuated safely and fast. A CASEVAC party consists of the following roles:

1. The point man; his/her task is to recce and guard the route for the stretcher group, and is likely to move some distance ahead of the stretcher group.
2. Flank security; their task is to guard the flanks of the CASEVAC party. They will ensure correct position at all times and keep some distance to the stretcher team.
3. Commander; the team leader controls the speed and direction of movement.
4. Stretcher team; This consists of one or more four to six man stretcher bearing teams under command of the assistent team leader. The members take turns to carry the casualty and take rests if and when required.
5. Rear security; his.her is to protect the rear of the CASEVAC party, and will probably move some distance behind.

Flank security, point man and rear security can relieve the stretcher on command of the team leader. A CASEVAC party done correctly requires high numbers of personnel. If lower numbers of personnel are available the security of the team will be less ideal.

This is an example of a 10-man CASEVAC party:

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