Global Road Safety Partnership

FIRST RESPONSE TO ROAD CRASHES

"FIRST AID: IT SAVES LIVES ON THE ROAD"



The Global Road Safety Partnership is hosted by:









The Global Road Safety Partnership, a hosted programme of the International Federation of Red Cross and Red Crescent Societies, brings together the multiple voices, experiences and resources of the private sector, public sector and civil society to reduce road traffic injuries and deaths in low- and middle- income countries.

We do this by creating and supporting road safety partnerships between business, government and civil society at regional, national and city levels; enhancing professional and institutional road safety capacity; and delivering and facilitating evidence-based road safety interventions.

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How the guide is structured

This guide describes the techniques and actions necessary for preparedness and immediate response to assist road crash casualties. It is intended to enhance first response knowledge and skills amongst the general population, drivers, passengers and pedestrians, so that they are able to provide immediate assistance to people injured on roads.

The eight units of the guide with illustrative pictures describe step-by-step actions necessary to address the following:

- **≥** Safety
- Call for help
- Assessment of an unconscious casualty outside a vehicle
- Assessment of an unconscious casualty inside a vehicle
- **≥** External bleeding
- > Treatment of severe wounds
- Burns
- → Casualty wearing a helmet

Introduction

Road traffic injuries are the ninth leading cause of death globally, claiming the lives of more than a million people each year on the roads (WHO Global Status Report 2015). Experience shows that dramatic success in preventing road traffic injuries can be achieved through concentrated efforts and evidence-based initiatives targeting road safety management, strengthening and enforcing road safety policies, increasing public awareness and building the capacities of key stakeholders, including civil society organisations, to prevent road crashes and to provide timely and technically sound post-crash response.

One of the most common causes of death for road crash casualties is anoxia - a lack of oxygen supply - caused by a blocked airway. On average, it takes less than four minutes for a blocked airway to be fatal. Even in areas with highly structured emergency services, the norm for ambulance response to a road crash is ten minutes. It is well known that unless timely first aid is provided within this timeframe, many severely injured people do not survive (WHO 2004). The application of first aid techniques, in particular the proper positioning of the victim prior to the arrival of the emergency response teams, can mean the difference between life and death in a road crash.

The provision of emergency trauma care services has also been shown to be important in mitigating the adverse consequences of road traffic crashes. In "Most deaths occur outside healthcare facilities. Some of them are unavoidable on account of the severity of the initial injuries. Among the remainder, a considerable proportion could be avoided, as is apparent from a comparison of the differences in mortality rates from trauma in different countries." (WHO 2004)

accordance with the "golden hour" principle, people involved in road crashes stand a much greater chance of surviving and recovering from severe injuries if lifesaving measures are immediately applied and followed by quality medical attention. Immediate on-the-scene rescue and assistance is vital, especially if emergency care response is absent or significantly delayed. First responder and first aid training and relevant education stand at the forefront in the chain of casualty management and medical attention. People well trained in first response can provide lifesaving assistance at the scene of a road crash. The quality of the first response strongly depends on adequate training.

It is essential to take into account local laws and conditions, cultural specificities and the capacities of the local players when planning and delivering first aid training. Furthermore, first aid training focusing on road crash casualties should address risk factors for road traffic injuries, namely drink-driving, speeding, lack of seatbelts and child restraints proper use or at all and the failure to comply with helmet-use requirements when riding two- or three-wheel yehicles.

SOME FACTS AND FIGURES 1

about road crashes, deaths and serious injuries

- → 1.25 million road traffic deaths and 50 million injured each year.
- → Number one cause of death of among those aged 15-29.
- → 49% of those killed are pedestrians.
- → Correct use of a motorcycle helmet can reduce the risk of death by 40% and the risk of severe injury by 70%.
- → Wearing a seatbelt reduces the risk of a fatal injury by up to 45-50% for front seat occupants and up to 75% for rear seat occupants.
- → Enforcing drink-driving laws can reduce road deaths by 20%.
- → One of the most common causes of death for road crash casualties is anoxia - a lack of oxygen supply caused - by a blocked airway.

¹ Source: WHO Global Status Report on Road Safety 2015

s Safety

Situation: The casualty or any other person is exposed to danger.

Objectives

- To ensure the safety of casualty(ies) and any other people while awaiting the arrival of the emergency services.
- To make the road crash site visible to others in order to avoid a further crash.

Definition

Optimizing the safety of casualty(ies) or any other person means removing any danger that threatens them. Making the area safe is a prerequisite of any rescue action. However, first responders can only do this if they prioritize their own safety during the action.

What to do

Survey the scene for safety and recognize the dangers

Approach the road crash site with great caution to assess what immediate steps need to be taken: your safety is the first priority!

Before taking any action, look all around and assess the presence of dangers which could threaten you and/or the casualty and/or any other person. Examples of dangers include fuel leaking from the vehicle, high voltage electricity, broken glass, fire, traffic or an unstable car.

> Protect

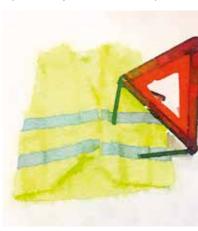
If you can act without risk to your own safety, immediately eliminate the surrounding dangers. Do not move the casualty unless the situation is life-threatening, as you may cause further damage, especially in the case of neck and spinal injuries.

- If the danger cannot be eliminated and if the casualty is unable to remove himself/ herself
 - Without endangering yourself, quickly remove the casualty is he/she is visible, easy to reach and if nothing is blocking or hindering his/her removal.

- If the danger cannot be eliminated and if the casualty cannot be removed
 - Alert or have someone else alert the specialized services. Stand clear of the incident until the emergency services have secured the scene.
 - Keep the crash site under constant surveillance to prevent anyone entering it before the arrival of the emergency services.

→ How to protect a road crash site?

- As you approach the crash site, switch on your hazard lights and slow down or quickly identify a safe way to warn other drivers,
- If you are in a vehicle, park it on the hard shoulder next to the crash or after the crash site to alert other vehicles to proceed with caution,
- If possible, put on a high visibility jacket before getting out of your vehicle,
- If the occupant is able to get out the vehicle without increasing the risk of further injury, help him/her to do so and move him/her to safety on the verge, behind the safety barrier, if there is one,
- Whilst at the same time paying attention to safety, place a warning triangle or any other device (lamps, torches, white cloths,...) about 150 metres away on highway (20 to 50 metres in built-up areas) to prevent any further crash (see picture 1),
- Prevent anyone from approaching if a danger persists (for example, transport of dangerous or inflammable substances identifiable by an orange sign on the vehicle),
- Prevent anyone from smoking or using a lighter close to the crash scene,
- Switch off the ignition and apply the handbrake if possible or put a solid object behind the wheels to prevent any movement,
- Be aware that you need to look for any additional dangers such as fire etc.



PICTURE 1

Alert

Situation: Alert the emergency services and summon help.

Objective

To provide emergency services all the information necessary about the road crash situation, the number of casualties involved and the possible state of the casualty(ies) to enable them to prepare for their intervention.

Definition

The alert is the act of informing the emergency services about the presence of casualty(ies) and the nature of the assistance provided to them. The alert relayed to the emergency services needs to be rapid and precise to reduce delays in providing assistance. This should be done by the first responder or a bystander.

In some countries the police are part of the emergency services and, in others, they are not.

What to do

→ Alert the emergency services

The emergency services need to be alerted whenever there are one or more casualties or if the situation presents risks to people's safety. This should be done after quickly assessing the situation, the number and conditions of the casualty(ies) and ensuring the safety of the people affected by the road crash.

Learn the emergency call numbers of the country where you are and use telephone, landline or mobile, telephone booth, or roadside emergency call post.

Transmit the information and reply to questions asked by the emergency services

- Stay calm and be clear
- Listen carefully and answer as concisely as possible
- Provide the following information (see picture 2):
 - phone number where you can be contacted:
 - description of the road crash (number of vehicles involved, number of casualties, problems etc),
 - location, being as precise as possible.

A dialogue may be established between you and the emergency services, and several points may be raised such as:



PICTURE 2

- the apparent state of the casualty(ies);
- first aid measures already taken;
- the presence of any persistent risk(s).

→ Follow the advice given

The emergency services may keep you on the line to advise you what to do until they arrive. Only hang up if the emergency services tell you to do so.

If it is a bystander who alerts the emergency services, it is necessary:

- to ensure that he/she has all the necessary information before calling,
- to check that he/she has carried out the action correctly.

1

An unconscious casualty outside a vehicle

Situation: The casualty is outside the vehicle, inert and unresponsive to questions, but is breathing normally.

Objective

To keep the casualty's airway clear when he/she has lost consciousness but is breathing normally, while awaiting the arrival of the emergency services.

Definition

A casualty is considered to be unconscious when he/she does not speak, does not respond to guestions and does not move when asked but is breathing normally.

Risks

In the case of loss of consciousness, there is a risk of respiratory or circulatory arrest. A casualty who has lost consciousness and who is left on his/her back is always exposed to breathing problems due to congestion or obstruction of the airway by:

- fluids present in the throat (saliva, blood, vomit, gastric juices);
- the tongue falling back.

What to do

▶ Protect (see the chapter on safety)

Assess the situation and make sure that there is no risk for you, the casualty(ies) and the bystanders.

अ Check the casualty for unresponsiveness

Check response by asking the casualty simple questions like "How do you feel?" or "Can you hear me?". Speak loudly and clearly to the casualty. Gently touch (shake) the casualty's shoulder. If he/she does not respond, take the following actions.

🔰 If you are alone, summon help

Request help from a bystander, who can alert the emergency services.

■ Lay the casualty down on his/her back, if not already in this position.

Open the airway

- Kneel by the casualty's head.
- Place one hand on his/her forehead.
- Gently tilt his/her head back. As you
 do this, the mouth will fall open so
 that you can look for any obvious
 obstruction to the airway (if there
 is something to be removed, do so).
- Place the fingers of your other hand under the point of the casualty's chin and lift the chin (see picture 3).



PICTURE

Check breathing

With the airway open, you can check if the casualty is breathing. Do this by putting your head down close to his/her mouth and nose for 10 seconds:

- look for chest movement.
- listen for sounds of breathing,
- feel for the flow of air exhaled through the nose and mouth,

Do this for no more than ten seconds. The chest rises, the casualty's breathing is observed: the casualty is breathing normally.

> Place the casualty in the recovery position

The recovery position is a stable position which allows fluids to drain and prevents the tongue falling back into the throat.

≥ Call the emergency services

Protect the casualty against cold, heat and inclement weather

Special case

When trauma to the vertebral column is suspected

(for example, a severely injured motorcyclist or someone involved in a high-speed collision), putting the casualty in the recovery position poses a risk of damage to the spinal cord (paralysis). In such cases, call the emergency services to obtain recommendations about actions to take until they arrive. If the emergency services cannot be reached, place the casualty in the recovery position but try to keep the head, neck and trunk in a straight line when doing so, taking special care to keep the casualty's head as still as possible.

- Alert the emergency services or get someone else to alert them.
- Protect the casualty against cold, heat and inclement weather.
- Monitor the state of the casualty until the emergency services arrive.
- Regularly check that breathing is normal.

Recovery Position - Method²

1. Position arm and straighten legs

- Kneel beside the casualty.
- Remove any spectacles and any bulky objects (such as mobile phones or large bunches of keys) from the pockets.
- Straighten the casualty's legs.
- Place the arm nearest to you at right angles to the casualty's body, with the elbow bent and the palm facing upwards (see picture 4).



PICTURE 4

2. Position far arm, hand and knee

- Place yourself in a stable kneeling or tripod position beside the casualty.
- Bring the arm that is farthest from you across the casualty's chest and hold the back of his/her hand against the ear nearest to you (see picture 5).
- Keep the casualty's hand pressed against his/her ear, palms together.
- Using your other hand, grasp the far leg just above the knee and pull it up until
 the foot is flat on the floor (see picture 6).







TICTORE

² The recovery position method described in this section is provided as an example and may vary according to standard methods in different countries.

3. Roll casualty towards you

- Place yourself at a sufficient distance from the casualty next to his/her chest, so that you can roll him/her.
- Keeping the casualty's hand pressed against his/her ear, pull on the far leg and roll him towards you and on to his/her side (see pictures 6 and 7).
- Carefully remove your hand from under the casualty's head while supporting his/her elbow with your other hand.
- Adjust the upper leg so that both the hip and knee are bent at right angles (see picture 8).
- Open the casualty's mouth with one hand, using the thumb and index finger, without moving the head, so as to allow fluids to drain out.
- Monitor and record vital signs.







PICTURE 8

4. Call the emergency services

- If there is a bystander, ask him/her to make the call while you wait with the casualty.
- Continue monitoring and recording vital signs.



An unconscious casualty inside a vehicle

Situation: The casualty is inert inside the vehicle and unresponsive to questions.

Objective

To keep the casualty's airway clear when the casualty is inside a vehicle and he/she has lost consciousness.

Risks

A person inside a vehicle with his/her head bent forward and who has lost consciousness is exposed to breathing difficulties due to obstruction of the airway. As air does not circulate freely, the main risk is cardiac arrest.

What to do

▶ Protect (see the chapter on safety)

Try to help without actually getting into the crashed car because of the risk of setting off the airbag. To facilitate access to the casualty, carefully lean into the vehicle through the door or window nearest to the casualty. Position yourself beside the casualty's head remaining outside the vehicle for safety reasons.

If you do need to get into the crashed vehicle to access the casualty, do it carefully.

■ Identify loss of consciousness

Check response by asking the casualty simple questions like "How do you feel?" or "Can you hear me?". Speak loudly and clearly to the casualty. Gently touch the casualty's shoulder. If the casualty does not respond (see picture 9), take the following actions.

🔰 If you are alone, summon help

This action allows you to get help from a bystander who can alert the emergency services. If nobody comes, call the emergency services.

Clear the airway

Take the casualty's head in both hands:

- Place one hand at the back of the head just above the nape of the neck.
- Slide the other hand under the casualty's chin.
- Bring the head into a neutral position, in line with the trunk by pulling gently upwards. This gentle pulling relieves the cervical column of the weight of the casualty's head. This opens the airway (see picture 10).3
- Keep this position until the arrival of the emergency services.





PICTURE 9

PICTURE 10

Check breathing

Keeping the airway open, you can check if the casualty is breathing. Look, listen and feel for normal breathing:

- Look for chest movement,
- Listen for sounds of breathing.

Do this for no more than ten seconds. The chest rises, the casualty's breathing is observed: the casualty is breathing normally.

Continue to keep the position.

³ The technique for holding the head depends on the position of the casualty and the helper. One of various techniques is demonstrated here.

severe external bleeding

Situation: The casualty has visible severe bleeding.

Objectives

- To control bleeding
- To prevent and minimize the effects of shock

Definition

Severe external bleeding is an abundant, visible and prolonged loss of blood - from a wound or a body orifice - which does not stop spontaneously. Bleeding is considered to be abundant when a handkerchief is saturated with blood in a few seconds and it does not stop.

An injured person must be checked for bleeding, because it could be concealed by the casualty's position or an item of clothing (jacket, coat). In such cases, the item of clothing must be removed or cut off.

Causes

Severe external bleeding may be caused by trauma (broken glass, debris from the collision - for example, frontal impact -, unsecured objects in the vehicle and bone fractures).

Risks

Abundant loss of blood leads to circulatory distress which immediately or very quickly becomes life threatening due to the considerable reduction in the quantity of blood in the system.

What to do

Protect

Protect yourself in order to avoid any direct contact with the blood (see below).

Contact with a casualty's blood

Diseases can be transmitted via blood.

In order to prevent any contact with the blood of the casualty,

first responder must, if possible:

- protect himself/herself by wearing gloves;
- wrap his/her hand in a clean, impermeable plastic bag.

If the first responder come into contact with the blood of a casualty when he/she has not taken any protective measures, he/she must:

- not touch his/her mouth, nose or eyes with their hands:
- not eat before washing his/her hands and changing their clothes;
- take off blood-soiled clothing as soon as possible after the first aid action;
- wash his/her hands or any area soiled by the casualty's blood with soap and water as soon as possible;
- disinfect his/her hands or any area soiled by the casualty's blood (with an alcohol-based hand sanitizer or sodium hypochlorite solutions);
- seek medical advice without delay if the first responder:
 - had even a small wound before being soiled;
 - has been struck in the face by a spurt of blood.

> Find and assess the bleeding

→ If there is no foreign body, apply firm and direct pressure

over the wound with your fingers or the palm of your hand, using a sterile dressing or clean non-fluffy pad (see picture 11). If possible, ask the casualty to apply direct pressure himself.



PICTURE 11

- → Help the casualty to lie down
- → If there is a bystander, ask him/her to call the emergency services

If there is no bystander, call the emergency services after transferring the compression using:

- a compression bandage (see below); or
- the casualty's hand, if possible.
- Maintain direct pressure on the wound until the arrival of the emergency services
- Reassure the casualty and explain what is happening
- ≥ Wash your hands after providing first aid, if possible
- ▶ Protect the casualty against cold or heat
- Monitor if there is worsening of casualty's condition

CompressionBandage - Method

- Apply a long sling and/or bandage (if available, otherwise you can use a tie). Substitution of manual compression by the compression bandage must be carried out as rapidly as possible.
- Cover the wound completely and wind the band or sling at least twice around the bleeding area (see picture 12).





PICTURE 12

PICTURE 13

- The compression bandage must be tight enough to stop the bleeding but not so tight that it impairs the circulation. (see picture 13).
- If the compression bandage does not stop the bleeding completely, resume manual compression.
- A compression bandage should not be used for the head, neck, chest or abdomen.

- If there is a foreign body, control bleeding by pressing firmly on either side of the embedded object to push the edges of the wound together. Do not try to remove the object. Raise the injury above the level of the heart. Drape a piece of gauze over the wound and object.
- If there is a bystander, ask him/her to call the emergency services; otherwise do it yourself.

Wounds

Situation: The casualty is conscious and has a wound.

Objective

To find the wound and provide first aid measures according to the severity of the wound.

Definition

A wound is damage to the skin, possibly affecting the underlying tissues.

Causes

Wounds are generally secondary to trauma; they are caused by a cut, a graze, a bite or a sting.

Risks

Depending on its size, a wound may result in severe bleeding or lead to a rapid worsening of the casualty's condition.

Signs

A wound is **minor** when:

it is a small superficial cut, a graze with slight bleeding, not affecting a body orifice or the eyes.

A wound is major when:

- it is extensive and affects several places;
- it is deep, revealing bones, muscles or other tissues;
- it affects the face, eyes, neck, chest, abdomen or genitals;
- an object is lodged in the wound.

If there is the slightest doubt, the rescuer must treat the wound as major and call the emergency services.

What to do

If the wound is **minor**:

Wash your hands with soap and water or use hand sanitizer if available, before providing first response. If tap water is not available, use a bottle of water.

If possible, put on protective disposable gloves to avoid any contact with the casualty's blood.

Clean the wound

Rinse the wound lightly under clean running water, if possible. A compress may be used to remove dirt. Use an alcohol-free wipe if available.

> Protect the wound

Dry thoroughly and apply a dressing that extends beyond the edges of the wound. Leave the dressing in place to allow the wound to heal.

■ Wash your hands immediately after providing first response, if possible

If the wound is major:

- In the case of an eye injury Lay the casualty down flat on his/her back, with the head supported, advising him/her to close his/her eyes and not to move. If there is a foreign body in the eye, do not remove it.
- In the case of an abdominal wound Help the casualty to lie on his/her back, with thighs and knees bent, to relax the abdominal muscles and reduce the pain (see picture 14). Cover the wound with a sterile or clean dressing, if available.
- In the case of a wound to the chest Place the casualty in a semi-sitting position to facilitate breathing (see picture 15).

■ In all cases of serious wounds, call the emergency services

→ If there is an object in the wound, do not try to remove it

→ In the case of any major wound, monitor vital signs while waiting for emergency services



PICTURE 14



• Burns

Situation: The casualty is conscious and has a burn.

Objective

To find the burn and provide first aid measures according to the severity of the burn.

Definition

A burn is a lesion of the skin, airway or digestive tracts.

Causes

A burn may be caused by heat, fire, chemical substances, electricity or friction.

Risks

Depending on its seriousness, a burn may lead to circulatory or respiratory distress, severe pain, infection and functional or aesthetic scars.

Signs

A burn is minor when:

it involves a reddening of the skin or a blister and the burn area is less than half the casualty's palm.

A burn is **severe** when:

- it concerns a child under the age of 5 or an older person or a person suffering from a chronic disease (diabetes, cancer etc.),
- it is situated on the face, neck, eyes, ears, hands, feet, joints or genitals,
- it is caused by an electrical source, chemical substances, radiation or steam,
- the area of the blisters is greater than half the palm of the casualty's hand,
- it affects the airway,
- it covers all the neck, torso or limbs,
- it reaches the deep skin layers.

If there is the slightest doubt, treat the burn as serious and call the emergency services.



PICTURE 16

What to do

If the burn is **minor:**

Year the burn with plenty of cold water (10°C-25°C or 50°-77°F) until the pain is relieved (see picture 16). If there is no tap water, use a bottle of water.

➤ Remove clothing and jewellery Gently remove clothing and jewellery if they are not stuck to the skin

→ Protect the burn by covering it with a dressing or a clean tissue, if available

If the burn is **severe:**

■ Call the emergency services and follow their instructions; if cooling is advised, use cold water.

- ▶ Place the casualty in a suitable position:
 - help the casualty to lie down (do not put him/her on his/her back if the burn is on the back or on the back of the legs)
 - in the event of breathing difficulties, help the casualty to sit down.

⇒ If possible, protect the casualty with a clean sheet, without covering the burn.

Monitor vital signs while waiting for the emergency services.

7

A casualty wearing a helmet

Situation: The casualty is a cyclist, motorcyclist or pillion passenger and wearing a helmet.

Objective

To learn if and how to remove a helmet, if necessary.

№ Note

The casualty should take off the helmet him/herself if able to do so. First responders are advised not to remove the helmet of a motorcyclist or cyclist. The helmet should only be removed if the casualty shows signs of respiratory and/or circulatory distress (unconscious, cardiac arrest) and the emergency services cannot be reached.

What to do if you need to remove the helmet

- **Protect** (see the chapter on safety)
- 1 If you are alone, summon help

This action allows you to get help from a bystander who can alert the emergency services.

- ≥ Lay the casualty down on his/her back, if not already in this position
- **№** Kneel behind the casualty's head (see picture 17)
- **≥** Raise the visor of the helmet (see picture 18)





PICTURE 17

PICTURE 18

- > Remove the casualty's glasses, if he/she wears it.
- ▶ Detach or cut the chin strap or unscrew the helmet fixing device next to the casualty's chin, while holding the helmet in one hand.
- ➤ Place yourself in line with the casualty's head at a sufficient distance to be able to remove the helmet without backing away.
- → Take hold of the helmet grasping the sides of the lower edge and the fixing device



PICTURE 19

- **3 Gently pull the helmet in a straight line,** sliding it along the ground until the lower edge of the chin strap is under the tip of the nose (see picture 19).
- ➤ Remove one hand to grasp the lower edge of the upper part of the helmet and gently slide the other hand under the base of the casualty's skull to support it (see picture 20).
- → Gently pull the helmet backwards tipping it slightly so as not to catch the casualty's nose







PICTURE 21

→ At the same time, gently place the head on the ground keeping it as straight as possible (see picture 21)

Do not forget

■ How to act safely and protect the scene?

Take safety measures to prevent further road crashes and minimize the risk for those rendering assistance; ensure self-protection.

■ How to summon help?

Report the crash to the emergency services and provide relevant information.

■ How to assess the physical state of the injured person?

Check the body functions and vital signs: consciousness, breathing as well as the psychological needs of those affected.

■ How to provide first aid for serious injuries ?

Prioritize unconscious casualties, act safely guarding against contact with body fluids and control visible bleeding, and clear the airway.

■ How to enhance road safety practices?

Wear reflective materials; wear a helmet; fasten seatbelts; respect speed limits; do not drive after drinking alcohol.

≥ Notes

≥ Notes

Be careful when on the road.

Respect other people and traffic regulations. Always fasten your seatbelt. Pedestrians should wear reflective material. Motorcycle and bicycle riders should use helmets and high-visibility protective clothing.

In the case of a road crash:



1 Safety first! for you, the casualty and bystanders



Call for help and use the advice given



3 Provide life-saving measures and psychological support



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