International first aid and resuscitation guidelines 2016

What's new?

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International Federation
of Red Cross and Red Crescent Societies

P.O. Box 303
CH-1211 Geneva 19
Switzerland
Telephone: +41 22 730 4222
Telefax: +41 22 733 0395
E-mail: secretariat@ifrc.org
Web site: www.ifrc.org

International first aid and resuscitation guidelines 2016 - What's new?
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01. Introduction

What's new? is developed as a complementary tool to the 2016 edition of the *International first aid and resuscitation guidelines*. It provides an overview of how the guidelines have evolved since the 2011 edition. For further details, summary of the scientific foundation as well as practical implementation considerations – readers are encouraged to refer to the 2016 guidelines.

This document has been developed following the same principles as the guidelines. The table below provides an overview of the rationale and terms used in determining whether a given guideline is strong, weak or classified as a good practice point and the associated implications.

Table 1. Overview of the types of guidelines and implications for practice

Strength of guideline and terms used	Description and strength of evidence	Implications
** **Recommendation** terms: must/should (or must/should not)	• A **strong** recommendation • Benefits strongly outweigh the harms • This recommendation is the most appropriate action	Must be followed unless a clear and compelling rationale for an alternative approach is present
* **Recommendation** terms: may, could (or not recommended)	• A **weak** recommendation • Benefits and risks and burdens are finely balanced or appreciable uncertainty exists about the magnitude of benefits and risks • There is some uncertainty regarding the most appropriate action and different choices can be appropriate	Prudent to follow, but one should remain alert to new published evidence that clarifies the balance of benefit versus harm
Good practice point terms: can also contain active wording such as 'should', 'must'.	• Based on common sense, good practice or (very) low quality evidence, expert opinion, etc. • An important practical point for which the expert panel reaches a consensus and nobody is likely to question it	A good practice point is based on common sense and consensus, however could be sensitive to context

While *What's new?* primarily focuses on the new guidelines and thematic areas covered in the 2016 edition, a list of unchanged topics covered in the 2011 version is included towards the end of the document.

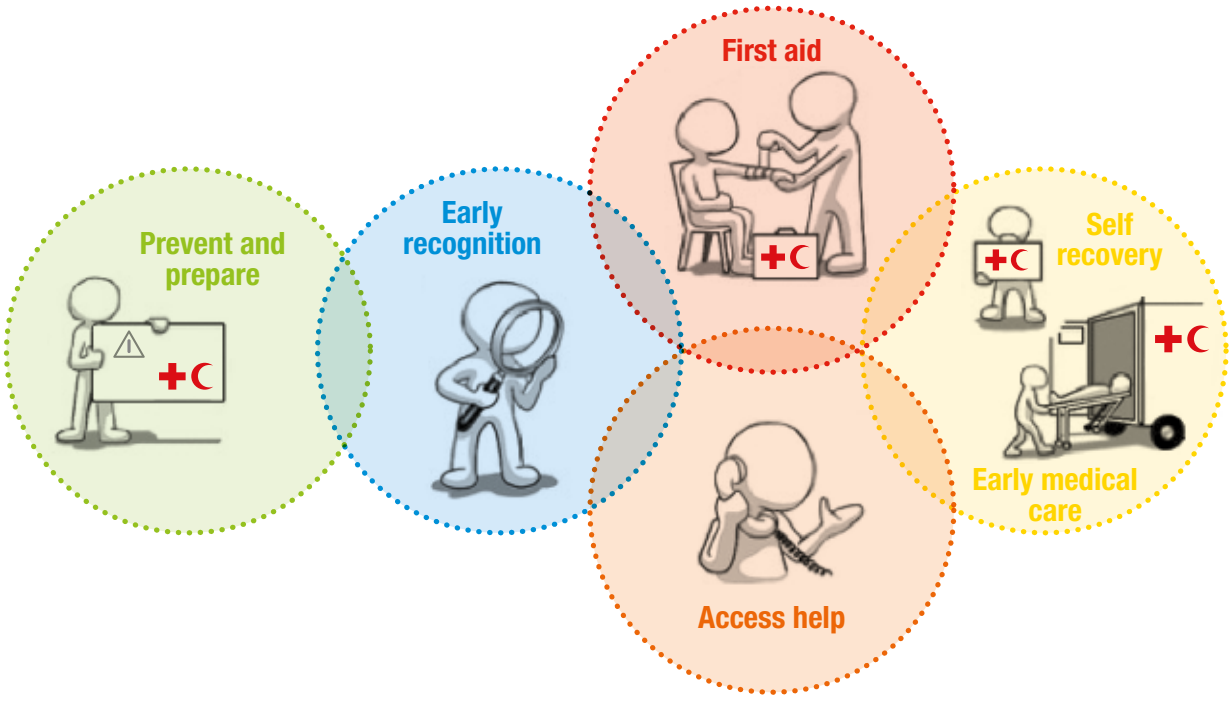
02.

Education

Introduction

Central to the resilience of individuals and communities is the ability to respond effectively in a crisis. This new chapter in the guidelines aims to empower and guide National Societies to be creative and flexible with their first aid education (including awareness-raising campaigns and training) for the lay first aid provider whilst always putting the learner and their empowerment to help at the centre of all educational activities.

To help with this, a new *Chain of survival behaviours* has been conceptualized illustrating the key steps to understanding a learner's role in an emergency, i.e. understanding prevention and preparedness; early recognition of danger; the actions required for applying first aid and/or calling for help; and finally, recovery with or without the need for advanced care.



The review process for first aid education included exploring relevant theories, an analysis of published studies and the application of these to National Society first aid education-related programmes. The guidelines provided reflect both the scientific foundation and build on the experience of National Societies in this area.

Key components of first aid education supported by educational theories

National Societies should develop first aid education based on the following components:

- *Knowledge:* recognizing signs and symptoms of the ill or injured person, risks to self and others from the environment, and evidence-based first aid treatments.
- *Skills:* appropriate psychomotor responses to address injury or illness, such as opening an airway or applying direct pressure on bleeding.
- *Behaviours:* series of responses to an emergency that indicates awareness of the situation at hand and a willingness to act.

Table 2. Evidence reviews undertaken and guidelines developed

Subject	Guideline	Strength
The effectiveness of first aid education on casualty outcomes	Use measurements of casualty outcomes to develop more effective educational programmes and advocacy	**
Motivation of the learner	Self-determined learning taken in a relevant context could improve educational outcomes for the learner	*
Format/modalities for first aid education	Identify learner characteristics and curriculum outcomes to develop varied and blended educational tools and modalities to support learning outcomes	*
Scenario-based and simulation learning	Combine scenario-based learning and simulation learning for professional responders who need to demonstrate competency proficiencies	*
First aid and children	Create educational programmes for children, according to their cognitive, social, and behavioural abilities	**
Measuring outcomes	Find ways to test the effectiveness of first aid education	Good Practice Point

Key messages for those preparing first aid education

Key messages that are intrinsic to good education emerged from the evidence review process. National Societies are urged to apply these to all first aid programmes and educational interventions that they develop.

03. General approach

Assessment

This topic has been further detailed and structured without essential change in content. Changes and additions in mnemonics such as ABCDE (Airway, Breathing, Circulation, Disability, Exposure) instead of ABC (Airway, Breathing, Circulation) and SAMPLE (Signs, Allergies, Medication, Past medical history, Last meal, Event) have been introduced for advanced trainings.

Casualty positioning

2016 Guidelines

- First aid provider should approach the casualty from the side of his or her face. In this way, the casualty is not forced to move his or her head. (Good Practice Point)
- An unresponsive casualty should be rapidly assessed for breathing. If normal breathing is not quickly identified in the position found, place the casualty, gently, in the supine position. If the person is breathing normally, he or she should be placed in the side-lying recovery position. (Good Practice Point)
- If the casualty is pregnant, the left side-lying recovery position is preferred. (Good Practice Point)

Why?

While a formal scientific evidence review was carried out for this topic, no published evidence was found relating to the advantages of turning a casualty from prone (front) to supine (back) position.

When assessing the situation involving an unconscious person, the first thing that must be established is whether resuscitation is needed or not. For this, the first aid provider may have to turn the casualty onto his or her back.

An unresponsive person who is breathing normally, may be placed in any side-lying recovery position versus the supine position. The recovery position is recommended for any casualty who is breathing normally even though he or she is not responsive. The objective of doing this is to open the airways and ensuring that the casualty continues to breathe normally. Some studies showed that putting the casualty in this position not only improves certain respiratory factors (higher volume and diameter of upper airways) but also avoids any other complications from developing.

04.

First aid for medical conditions

Allergic reaction and second dose of epinephrine for anaphylaxis

2016 Guideline

- For a person with symptoms of anaphylaxis and treated by but did not respond to epinephrine, and arrival of emergency medical services (EMS) is not expected within five to ten minutes, a second dose may be considered. (*)

Why?

If a person shows signs of severe allergic reaction, the first aid provider should be able to recognize the gravity of the situation and administer intramuscular epinephrine using the auto-injector belonging to the casualty if he or she has one. If this is done as soon as possible, it may prevent the situation from worsening or even mortality.

The 2016 recommendation highlights the need for administrating a second dose of epinephrine in the event that there is no sign of improvement after the first dose. Some articles reviewed not only confirm this requirement but also indicate the time span between the two injections should be between at an interval of 5 to 15 minutes. Furthermore, scientific data suggests that in the event that the second dose is not effective or if the signs of an allergic reaction start again, an additional dose may be administered.

Poisoning

2016 Guidelines

For ingestion poisoning:

- The casualty should preferably be laid on his or her left side. (*)

For gaseous poisoning:

- *Flammability warning:* In rooms which are potentially filled with carbon monoxide, exposure to all sources of ignition such as naked flames, electrical

equipment, oxidizing chemicals and smoking of tobacco products should be prevented. (Good Practice Point)
- Move the casualty out of the area with gas immediately, but only if this can be done without endangering the first aid provider. (Good Practice Point) In most cases the rescue has to be carried out by professional rescue service.
- Only trained first aid providers should administer oxygen to casualties of carbon monoxide and carbon dioxide poisoning. (Good Practice Point)

Why?

For ingestion poisoning:

It was shown that the left decubitus position resulted in a statistically significant decrease of acetaminophen uptake (measure of gastric emptying), compared to the right decubitus position in one randomized controlled trial in which an acute overdose was simulated.

For gaseous poisoning:

First aid providers and healthcare students frequently mix up identification of intoxication by carbon monoxide and carbon dioxide. Hence, specific efforts need to be made to help the learner understand the difference between these. It is important to underline prevention principles prior to any first aid action.

Breathing difficulties

2016 Guidelines

- First aid providers may help the person to sit upright leaning forward. (Good Practice Point)
- It is reasonable that first aid providers are familiar with the commonly used bronchodilator inhalator devices to assist a person in using these devices if he or she experiences breathing difficulties. (Good Practice Point)
- A first aid provider carrying a bronchodilator inhaler and specifically trained to use it may administer bronchodilator upon his or her discretion, if local regulations allow this. (*)
- If the person has no bronchodilator or the bronchodilator is not effective, the first aid provider should activate EMS and continue to observe and assist the individual until help arrives. (Good Practice Point)
- In certain cases, a specifically trained first aid provider can give supplementary oxygen to the person having breathing difficulties. (Good Practice Point)

Why?

No fundamental change has been made to this recommendation in comparison to the one presented in the 2011 edition. However, the recommendation stresses that in order to assist a person to use his or her bronchodilator when he or she is suffering from asthma or experiencing breathing difficulties, the first aid provider must:
– Place the person in a comfortable position (sitting or semi-sitting position);
– Be familiar with the different types of medicine and how to use them;
– Activate EMS if no bronchodilator is available or is not effective.

First aid provider may help a person with administrating his or her bronchodilator if:
– The person states he or she has a bronchodilator;
– The person is unable to use it without assistance.

Chest pain

2016 Guidelines

- If the person experiencing chest pain believed to be cardiac in origin, has not taken an aspirin, the first aid provider should give him or her a single oral dose of 150–300 mg chewable or soluble aspirin and instruct them to chew it whilst waiting for professional assistance to arrive, unless there is a contraindication, such as an allergy or bleeding disorder. (**)
- The first aid provider should call for EMS as soon as a heart attack is suspected. (Good Practice Point)

Why?

Some studies reviewed demonstrated that early administration (in the first hours following the signs) of aspirin to a person experiencing chest pain due to acute coronary syndrome reduces mortality. However, there is no data concerning chest pains due to unknown causes. This is the reason why the 2016 recommendation limits the administration of aspirin only if a myocardial infarction is suspected.

In the event that a person is experiencing chest pain, the first aid provider should call EMS to ensure rapid evaluation and transport to the hospital.

Stroke

2016 Guidelines

- Using a stroke assessment system by first aid providers is strongly advised. (**)
- Utilization of FAST (Face, Arm, Speech, Time) is appropriate by the first aid provider and general public. (Good Practice Point).

Why?

Simple stroke assessment systems (e.g. Cincinnati Pre-hospital Stroke Scale (CPSS), or FAST) are easy to use and concurrently have high sensitivity to recognize stroke.

The use of tools or scores to recognize a stroke allows early diagnosis, shorter hospital stay and reduced delay in delivering treatment.

Dehydration and gastrointestinal distress

2016 Guidelines

- First aid providers could use three per cent to eight per cent carbohydrate-electrolyte drinks for exertion-related dehydration. (*)
- If three per cent to eight per cent carbohydrate-electrolyte drinks are not available or not tolerated, alternative beverages for rehydration include water, 12 per cent carbohydrate-electrolyte solution, coconut water, two per cent milk, tea, tea-carbohydrate-electrolyte, or caffeinated tea beverages. (*)

Why?

The 2016 guideline particularly addresses the different types of beverages to administer to a person with signs of dehydration due to exercise. The recommendation stresses that as early as the person shows the first signs of exercise-induced dehydration or even prior to it, he or she must be rehydrated rapidly and regularly using an oral rehydrating solution to prevent him or her from taking a turn for the worst.

Seizures

Guidelines in this section have been updated based on evidence reviewed in 2011.

2016 Guidelines

- First aid providers may place a person experiencing a seizure on the floor to prevent him or her from being injured. (Good Practice Point)
- Once the seizure has ended, first aid providers should assess the airway and breathing and treat accordingly. (Good Practice Point)

Why?

This topic has been included in the 2016 guidelines since seizures can occur frequently. Furthermore, in the event of a sudden cardiac arrest, a brief seizure can occur occasionally.

The importance of ensuring the person's airway is open, and to check for normal breathing or any injuries has been underlined.

No evidence could be found concerning the benefits of placing the casualty in a specific posture or putting objects in the mouth of a person experiencing a seizure.

NEW

Fever

Fever is a new topic and draws on the results from evidence reviewed in 2015.

2016 Guidelines

- If the person is suffering from fever, paracetamol or acetaminophen should be given to him or her. (**)
- Paracetamol or acetaminophen can be combined with sponging with tepid water (from 29°C to 33°C) as long as it does not cause the person to get upset or to start shivering. (**)
- Do not use cold water for sponging as this results in more discomfort. (**)
- Do not use cold water for sponging as this can have the opposite reaction, i.e. heat the body more. (Good Practice Point)
- The infant, child or adult should be referred to a healthcare professional as soon as possible, if the (Good Practice Point):
  - infant under two months of age has fever
  - a child up to two years of age has fever higher than 39° C or 102.5° F
  - person is over 65 years of age
  - person suffering from fever has cancer, weakened immune system, sickle cell disease, medications which affect immune system
  - fever does not decrease
  - fever is accompanied by rash
  - fever is accompanied with persistent cough
  - fever is accompanied with abdominal pain
- The person requires immediate care, in cases of:
  - fever with change in mental status
  - fever with difficulty breathing
  - fever with headache or stiff neck
  - fever with severe abdominal pain
  - fever with any signs of shock
- Persons with fever should rest and drink fluids to replace the loss of fluids due to sweating. (Good Practice Point)
- Persons with fever should dress lightly and one should avoid covering them with excessive blankets or coverings. (Good Practice Point)

Why?

The first aid provider may take action to bring down the temperature of the person suffering from fever to increase his or her comfort level. First aid providers should not only be aware of the possible causes of high temperature but also refer the person to a healthcare professional in certain circumstances (as highlighted in the 2016 guidelines).

Shock and optimal position for shock

2016 Guidelines

- First aid providers should place the person in shock in the supine (lying on back) position. (**)

- First aid providers may raise the non-injured person's legs 30 degrees to 60 degrees (passive leg rising) if it makes him or her feel better; this may improve the vital signs for a few minutes. (*)

Why?

No studies indicate an alternate appropriate position for persons with circulatory distress. Supine position (lying on the back) is the only one that seems to improve the clinical signs of a casualty with circulatory distress. However the first thing to do is to primarily address the cause of the circulatory distress (stop an external bleeding) when possible.

Unresponsive and altered mental status

2016 Guidelines

- First aid providers should start CPR if needed. Be aware that sometimes a person in cardiac arrest may initially present a short seizure-like activity. (**)
- Consider other causes such as poisoning, diabetic emergency, head injury etc. (*)
- First aid provider should put the person in recovery position and call for EMS. (*)

Why?

The additions included in the 2016 guidelines focus on the possibility of circulatory arrest and conditions that may be managed by the first aid provider.

Fainting

NEW

Fainting is a new topic and guidelines have been developed to cover this area.

2016 Guidelines

- If the person is breathing normally but remains unresponsive, maintain a patent airway by considering head tilt – chin lift, or recovery position. (**)
- If there is abnormal or no breathing, resuscitation should be started immediately. (**)
- An unresponsive person should be rapidly assessed for breathing/signs of circulation and perfusion (if trained to do this assessment). (Good Practice Point)
- If the person is face down and unresponsive (prone position), the first aid provider should turn his or her face up (supine position) to check breathing. (Good Practice Point)
- The first aid provider should activate EMS for a person who loses consciousness as causes can vary from not serious to being life-threatening. (Good Practice Point)
- First aid providers should consider that any person who loses consciousness may have low blood sugar, stroke, seizure or other serious conditions. (Good Practice Point)

Why?

Fainting is a relatively common occurrence in public places. Since first aid education could help identify different causes of fainting such as hypoglycemia, stroke, concussion or poisoning and treat it accordingly, this topic has been introduced in the 2016 edition.

NEW

Croup

Croup is a new topic.

2016 Guidelines

- The child may lie in any position that is comfortable for him or her and ideally enables easy breathing. (Good Practice Point)
- If there is a significant shortness of breath, EMS should be activated, otherwise the child should be taken to a healthcare provider or medical doctor. (Good Practice Point)

Why?

Croup has been integrated in the guidelines because it is a common respiratory condition, usually triggered by an acute viral infection of the upper airways. The infection causes swelling of the throat and upper airways that interferes with normal breathing and produces a typical barking cough, stridor (squeaking noise) and hoarseness. Keeping the child in a comfortable position and activating EMS are key to improving the condition.

05. First aid for injuries

Foreign body airway obstruction

2016 Guidelines

Complete airway obstruction

- Chest thrusts, back blows or abdominal thrusts are equally effective for relieving foreign body airway obstruction (FBAO) in conscious adults and children older than one year. (**)
- In adults and children older than one year, the unconscious person should receive chest compressions for clearance of the foreign body. (**)
- Unconscious infants up to one-year-old should receive either a combination of back blows followed by chest compressions, or chest compressions alone for clearance of FBAO. (**)
- Combination of back blows followed by chest compressions may be used for clearance of FBAO in conscious infants up to one-year-old. (*)
- The finger sweep could be used in unconscious adults and children older than one year with an obstructed airway if solid material is visible in the airway. (*)
- There is insufficient evidence for a different treatment approach for an obese adult or pregnant woman with FBAO. (*)
- Although injuries have been reported with the abdominal thrusts, there is insufficient evidence to determine whether chest thrusts, back blows or abdominal thrusts should be used first in conscious adults and children older than one-year-old. (Good Practice Point)
- These techniques should be applied in rapid sequence until the obstruction is relieved; more than one technique may be needed in conscious adults and children older than one year old. (Good Practice Point)

Adults and children >1 year		Infants ≤1 year	
Conscious	Unconscious	Conscious	Unconscious
Chest thrusts *or* Back blows *or* Abdominal thrusts	Chest compressions	Combination of back blows + chest compressions	Combination of back blows + chest compressions *or* Chest compressions

Mild airway obstruction

- In the case of a conscious person, the first aid providers must be able to recognize signs of a complete airway obstruction (the person is unable to speak, has a weakening cough, is struggling or unable to breathe) and signs of a mild obstruction (the person is able to speak, cough and breathe). (*)
- The person with a mild airway obstruction should remain under continuous observation until he or she improves since severe airway obstruction may develop. (Good Practice Point)

Why?

In 2015, the American Red Cross Scientific Advisory Council completed a review of the treatment of FBAO.

For a successful outcome, the first aid provider must be able to identify the signs of FBAO and should be able to distinguish between a severe obstruction and a mild obstruction.

This recommendation stresses that in the event of a mild obstruction, the first aid provider should not use an aggressive treatment, such as back blows or abdominal and chest compressions since this may cause serious complications and could worsen the airway obstruction. In the case of a mild obstruction, the person must be in a correct position and observed while waiting for EMS to arrive. Back blows or abdominal and chest compressions should be delivered only if the obstruction becomes severe.

In cases of severe obstruction it is important to act urgently. The order to process chest compressions, back blows or abdominal thrusts is not important – all techniques are equally effective.

Burns

2016 Guidelines

- As clean water is available in many areas of the world, clean tap water should be used to cool burns. (Good Practice Point)
- Ice and ice water should **NOT** be applied to burn wounds. (Good Practice Point)
- After cooling, it is recommended that burn wounds should be dressed with a sterile dressing dependent on the local burn treatment policies. (Good Practice Point)

Why?

Cooling of burns with water is a first aid practice recommended for many years. Cooling reduces the depth, pain, oedema and the need or the duration of hospitalization. Clear water (temperate tap water) is available in almost all over the world and it is often used for cooling the burn. Limited evidence is available regarding the cooling technique (water, ice water). As for the duration, it is usually recommended that the burn should be cooled for at least ten minutes.

The first aid provider should choose the type of dressing depending on the local context.

Bleeding

2016 Guidelines

- First aid providers must control external bleeding by applying direct pressure. (**)
- The use of pressure points and elevation is **NOT** recommended. (*)
- When direct pressure fails to control life-threatening external limb bleeding or is not possible (e.g., multiple injuries, inaccessible wounds, multiple victims), tourniquets could be considered in special circumstances (such as disaster, war-like conditions, remote locations or in instances where specially trained first aid providers are providing care). (*)
- Localized cold therapy with or without pressure may be beneficial in haemostasis for closed bleeding in extremities. (*) Caution is advised when applying this recommendation to children due to a potential hypothermia.
- The out-of-hospital application of a topical haemostatic agent to control life-threatening bleeding not controlled by standard techniques and in situations where standard techniques could not be applied could be considered with appropriate training. (*)

Why?

This recommendation confirms the techniques presented in the 2011 guidelines, to stop an external bleeding:

- Apply direct pressure, with or without a dressing
- Pressure points are inappropriate treatment
- Elevation of a bleeding part is not beneficial

Applying cold application helps limit hematoma diffusion on the limb but only in the event that it is not associated to an external bleeding.

First aid providers may use a tourniquet when standard first aid bleeding control technique (direct pressure with or without a dressing) is not possible.

Amputation

NEW

Amputation is a new topic.

2016 Guidelines

In case of complete amputation:

- If the body part is completely amputated, it is recommended that the part is wrapped in a sterile compress or bandage. First aid providers should put the body part in a clean watertight plastic bag and seal it firmly. A second plastic bag containing water and ice can be used: put the bag with the body part in the bag of ice or water and make sure there is no direct contact between the body part and the ice. (Good Practice Point)
- Make sure the person concerned takes the amputated body part with him to the hospital. (Good Practice Point)

Why?

Amputation is the removal of a limb, or a part of the limb. In partial amputation, the body part remains partially attached to the body. Amputation does not

always lead to the loss of the amputated body part. Adequate first aid improves the chances of recovery.

Cervical spinal motion restriction

2016 Guidelines

- For layperson first aid providers the routine application of cervical collars is **NOT** recommended. (*)
- First aid providers should **NOT** strap the head or neck. (*)
- In the case of suspected cervical spine injury it is recommended to manually support the head in position limiting angular movement until experienced healthcare provision is available. (Good Practice Point)

Why?

With no evidence of benefits strongly outweighing the evidence of harms, manual stabilization to limit spinal motion by the first aid provider (maintain the head) is the preferred method.

Since incorrect application of a cervical collar could result in further injury, and since evidence is available on adverse events (e.g. raised intracranial pressure) when applying such a collar, routine application of a cervical collar is not recommended.

Dental avulsion

2016 Guideline

- The avulsed tooth may be placed in Hank's Balanced Salt Solution. If not available, the tooth may be placed (in order of preference) in propolis, egg white, coconut water, ricetral, whole milk, saline or Phosphate Buffered Saline. (*)

Why?

Re-implantation of an avulsed tooth is a difficult procedure for first aid providers who are not trained for this. Therefore, it is important that a first aid provider brings the person concerned and the avulsed tooth to a dentist. Since some of the solutions mentioned above might not be available in some countries or at the accident scene, the choice of the storage solution can be made based upon availability.

06. Environmental health problems

NEW

Radiation emergencies

This is a new topic. Since the literature review found no evidence regarding radiation emergency, the recommendations are based on expert opinion.

2016 Guidelines

- Avoid touching suspected radioactive items. (Good Practice Point)
- Keep distance and do **NOT** approach suspected radioactive items or accident scenes. (Good Practice Point)
- Remove casualty from the scene as quickly as possible. (Good Practice Point)
- Avoid the smoke within 100 metres of a fire or explosion that involves a potentially dangerous radioactive source. (Good Practice Point)
- Keep hands away from the mouth and do **NOT** smoke, eat or drink until your hands and face are washed (to avoid inadvertent ingestion). (Good Practice Point)
- Exposure to sealed sources does not require decontamination. To limit exposure, stay away or place an appropriate shield (lead apron for example) between the source and the exposed persons. (Good Practice Point)
- Special trained forces should take care of the decontamination process but potentially contaminated persons should be instructed to remove any clothing themselves while awaiting such teams, which may be of benefit. (Good Practice Point).
- Medical specialists must examine all persons who might be exposed to radioactivity as soon as possible (Good Practice Point).

Why?

A radiological emergency is declared when there is, or is perceived to be, a hazard due to radiation exposure from a source. As sources of radiation are used in various fields, including industry, medicine and research, radiological emergencies may occur anywhere.

07.

Drowning and scuba diving decompression illness

2016 Guidelines

- If resuscitation is required and cannot be effectively provided in the water, the casualty should be removed from the water and resuscitated by the fastest means available. (**)
- If effective airway and ventilation cannot be provided in the water, even a casualty with possible cervical spinal injury should be rapidly removed from the water. (**)
- Submersion duration must be used as a prognostic indicator when making decisions surrounding search and rescue resource management or operations. (**)
- In case the casualty is in cardiac arrest, breaths may be given before compressions. (*)

Why?

The 2016 recommendations stress the ventilation aetiology of the cardiac arrest for a drowning person. This means that ventilation must be started as soon as possible. If the first aid provider has the relevant training and equipment, then he or she can start with the ventilation procedure in the water otherwise the casualty must be moved from the water as soon as possible and begin with CPR by two or five breaths.

The evidence about prognostic factors show that duration of submersion is the only indicator that can be used to make a decision on search and rescue resource management or operations. Evidence suggests that favourable neurological outcome and survival are significantly worse for prolonged submersion intervals (more than 15 to 25 minutes).

08. Resuscitation

Cardiac arrest

Dispatcher management of cardiac arrest

2016 Guidelines

- All dispatchers must be trained to recognize cardiac arrest over the phone. (**)
- All dispatchers should consider a person described as being unconscious with abnormal or no breathing to be in cardiac arrest during a calling. (**)
- All dispatchers must provide CPR instructions to callers who report a person in suspected cardiac arrest. (**)

Why?

The evidence review indicates that survival after cardiac arrest depends on prompt recognition of cardiac arrest, early access to help, early high quality CPR and early use of the automated external defibrillator (AED). These guidelines promote that emergency medical services must be contacted to help the first aid provider to initiate early CPR and use of AED.

Depth of chest compression

2016 Guideline

- For an adult, chest compression depth should be approximately 5cm but not more than 6cm. (**)

Why?

An observational study suggests that in an adult a compression depth over 6cm is associated with increased injury when compared with a compression depth of 5 to 6cm.

Chest recoil

2016 Guideline

- First aid providers should **NOT** lean on the chest between compressions so that the chest is allowed to recoil fully. (**)

Why?

Studies have shown that applying force to the chest while performing CPR results in a proportional reduction in coronary perfusion pressure, which may adversely affect the outcome of the CPR effort. The 2011 guideline *(After each compression release all the pressure on the chest without losing contact between your hands and the sternum)* did not specifically indicate that harm might be caused by leaning on the chest. The 2011 and 2016 guidelines should be considered together.

Early defibrillation

Use of the AED

2016 Guidelines

- For a person in cardiac arrest an AED should be used and as early as possible. (**)
- When an AED is available the first aid provider must always do CPR while waiting for the AED to be available and made ready for use. (**)

Why?

Early use of the AED has always been a key element in survival after cardiac arrest. Studies have now shown that there is no benefit from a pre-determined period of 90 to 180 seconds of CPR before defibrillation when compared with immediate defibrillation with CPR being performed while the AED equipment is made ready and attached to the person.

Withholding of resuscitation in cases of traumatic pre-hospital cardiopulmonary arrest

2016 Guideline

- Resuscitation efforts may be withheld in casualties with injuries incompatible with life such as (*):
  - decapitation
  - hemicorporectomy
  - evidence of significant time lapse since cardiac arrest including dependent hypostasis, rigor mortis and decomposition
  - incineration

Why?

Injury is a leading cause of death across the world and traumatic pre-hospital cardiopulmonary arrest confers a very poor prognosis. In order to preserve dignity, conserve human and financial resources and minimize risks to first aid providers, the performance of CPR should be weighed against the risks and costs of resuscitation attempts.

It is possible to identify casualties for whom there is no realistic chance of survival and when resuscitation attempts would be futile and distressing for relatives, friends and first aid providers and when time and resources would be wasted undertaking such attempts.

These guidelines do not address children, casualties with complications such as hypothermia and casualties with a medical cause for cardiac arrest. It recognizes that there are specific guidelines in different countries around legal matters such as living wills and advanced directives.

09.

Unchanged topics in 2016

General principles
Citizen preparedness for disasters and daily emergencies
Prevention
Personal safety
Linkages to other healthcare
Update and retraining
Target populations and their supporters
Ethics

General approach
Call for help, EMS or further help
Medication administration

First aid for medical conditions
Diabetes and hypoglycaemia treatment
Use of oxygen

First aid for injuries
Concussion
Chest and abdomen Injuries
Extremity injuries
Wounds and abrasions
Injuries due to chemical exposure

Environmental health problems
Health problems caused by cold
Health problems caused by high altitude

First aid for animal-related impairments
Animal bites
Snakebites
Jellyfish stings
Insect bites or stings

Psychological first aid
Psychological first aid principles
De-escalating techniques for violent behaviour
Panic attack
Extreme stress and post-traumatic stress disorder
Suicidal ideation

The Fundamental Principles of the International Red Cross and Red Crescent Movement

Humanity The International Red Cross and Red Crescent Movement, born of a desire to bring assistance without discrimination to the wounded on the battlefield, endeavours, in its international and national capacity, to prevent and alleviate human suffering wherever it may be found. Its purpose is to protect life and health and to ensure respect for the human being. It promotes mutual understanding, friendship, cooperation and lasting peace amongst all peoples.

Impartiality It makes no discrimination as to nationality, race, religious beliefs, class or political opinions. It endeavours to relieve the suffering of individuals, being guided solely by their needs, and to give priority to the most urgent cases of distress.

Neutrality In order to enjoy the confidence of all, the Movement may not take sides in hostilities or engage at any time in controversies of a political, racial, religious or ideological nature.

Independence The Movement is independent. The National Societies, while auxiliaries in the humanitarian services of their governments and subject to the laws of their respective countries, must always maintain their autonomy so that they may be able at all times to act in accordance with the principles of the Movement.

Voluntary service It is a voluntary relief movement not prompted in any manner by desire for gain.

Unity There can be only one Red Cross or Red Crescent Society in any one country. It must be open to all. It must carry on its humanitarian work throughout its territory.

Universality The International Red Cross and Red Crescent Movement, in which all societies have equal status and share equal responsibilities and duties in helping each other, is worldwide.

For more information on this IFRC publication, please contact:

Global First Aid Reference Centre
first.aid@ifrc.org

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