OCCUPATIONAL HEALTH AND SAFETY DEPARTMENT

GENERAL PRELIMINARY TRAINING IN OCCUPATIONAL HEALTH AND SAFETY

FOR STUDENTS CONDUCTING INTERNSHIP AT UNIVERSITY CLINICAL HOSPITAL (USK) IN WROCŁAW

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Occupational Health and Safety (OHS) definitions

- ***Occupational safety*** **– is a state of conditions, organisation and behaviour of an employee that ensures the required level of protection of his/her**

  health and life against hazards occurring during the work process.

- ***Occupational health*** **– the shaping of work conditions and**
  environment in a way that ensures preservation of health.

The state of conditions, organisation of work and behaviour of employees ensuring the required level of protection of life and health against hazards occurring in the work environment

Occupational safety
consists of activities and resources involved to prevent injuries and accidents at work

Occupational health
consists of actions and measures undertaken to prevent the transmission of occupational diseases

Accident and health hazards occurring at the Hospital and basic preventive measures

Basic terms in the scope of OHS

Accident at work – a sudden event caused by an external factor related to work, which leads to injury or death.

Injury (Latin *trauma*) means damage to a tissue, organ, or larger area of the body by a mechanical or thermal factor.

Serious accident – an accident resulting in severe bodily injury, such as loss of sight, hearing, speech, reproductive capacity, or other bodily injury or disorder of health impairing basic bodily functions, as well as an incurable or life-threatening disease, permanent mental illness, total or partial inability to work in the profession
or permanent, significant disfigurement or distortion of the body.

Accident regarded as equal to work accident – with regard to entitlement to benefits established in the relevant act, it is necessary to regard as equal an accident at work and an accident involving an employee, which occurred:

- during a business trip, in circumstances other than those specified in sec. 1, unless the accident was caused by the employee's behaviour that was not related to the performance of his/her duties;
- during general self-defense training;
- when carrying out tasks commissioned by trade union organisations operating at the employer's premises.

Basic terms in the scope of OHS

Fatal accident – an accident resulting in death within six months from the date of the accident.

Group accident – an accident involving two or more people.

The circumstances and causes of an accident at work are determined by **the accident investigation team**.

Professional exposure – means the exposure of an employee to biological, potentially infectious material in connection with the performance of professional work.

Basic OHS concepts

Near miss incident – a hazardous work-related event that entails no injury or impairment.

Occupational disease means a disease defined

in the list of occupational diseases, if it was caused by activities of factors harmful to health that occur in the work environment or the method of performing work.

Basic OHS concepts

Accident on the way to or from work– means a sudden event caused by an external factor, which occurred on the way to or from the place of employment, or another activity granting the right to disability insurance, if the route was the shortest and was not interrupted. However, it is considered that the accident occurred on the way to or from work, despite the fact that the road was interrupted, if the interruption was justified based on life-related grounds and its time did not exceed the limits of necessity, and also in the case when the route was not the shortest for the insured person but was most convenient due to the transport reasons.

Basic OHS concepts

Social Labour Inspector – an employee appointed by the workplace personnel to supervise the employer's compliance with labour law and occupational health and safety.

Accident investigation team – a team of two employees appointed by the employer in order to determine the circumstances and causes of an accident at work. This team includes an occupational health and safety officer and a social labour inspector.

Basic OHS concepts

Route to or from work – apart from the route from home to work and from work to home means a route to or from:

- another place of employment or activity that grants the basis for disability insurance;
- a place where the ordinary performance of professional or social functions or tasks occurs;
- a place of usual food consumption;
- a school, university or another educational facility.

Accident reporting rules:

Every employee who has witnessed an accident at work or became aware of an accident at work, in particular an employee's immediate supervisor, is obliged to provide immediate assistance to the injured person and notify the occupational health and safety officer by telephone.

An employee who has been involved in an accident, if his/her health condition allows it, is obliged to notify his/her immediate supervisor of such an accident on the same day. If the effects of the accident become apparent at a later date, the employee should immediately notify his/her immediate supervisor of such an occurrence.

- The employee should provide a written notice of the accident and forward it to the immediate supervisor if his/her health condition allows it.
- The employee's immediate supervisor should forward the written notice of the accident to the Director of the University Clinical Hospital on the same day or no later than the following day.

If the employee's health condition prevents him/her from reporting the accident, such an obligation falls on his/her immediate supervisor.

Securing the place of an accident means that machinery and equipment that have been rendered inoperative as a result of the accident must not be used until causes and circumstances of the accident are established.

Additionally, it is not allowed to alter their location, together with the location of other items, and grant entrance to the place of the accident to unauthorised persons.

An employee who has been injured in an accident, if his/her health condition allows it, should report to the emergency room or the nearest medical facility for medical consultation concerning such an injury.

Such an employee should provide the Occupational Health and Safety Officer at the University Clinical Hospital with a copy of medical records from his/her medical consultation to include them in the post-accident documentation (original for review).

Documents:

– a notice of an accident,

– medical certificate confirming the provision of first aid,

– a record sheet containing explanations obtained from the victim of the accident,

– record sheet containing information obtained from a witness of the accident,

– medical certificate of the ability to work,

– request for referral to the Social Insurance Institution (ZUS),

– report from the investigation of causes and circumstances of the accident.

Benefits for accidents occurring on the route to or from work

In the event of documenting an accident, classified as an accident on the route to or from work, by the injured employee, the employee is entitled to:

– 100% remuneration from the employer,
– 100% sickness benefit from the Social Insurance Institution (ZUS).

These benefits are financed under sickness insurance.
The employee is not entitled to a one-time monetary compensation on these grounds.

Accident insurance benefits do not apply with regard to an employee who, while intoxicated or under the influence of intoxicants or psychotropic substances, has significantly contributed to causing an accident.

Benefits for accidents at work and occupational diseases:

In the event of an accident at work or occupational disease, the following benefits apply:

- sickness benefit for an insured person whose inability to work resulted from an accident at work or an occupational disease,

- rehabilitation benefit for an insured person who is still unable to work after exhaustion of sickness benefit, while further medical treatment or rehabilitation provides the opportunity to regain the ability to work,

- compensatory benefit for an insured employee whose wages have been reduced as a result of permanent or long-term health impairment,

– disability pension for an insured person who has become unable to work as a result of an accident at work or an occupational disease;

– training pension for an insured person who has been advised to undergo vocational retraining due to inability to work in his/her earlier practised profession as a result of an accident at work or occupational disease,

– one-time compensation for an insured person who has suffered permanent or long-term health impairment,

– one-time compensation for family members of a deceased insured or disability pensioner,

- survivor's pension for the family members of a deceased insured or disability pensioner entitled to a pension as a result of an accident at work or occupational disease;
- supplement to survivor's pension– for an orphan;
- nursing supplement;
- covering the costs of treatment in the scope of dentistry and preventive vaccinations, as well as the supply of orthopaedic appliances to the extent defined by law.

Responsibility for the violation of OHS rules and regulations:

Responsibility for the violation of OHS rules and regulations:

Persons who, despite their obligation, fail to timely notify the competent authority of an accident at work or occupational disease and fail to prepare the required documentation may be subject to a fine of up to 180 daily rates or the penalty of liberty restriction.

Responsibility for the violation of OHS rules and regulations:

Note!

In accordance with **Order No. 83/2017 of the Director of the USK of 17 November 2017,** Uniform Regulations of Work at the University Clinical Hospital in Wrocław were introduced.

In the Work Regulations**, Chapter 8, Art. 50-52** outlines ***Special rules and procedures for compliance with the obligation of sobriety.***

In **Chapter 13** ***Liability for breach of occupational obligations***, **Art. 77.3** sets forth the rules for imposing a monetary penalty for an employee's failure to comply with the sobriety obligation.

The Regulation of the Minister of Health of 11 December 2015 on alcohol testing provides for two types of alcohol testing:

(a) alcohol breath test,
(b) blood test.

The alcohol breath test is conducted in a non-invasive manner using a breathalyser that measures the alcohol concentration in exhaled air via infrared spectrometry or electrochemical oxidation ("the exhaled breath analyser").

The blood test using blood drawn from a vein of the subject involves at least two laboratory analyses.

Note! Reports are conducted in the case of both the breathalyser test and the blood test.

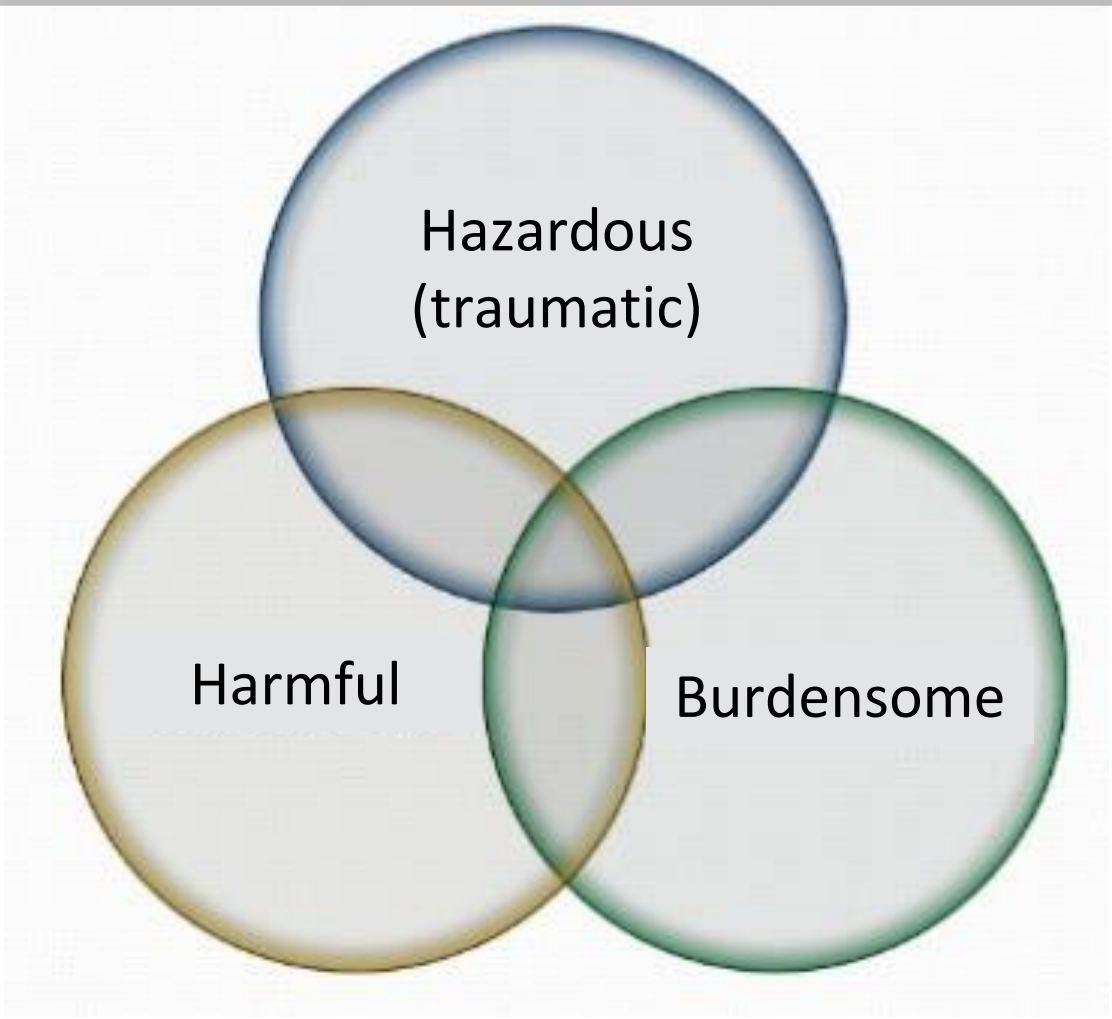
The obligation to remain sober while at work, which arises from the law and the rules of social intercourse, is one of the basic duties of an employee.

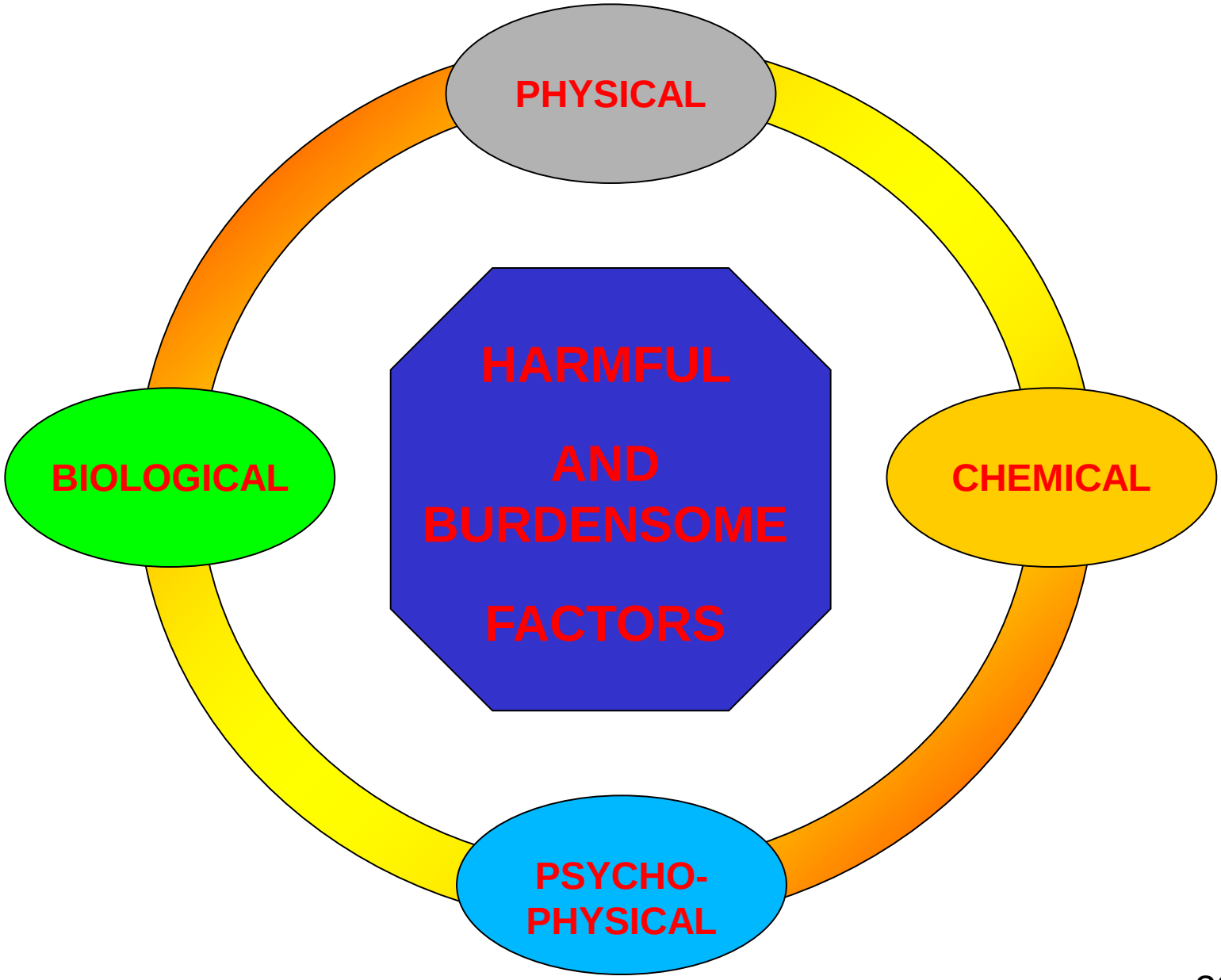
Even a single breach of this duty may therefore give grounds for termination of employment under **Art. 52 of the Labour Code**, i.e. without notice, due to the fault of the employee resulting from a serious breach of basic employment obligations (disciplinary dismissal).

In such a situation, the employee's blood alcohol level is irrelevant, and the employer may establish the permissible level in the Company's Work Regulations*.

Source:http://www.regiopraca.pl/portal/porady/prawa-pracownika/czy-pracodawca-moze-skontrolować-stan-trzeźwosci-pracownika

Hazardous factors in the work process – division of hazards




PHYSICAL
BIOLOGICAL
CHEMICAL
HARMFUL
AND
BURDENSOME
FACTORS
PSYCHO-
PHYSICAL

HAZARDS

- **Biological hazards** – potentially infectious material;
- **Chemical hazards** – disinfectants, medications;
- **Physical hazards** – radiation, fire;
- **Mechanical hazards** – e.g., slippery and uneven surfaces, moving parts of machines, lifting;
- **Psychosocial hazards** – patient's aggression, occupational burnout.

BIOLOGICAL HAZARDS – LIST OF THE MOST IMPORTANT HAZARDS

- **Viruses: HBV, HCV, HIV, SARS-CoV-2** – transmitted directly by contact with infected biological material, e.g. through injuries, cuts, punctures, contact with mucous membranes.
- **Bacteria**, e.g. **Mycobacterium tuberculosis**, Enterobacteriaceae, staphylococci, influenza bacilli, chlamydia pneumoniae – transmitted by various routes, such as direct contact, airborne and droplet or airborne and dust.
- **Fungi**– the main exposure involves **dermatophytosis** transmitted directly by hand contact.
- **Parasites** – parasites, both mature and in larval stages, can be pathogenic. They are foodborne.
- **Prions** – infection occurs by direct contact with a cut, through implantation or ingestion of contaminated foods.

BIOLOGICAL HAZARDS – PROTECTIVE MEASURES

Collective protective measures – fulfilment of appropriate workroom and equipment requirements:

- floors that are non-absorbent, smooth, easily washable and resistant to disinfectants;
- walls that are easily washable and resistant to disinfectants;
- mechanical ventilation or air conditioning in rooms with increased aseptic requirements;
- equipment of workrooms with devices and means enabling effective disinfection (separate washbasins for washing hands);
- equipment with disinfectants, airtight waste containers and waste bags.

BIOLOGICAL HAZARDS – PROTECTIVE MEASURES

Protective clothing – personal protective equipment:

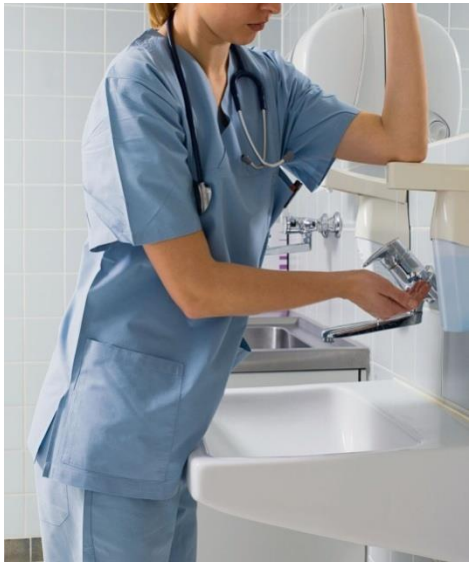
- disposable gloves;
- disposable aprons;
- face masks/face masks with filters against fine particle;
- safety goggles or face shield;
- footwear.

BIOLOGICAL HAZARDS – PROTECTIVE MEASURES

Fulfilment of procedures regarding behaviours at work, in particular:

- sanitary requirements and hand washing;
- handling of sharp tools;
- handling of medical waste.

Equipment and products for cleaning and disinfection

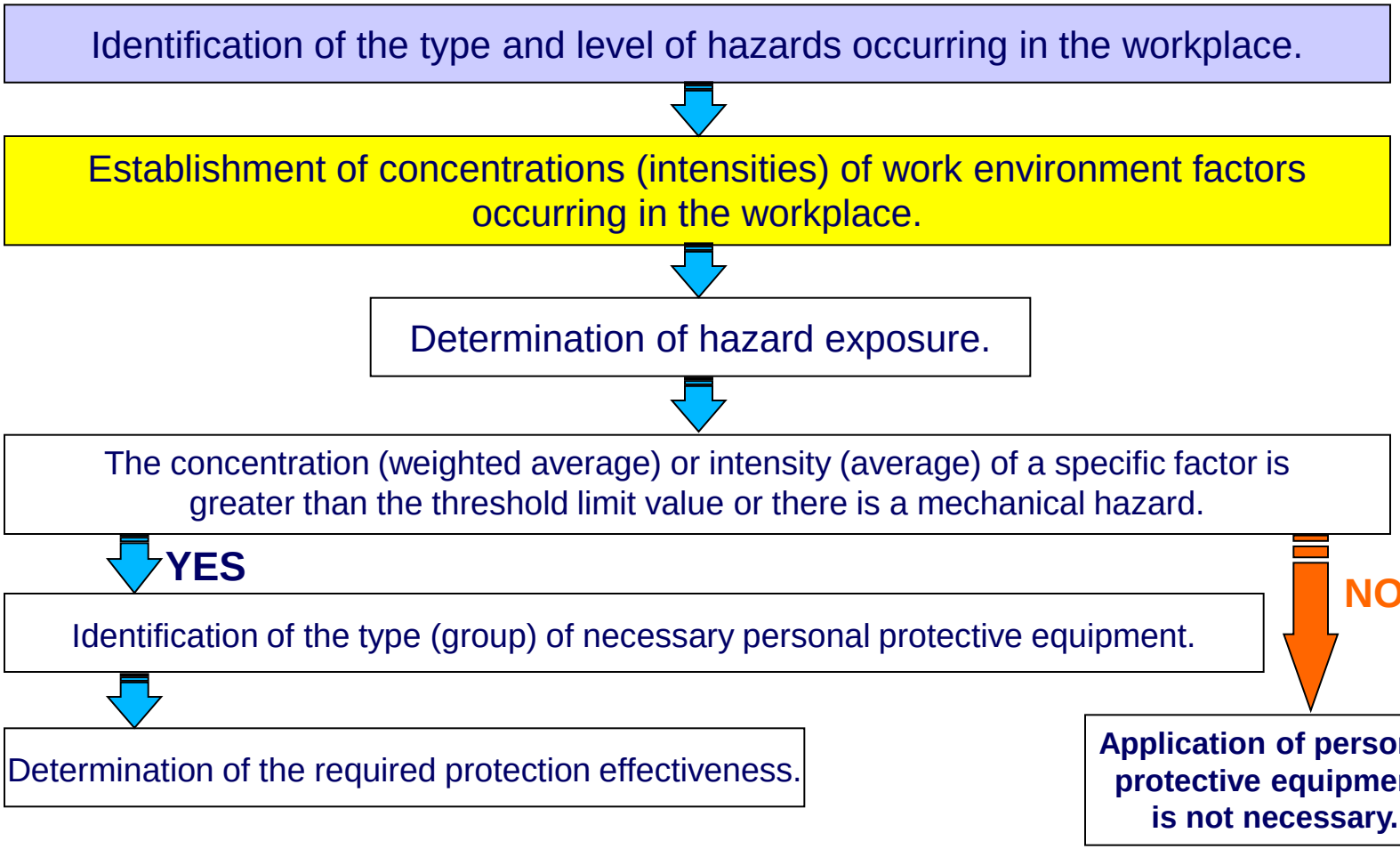


RISK OF PROFESSIONAL EXPOSURE OF EMPLOYEES

a) Stabbing with a bloody needle – 80%

b) Injury by surgical instruments – 8%

Rules for the allocation of personal protective equipment



According to the Labour Code, the employer is obliged to provide the employee with personal protective equipment (such as helmets, gloves, hearing protectors, safety goggles, masks, etc.) free of charge to protect them against dangerous and harmful factors occurring in the workplace.

The employer is also obliged to inform the employee about the ways of using this equipment.

Personal protective equipment (PPE) means items intended to be worn or possessed by an employee to protect him/her against one or more hazards that may affect his/her health or safety at work.

Types of work for which protective clothing is required:

a) work involving exposure to harmful chemical and biological substances and dust,
b) work involving exposure to carcinogenic substances,
c) work with rough surfaces, sharp edges, and other objects that pose a risk of injury,
d) work exposing the body to wetting or the clothing to soaking through the use of water, solutions, baths, liquid masses, oils, fats or other moist, oily or greasy liquid substances.

Protective equipment and its use:

1) Protection of upper extremities and hands:

a) latex, vinyl or nitrile gloves (resistant to disinfectants) should be used when handling chemical substances,

b) skin protective measures (creams) should be used after handling the patient, handwashing and hand disinfection.

2) Eye and face protection:

a) protective goggles and masks should be used when performing activities that involve potential splashing or spraying, surgical procedures, use of disinfectants, work in laboratories, and work with lasers,

(b) X-ray protective eyewear and X-ray protective masks should be used when performing activities involving radiological examinations, procedures and diagnostics.

Protective equipment and its use:

3) Body protection:

a) protective clothing resistant to wetting should be used when performing activities involving a risk of wetting of clothing,

b) X-ray protective one- and two-piece (blouse and skirt) aprons (double-sided), X-ray pelvic aprons, bibs (X-ray thyroid shields) or X-ray testicle shields (ceramic cups) should be used when performing activities involving radiological examinations, procedures and diagnostics.

The use of personal protective equipment to protect the body, eyes and face, upper limbs, hands, and lower limbs from biological factors is regulated by ***Director's Order No. 68/2013 on the principles of managing individual work clothing and footwear, personal protective equipment and on-call clothing, closet cabinets and ID badges for the USK's employees.***

Types of work for which upper limb protective equipment is required:

a) Work involving sharp, cutting, stabbing, burning or particularly rough objects or materials, or other work involving exposure to injuries to hands, excluding work with machinery which involves a risk of sucking in the glove,
b) work that exposes employees to hazardous chemical and biological substances,
c) work where employees hands are exposed to toxic, caustic or irritating substances,
d) work involving exposure to carcinogenic substances.

Types of work for which upper limb protective equipment is required:

f) work with bodies of deceased persons or substances derived from such bodies,
g) work with dirty laundry, clothes, rags, old and non-disinfected clothes, waste,
h) any work where hands are exposed to substances that may contain germs,
i) renovation and repair work involving paint coatings and ceramic tiling of floors and walls.

WORK CLOTHING AND FOOTWEAR

Types of work for which face and eye protective equipment is required:

a) work exposing eyes to substances with eye irritation effect, such as coal dust and other particles or caustic vapours,
b) working with lasers,
c) observing intense points of light,
d) work requiring the use of hook lamps or other sources of ultraviolet radiation,
e) work exposing the eyes to potential sharp particles, molten metals or caustic liquids,
f) work involving exposure to carcinogenic substances,
g) work involving spraying liquids,
h) work with acids, caustic solutions, disinfectants and corrosion removers.

PERSONAL PROTECTIVE EQUIPMENT

PROFESSIONAL EXPOSURE

Post-exposure management – **3 steps**:

- Non-specific management;
- Specific management;
- Reporting exposure .

PROFESSIONAL EXPOSURE – NON-SPECIFIC MANAGEMENT

- Wash the wound immediately with copious amounts of lukewarm water (or soap and water)
- Do not stop the bleeding! Do not force out the blood!
- Disinfect the wound (it is not recommended to use agents that can denature proteins e.g. iodine, spirit)
- Apply a waterproof dressing

* if conjunctivae or mucous membranes have been contaminated, rinse several times with 0.9% NaCl or water (do not use alcohol-based disinfectants)

PROFESSIONAL EXPOSURE – SPECIFIC MANAGEMENT

It is necessary to:

- Secure the source of exposure (if it is possible and safe!);
- Collect 10 ml of blood from the exposed person for testing;
- If the patient is the source of exposure, collect a blood sample for testing – only upon the patient's consent!
- Report to the ED to the on-call physician with test results (fill out an individual exposure sheet);
- The ED physician may refer the patient to the Department of Paediatrics and Infectious Diseases located at ul. Chałbińskiego 2 in Wrocław.

PROFESSIONAL EXPOSURE – REPORTING EXPOSURE

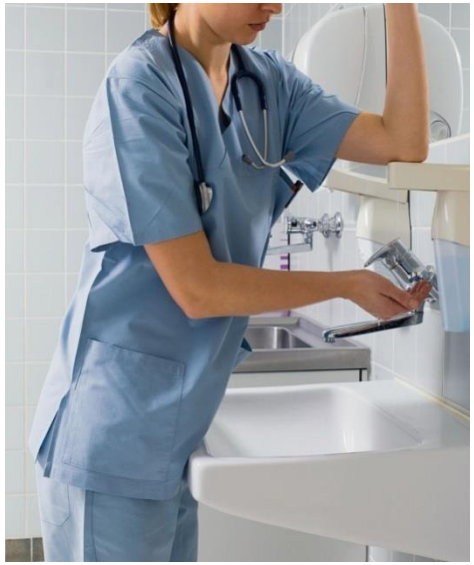
Immediately report the incident to:

– immediate supervisor,

– physician on duty in the ED,

– OHS services.

Equipment and products for cleaning and disinfection



Separate dining and locker rooms

Separate sanitary facilities and products

CHEMICAL HAZARDS

Sources of chemical hazards include:

- disinfectants – as a result of frequent contact with the skin, they cause irritation, allergies and dermatitis,
- cytostatic medications (pills, ampoules, injections)
- anaesthetic chemicals,
- toxic substances, including carcinogenic substances, such as ethylene oxide used as a steriliser,
- medications used in inhalers,
- medical gases (therapeutic oxygen, nitrous oxide, anaesthetics),
- chemicals occurring in the air as gases, vapours, or aerosols;
- pharmacological agents (tissue and endoprosthesis adhesives).

Due to the nature of work with sick people, the Hospital is a place where there is a unique concentration of hazardous substances and materials. Therefore, it is necessary to maintain cleanliness in the Hospital by properly disinfecting rooms, surfaces, medical apparatus and instruments, linen, hands, etc.

The Hospital uses hazardous substances and materials that may pose danger to employees, patients and other persons remaining on its premises.

List of hazardous substances, preparations and materials used at the Hospital

No.	Dangerous substances, preparations and materials	Place of application
1.	Disinfectants	the entire Hospital
2	Magistral preparation, chemical substances and reagents	Hospital pharmacy, Department of Laboratory Diagnostics, Department of Operating Theatres, Department of Pathomorphology and Clinical Cytology.
3	Medical gases	hospital wards, operating theatre
4	Industrial gases	Department of Facility Maintenance, Department of Laboratory Diagnostics

List of hazardous substances, preparations and materials used at the Hospital

Cytostatic medications	Clinical Department of Angiology, Clinical Department of Paediatric Anaesthesiology and Intensive Care, Clinical Department of Nephrology, Department of Clinical Oncology with the Day Department of Oncology, Clinical Department of Ophthalmology – treatment room complex, Clinical Department of Rheumatology and Internal Medicine, Clinical Department of Urology and Urological Oncology, Clinical Department of Immunology, Bone Marrow Transplantation and Gene Therapy, Clinical Department of Gynaecology and Obstetrics, Clinical Department of Paediatric Oncology and Haematology with Increased Surveillance Unit, Department of General Surgical Radiology and Neuroradiology, Hospital pharmacy.

List of hazardous substances, preparations and materials used at the Hospital

Intoxicants and psychotropic substances,	Hospital departments, Hospital pharmacy
Diesel oil	Electricity generators
Glycol	Chillers
Paints and varnishes	Department of Facility Maintenance

List of medical gases used at the Hospital

Name	Application	Exposed positions
Medical oxygen	Treatment of patients with respiratory failure and during anaesthesia	Doctors and nurses during surgeries, nurses working in hospital departments and personnel handling medical gas
Nitrous oxide	Inhalational general anaesthetics	
Sevoflurane (Sevorane)		
Desflurane (Suprane)		
Compressed air	Creation of vacuum, drive for surgical instruments and apparatus , incubators	
Compressed carbon dioxide	Minimally invasive procedures (laparoscopy, arthroscopy)	Doctors and nurses during surgical procedures and personnel handling medical gases

List of medical gases used in the Hospital cont.

Nitrogen	Deep cooling of affected tissue, cooling of burns in children	Physiotherapy technician, physiotherapist, personnel handling medical gases
Gas mixture	Spirometry	CSE doctors and nurses at examinations
	Specialised testing	Ultrasound examination room, building FA, first floor (room 1.56)
Argon	Endoscopic examinations, surgical procedures	Doctors and nurses during examinations, surgical procedures

List of industrial gases used at the Hospital

Name	Application	Exposed positions
Propane-butane gas	for microbiological testing (burner)	Personnel of the Microbiology Laboratory (building J1)
Helium	to supply the MRI cooling system	Technicians, nurses and doctors working in the MRI examination room (building J)

CHEMICAL HAZARDS

The most common effects of chemical substances:

– skin irritation,

– generalised allergic reactions,

– irritation of mucous membranes,

– burns or poisoning.

CHEMICAL HAZARDS

Methods of protection against hazards caused by chemical substances:

- labelling all used chemicals in a visible and identifiable manner;
- ventilation;
- using air-proof solutions, e.g. laminar flow cabinets, in areas of particular exposure when using cytostatics;
- providing medical personnel with protective clothing and personal protective equipment;
- marking hazardous areas with warning signs.

LABELLING OF CHEMICAL SUBSTANCES

No.	Meaning	Letter marking
1.	Unstable explosives	GHS 01
2.	Flammable liquid and vapours.	GHS 02
3.	Oxidising gases and liquids.	GHS 03
4.	Gases under pressure, liquefied, liquefied cooled and dissolved gases.	GHS 04
5.	Caustic effect.	GHS 05
6.	Acute toxicity.	GHS 06
7.	Acute toxicity, skin and eye irritation.	GHS 07
8.	Sensitising, mutagenic, carcinogenic, harmful to the reproductive system, toxic.	GHS 08
9.	Highly toxic to aquatic life with long-lasting effects.	GHS 09

Labelling of **Chemicals**

The physical hazard category consists of chemical substances and mixtures of chemicals designated with the letter markings: GHS 01, GHS 02, GHS 03, GHS 04, GHS 05.

The health hazard category consists of chemical substances and mixtures of chemicals designated with the letter markings: GHS 05, GHS 06, GHS 07, GHS 08.

The environmental hazard category consists of chemical substances and mixtures of chemicals designated with the letter markings: GHS 07 and GHS 09.

LABELLING OF CHEMICAL SUBSTANCES

No.	Meaning	Letter marking	Symbol
1	Unstable explosives	GHS 01	
2	Flammable liquid and vapours.	GHS 02	
3	Oxidising gases and liquids.	GHS 03	
4	Gases under pressure, liquefied, liquefied cooled and dissolved gases.	GHS 04	
5	Caustic effect.	GHS 05	

LABELLING OF CHEMICAL SUBSTANCES

6	Acute toxicity.	GHS 06	
7	Acute toxicity, skin and eye irritation.	GHS 07	
8	Sensitising, mutagenic, carcinogenic, harmful to the reproductive system, toxic.	GHS 08	
9	Highly toxic to aquatic life with long-lasting effects.	GHS 09	

PHYSICAL HAZARDS

Radiation:

- electromagnetic fields – magnetic resonance;
- laser radiation;
- Ionising radiation – X-ray machines;
- ultraviolet radiation – germicidal lamps.

Fire/explosion;

Electricity.

MECHANICAL HAZARDS

- moving parts of equipment,
- materials on the move: **food, waste and equipment transport**
- persons on the move: **transport of patients**, patient's movement, employee's movement,
- location of the worksite at a different level than the surrounding terrain (at elevation, in a depression),
- surface temperature of technical equipment and materials,
- sharp, protruding edges,
- narrow, low passageways and entrances,
- slippery, uneven surfaces

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

The weight of objects to be lifted and carried must not exceed:

1) for women:

- **– 12 kg in case of permanent job,**
- **– 20 kg in case of part-time job.**

2) for men:

- **– 30 kg in case of permanent job,**
- **– 50 kg in case of part-time job.**

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

The weight of objects lifted above the shoulder height must not exceed:

1) for women:

- **– 8 kg in case of permanent job,**
- **– 14 kg in case of part-time job.**

2) for men:

- **– 21 kg in case of permanent job,**
- **– 35 kg in case of part-time job.**

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

The weight of the objects carried at a distance exceeding 25 metres must not exceed:

1) for women – 12 kg

2) for men –30 kg

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

When carrying an object uphill, on an uneven surface, ramps or stairs, the maximum angle of inclination of which does not exceed 30^0 and the height of which exceeds 4 metres, regardless of the distance over which the object is carried, the weight of this object must not exceed:

1) for women – 12 kg

2) for men –30 kg

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

When carrying an object uphill, on an uneven surface, ramps or stairs, the maximum angle of inclination of which does not exceed 30^0 and the height of which exceeds 4 metres, regardless of the distance over which the object is carried, the weight of this object must not exceed:

1) for women:

- **8 kg in case of permanent job,**
- **12 kg in case of part-time job.**

2) for men:

- **20 kg in case of permanent job,**
- **30 kg in case of part-time job.**

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

When moving objects by hand in teams, it is permissible to:
carry objects whose length exceeds 4 m and whose weight exceeds 30 kg for men and 20 kg for women, provided that the weight per one employee does not exceed:

1) for women:

- **– 10 kg in case of permanent job,**
- **– 17 kg in case of part-time job.**

2) for men:

- **– 25 kg in case of permanent job,**
- **– 42 kg in case of part-time job.**

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

When moving objects by hand in teams, the force used by an employee that is necessary to initiate movement of the object, measured parallel to the ground, must not exceed:

1) when pushing for women –100 N,

2) when pushing for men – 250 N,

3) when pulling for women – 80 N,

4) when pulling for men – 210 N.

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

As of 1 May 2017, the permissible weight of an object being moved on a cart, on flat terrain with a hard and smooth surface, including the weight of the cart, must not exceed:
when transferring an object on terrain, the inclination angle of which
does not exceed 5%:

1) for women:

– on a 2-wheel cart – 140 kg,

– on a 3 or more wheel cart – 180 kg;

2) for men:

– on a 2-wheel cart – 350 kg,

– on a 3 or more wheel cart – 450 kg.

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

As of 1 May 2017, the permissible weight of an object being moved on a cart, on flat terrain with a hard and smooth surface, including the weight of the cart, must not exceed:

when transferring an object on terrain, the inclination angle of which

does not exceed 5%:

1) for women:

- **– on a 2-wheel cart – 100 kg,**
- **– on a 3 or more wheel cart – 140 kg;**

2) for men:

- **– on a 2-wheel cart – 250 kg,**
- **– on a 3 or more wheel cart – 350 kg.**

PHYSICAL OVERBURDEN – LIFTING AND HANDLING STANDARDS

When transferring an object on a cart, on uneven or unpaved surfaces, the permissible weight of the object, including the weight of the cart, may not exceed 60% of the values indicated above (Art. 21 sec. 2 of the Regulation on occupational health and safety for manual transport work and other work related to physical effort).

Patient transfers using manually-operated wheelchairs and beds

Wheelchairs used for internal manual handling

Wheelchairs used for internal manual handling

PSYCHOSOCIAL RISKS

- **Patient aggression**
- **Stress**
- **Occupational burnout**

NO SMOKING

The area of the Hospital is covered by a complete ban on smoking tobacco products and e-cigarettes. The Hospital facility is a smoke-free zone.

Responsibilities of employees regarding fire protection.

It is the responsibility of each employee to comply with fire safety regulations.

Responsibilities of employees regarding fire protection.

In particular, the employee should:

a) participate in fire protection training,
b) become familiar with fire safety instructions,
c) prevent the occurrence of factors causing fires,
d) know the fire alarm and fire emergency procedures,
e) know the location, purpose and operation of
f) portable firefighting equipment,
g) be familiar with firefighting procedures using portable firefighting equipment,
h) be familiar with the evacuation procedures.

After the fire alarm system has been triggered,
clear the evacuation routes
and access to
portable firefighting equipment!!!

MAKE
EVACUATION ROUTES CLEAR.

Locate the hazard
and, if possible,
start firefighting
using portable firefighting equipment.

LOCATE THE FIRE
USE PORTABLE
FIREFIGHTING EQUIPMENT.

In case of fire,
notify LCN operator
by calling 71-733-1770
or 662-232-549, providing details
of the location and size of fire, as well as,
name of the person notifying.

NOTIFY
LCN operator
phone no. 71-733-1770
or 662-232-549

Once the notification is confirmed,
proceed to the emergency exits
informing
encountered people
about the fire.

PROCEED TO
EVACUATION ROUTES
INFORM OTHERS.

When you notice smoke or fire,
warn other workers
of the danger.

WARN OTHERS.

Begin extinguishing using
portable firefighting equipment.

USE PORTABLE FIREFIGHTING EQUIPMENT.

In case of fire,
Notify LCN operator by calling
71-733-1770 or 662-232-549,
providing details of the location and
size of fire, as well as, name of the
person notifying.

NOTIFY.
LCN operator 71-7331770
662 232 549

Once the notification is confirmed,
proceed to the emergency exits
informing encountered people about
encountered people
about the fire.

PROCEED TO EVACUATION ROUTES INFORM OTHERS.

Switch off ventilation equipment,
transport and heating, turn off
the main gas valve, if necessary
switch off
electrical equipment.

SWITCH OFF ALL ELECTRICAL EQUIPMENT TURN OFF ALL GAS VALVES

In case of sighting fire, smoke it is necessary to:

a) notify persons in the neighbourhood, clinic, establishment, department, division, laboratory or facility of the fire or other emergency,

b) notify the LCN Duty Officer by telephone or other means, stating the nature of the hazard:

- location of fire - address, name of building, storey,
- what is on fire - roof, room, storage, archive, cloakroom, doctor's surgery, office, basement,
- whether human life is at risk,
- your name and the telephone number you are calling from.

a) after hanging up, take a moment to check the credibility of the call,

b) proceed to extinguish the fire with handy extinguishing agents.

Types of portable firefighting equipment and scope of application of extinguishing agents.

Groups of fires by type of burning material and method of combustion:

A fires involving solids of organic origin with incandescent burning (e.g. wood, paper, textiles);

B fires of flammable liquids and solids that melt when heated (petrol, alcohol, oils, fats, varnishes);

C fires involving combustible gases (e.g. propane, acetylene, natural gas);

D metal fires (magnesium, sodium, uranium, etc.);

F fires of fats and oils in cooking equipment.

Depending on the fire group, appropriate extinguishing agents are used.

Types of portable firefighting equipment at USK

Powder extinguishers of type GP-6

Application – fires classified as **group A, B or C**.
A - flammable solids, incandescent
B - flammable liquids
C - flammable gases

The GP- 6 fire extinguisher with ABC powder is designed for extinguishing fires while they are in bud. It is especially recommended for securing various types of cars, garages, warehouses, wholesale, industrial and power plants, offices, schools, hotels, flats and single and multi-family buildings. The construction of the base with a foot enables stationary use of the extinguisher, additionally it can be equipped with a hanger for mounting the extinguisher on a wall.

Powder extinguisher GP-6x-ABC

Is designed for extinguishing group A, B and C fires

Internal hydrants

External hydrants

The causes of fires may vary.

They very often depend on human action and are the result of negligence, carelessness and disregard for fire regulations.

The most common causes of fire sources are:

a) carelessness with open flames (cigarettes, campfires, paraffin lamps),
b) carelessness when handling flammable substances,
c) carelessness when carrying out work that is potentially dangerous in terms of flammability (e.g. carrying out repair and construction work using fire near flammable materials),
d) defects in electrical equipment and installations and their improper operation,
e) defects in electric heating appliances and their improper operation,

FIRE

it is the uncontrolled process of burning, in a place not intended for it.

OTHER LOCAL RISK

is an event resulting from the development of civilisation and the natural laws of nature, which is not a fire or a natural disaster, and which poses a threat to life, health, property or the environment, and the prevention or correction of which does not require exceptional measures.

NATURAL DISASTER

is a natural disaster or technical accident, the consequences of which threaten the life or health of a large number of people, property on a large scale or the environment in a significant area, and for which aid and protection can be undertaken effectively only with extraordinary measures, in cooperation between various authorities and institutions and specialised services and formations acting under unified command.

Causes and spread of fires:

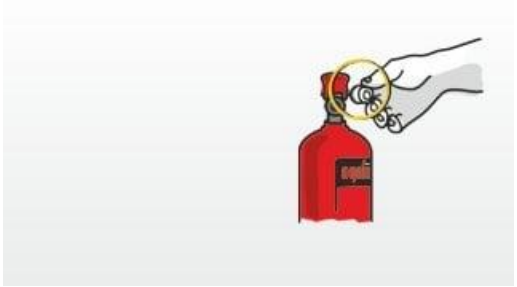
a) defects and incorrect operation of solid, liquid and gas-fuelled heating appliances,
b) defects in mechanical equipment and incorrect operation (e.g. equipment left running without care or professional supervision),
c) incorrect storage of dangerous substances,
d) process defects and non-compliance with technological regimes,
e) spontaneous combustion of materials, electrical discharges,
f) arson.

Ways of using a powder extinguisher when extinguishing a fire:

A - combustible solids, incandescent,

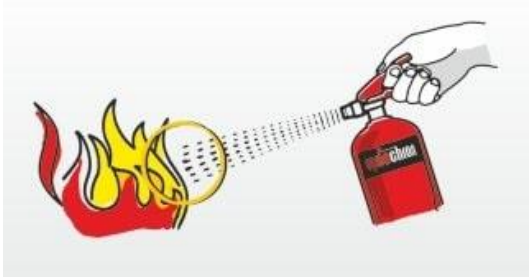
How to use a powder extinguisher

1. Remove the safety splint. This will unlock the extinguisher.



2. Point the nozzle at the source of the fire. Do not aim at the flames.

3. Press the trigger lever to release the extinguishing agent.



4. Sweep the fire source with a jet of extinguishing agent until the fire is extinguished. Hold the extinguisher vertically.

Procedure in the event of an accident, including the organisation of and procedure for providing first aid

Emergency first aid

First aid is understood as a quick, organised action carried out by people(person) being close to the casualty of an accident. The efficient and relatively competent action when giving first aid is very often decisive for the further results of treatment by professional medical personnel - it is often decisive for the life of the injured person.

First aid is usually given at the scene of the accident.

If several people witness the accident, one of them should take charge of the rescue operation until professional help arrives.

Art. 162 Paragraph 1. of the Act of 6 June 1997 Penal Code (Dz. U. of 1997, No. 88, item 553 as amended)

." **Penal code, Art. 162**

"Whoever **does not render assistance** to a person who is in a situation threatening an immediate danger of loss of life, serious bodily injury, or a serious impairment thereof, when he so do without exposing himself or another person to the danger of loss of life or serious harm to health

shall be subject to the penalty of deprivation of liberty

for up to 3 years."

What to do:

a) assess the incident, start giving first aid;
b) remove the agent acting on the victim as soon as possible;
c) assess the existing threat to the life of the casualty;
d) check the pulse;
e) check breathing and airway patency;
f) assess the consciousness;
g) determine the type of injury (wounds, fracture, etc.);
h) protect the patient from the possibility of additional injury or other dangers (e.g. remove the patient from the area of toxic contamination);
i) call for professional help (emergency doctor, ambulance, etc.)
j) organise transport of the casualty (if it is not possible for the physician to arrive quickly).

In USK according to the procedure P-DP-1/2016 *"Rules for organising assistance in case of fainting/deterioration of health of patients on the premises of the hospital, outside the premises of the hospital visitors and employees" point* 4.1. every employee of the hospital regardless of the form of employment and regardless of the position held is obliged to organise and provide assistance to any person requiring it regardless of where on the hospital premises the person requiring assistance is located.

In addition, every employee knows the telephone number of the OAiIT emergency doctor tel. 668324072 or the OAiIT doctors on duty 71-733-2311, 71-733-2320 or the LCN operator 71-733-1770 or 662 232 549.

The first employee - who meets a person in need of help, hereinafter referred to as the person organising assistance, undertakes to provide and organise assistance. He/she stops/advises people who are nearby and starts providing help according to his/her knowledge, competence and qualifications.

Person providing aid - is responsible for effective organisation of aid. He/she himself/herself calls the OAiIT emergency doctor or instructs another person to make such a call or instructs him/her to notify the OAiIT urgently in person - 2nd floor of building B. OAiIT tel. 668-324-072 or the OAiIT doctors on duty 71-733-2311, 71-733-2320 or to LCN operator 71-733-1770 or 662-232-549 who notifies the **emergency doctor**.

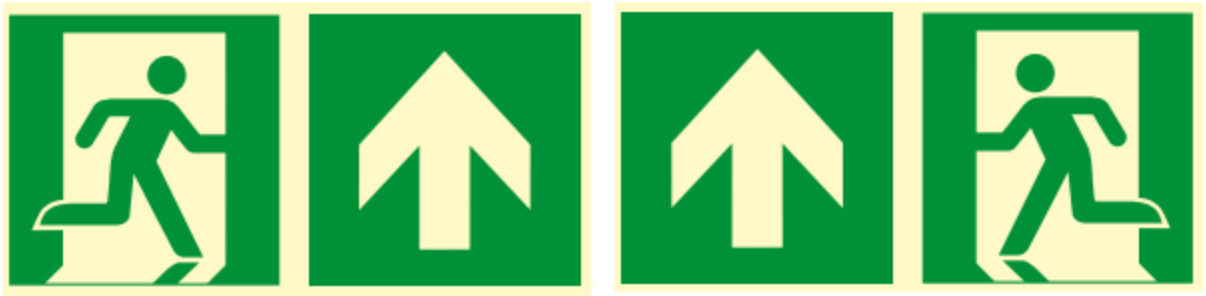
If the first employee who encounters a person in need of aid is a **non-medical health worker**,
he/she is the one who provides **aid** until the first health professional, who automatically becomes the **person providing aid**, arrives on the scene of the incident. It is important to stress that the person providing **aid** will always be a medical doctor, irrespective of the moment at which he/she becomes involved in providing and organising aid.

Fire safety signs for the purpose of emergency evacuation

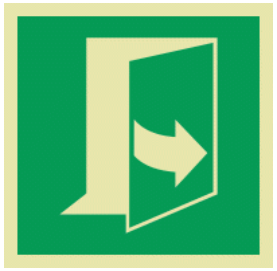
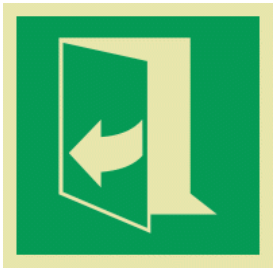
Graphical symbols
PN EN ISO 7010:2011



Emergency exit (left and right hand)
Indicates the location of emergency exit to a safe location.

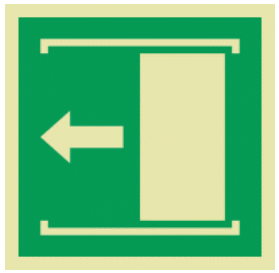
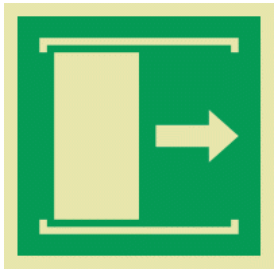


To reach an emergency exit, progress up from here
(left and right hand)

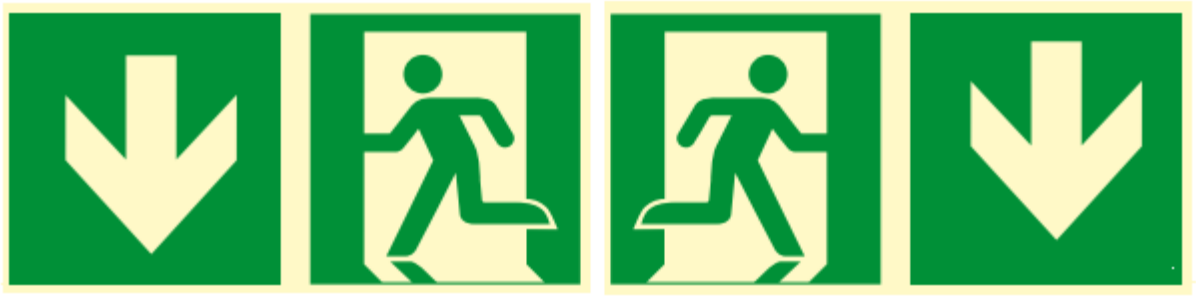



Pull to open (left, right).
Indicates that the door opens to the left (right) after pulling.

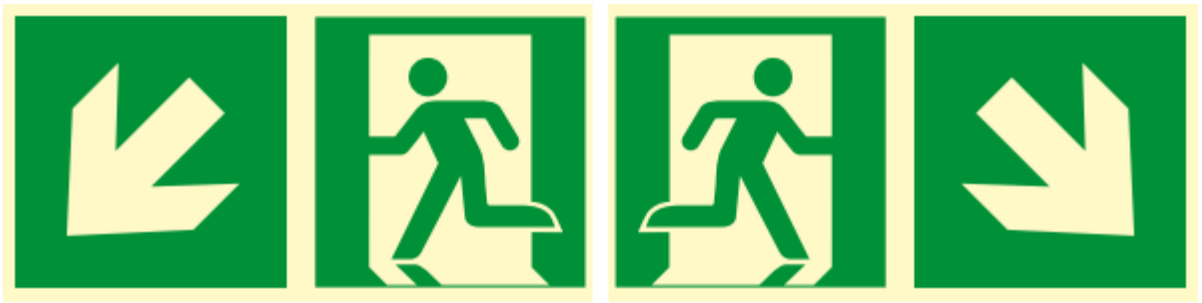

Push to open (left, right).
Indicates that the door opens to the left (right) after pushing.

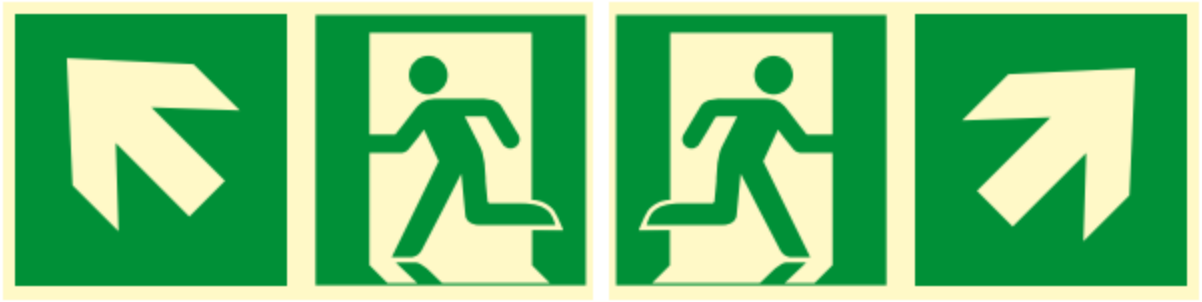
Slide to open (left, door).
Indicates that the door opens to the left (right) after sliding.



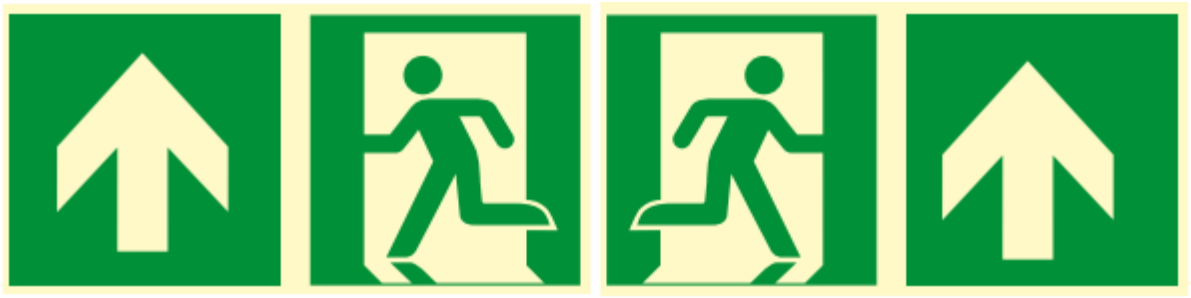
To reach an emergency exit, progress down from here (left and right hand)



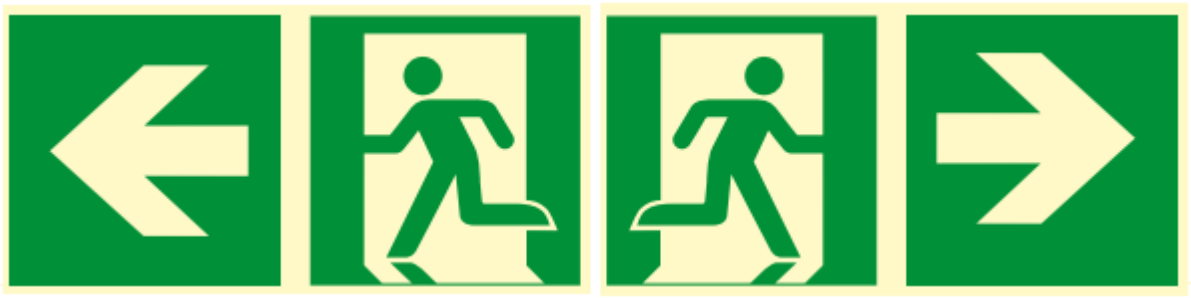
To reach an emergency exit, progress down to the left (right) from here



To reach an emergency exit, progress up to the left (right) from here



To reach an emergency exit,
progress up from here (left and right hand)



To reach an emergency exit, progress to the left (right) from here

Fire Alarm. Indicates the location of the emergency button.

Powder fire extinguisher.

Indoor hydrant box

To fire switch

Fire switch

PREMEDICAL FIRST AID

Regulation of the Minister of Labour and Social Policy
of 26 September 1997 on general provisions on health and safety at work, paragraphs 41, 44 and 86 obliges every employer
to provide employees with an efficient first aid system in case of an accident,
including means to provide first aid.

The task of a person giving first aid is to keep the casualty alive and prevent further complications from occurring until the arrival of the emergency doctor.

First aid for person who is conscious

The administration of first aid can be divided into the following steps:

1.Assess the situation - what happened? Am I able to help? Does helping the other person puts me in danger?

If it is determined that helping another person could pose an immediate danger to myself or another person we call the appropriate services - it already helps;

Make verbal contact with the casualty – tap the person's shoulder and ask loudly:

Can you hear me?

Open your eyes!

If the person is conscious, ask questions and gather the following information:

What is the first and last name of the casualty?

What happened?

How can you help?

Does the casualty take any medication?

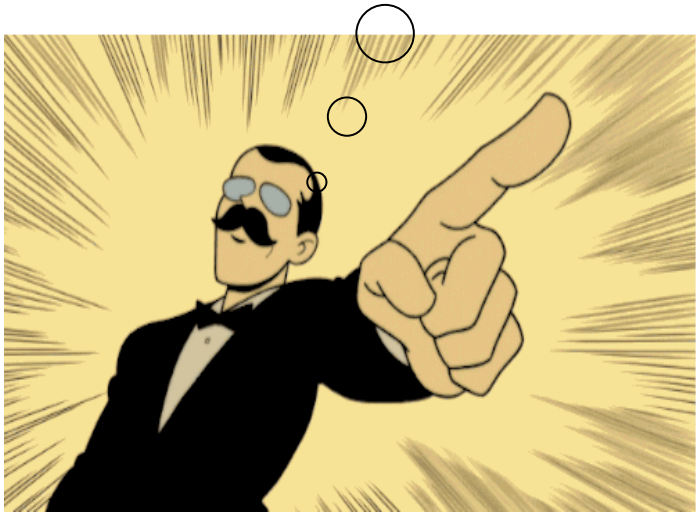
Is the casualty sick or allergic to something?

Should I notify a family member?

Get another person to help you – another person can help to provide first aid, contact the emergency services, switch positions with the person carrying out CPR.
To secure the support of an additional person, speak directly to them:

You! In black jacket!

Lady in pink! Help me!



Order the person to call 668324072 (emergency doctor) or 71-733-2311 saying:

Call 668324072 ,

and tell we're on the hallway of the building H, first floor, next to locker room, casualty is 45, conscious, breathing heavily, has following injuries:

Did you understand? Let mi know after you call

EMERGENCY NUMBERS IN WROCŁAW

112 – Emergency Communications Centre
999 – Emergency Medical Services
998– Fire Brigade
997 – Police
986 – Municipal Police
71-770-2222 – Emergency Operations Centre

EMERGENCY NUMBERS AT USK

71-733-2320 / 2311 and **668-324-072** – EMERGENCY DOCTOR

71-733-1770 and **662-232-549** – LCN OPERATOR

71-733-1760 - FIRE WARDEN

71-733-1760 – SECURITY OFFICER

Administer first aid depending on the injury.

Wait by a casualty until the

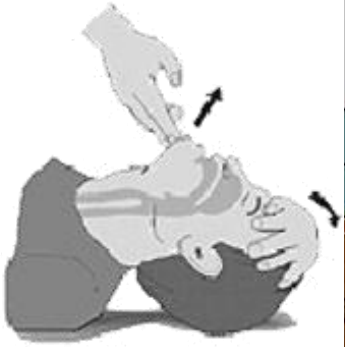
arrival of the emergency doctor

1. Make sure the casualty and any witnesses to the incident are safe.
2. Check the casualty's reaction: gently shake the person's shoulders and loudly ask, **"Are you okay?"**
3. **<u>If the casualty does not respond:</u>**
   - loudly call out for help,
   - Turn the casualty onto their back and then open an airway by bending their head and raising their jaw

- place one hand on the casualty's forehead and gently bend the head back, leaving the thumb and forefinger free to block the nose if rescue breaths are required, place the fingertips of the other hand on the casualty's jaw and

  lift to open

  the person's airway.



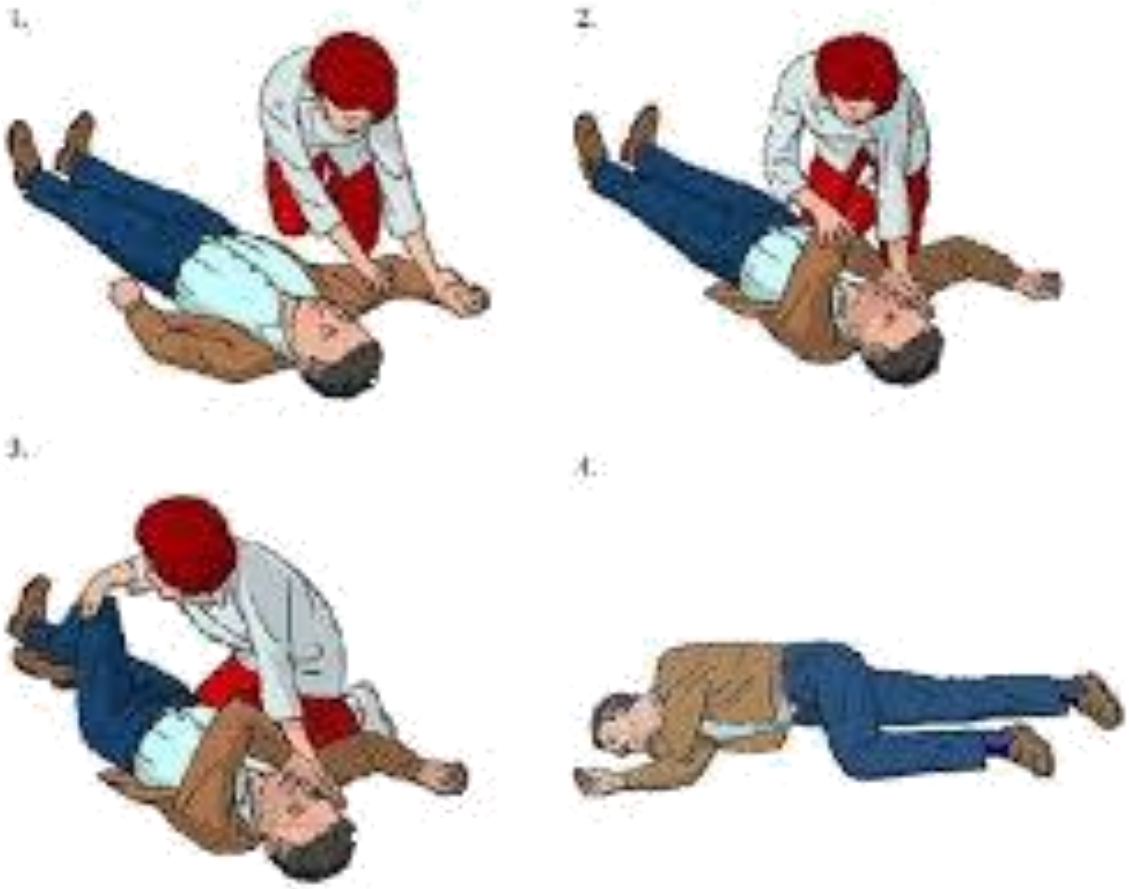
4. while maintaining airway patency - assess breathing by sight, hearing and touch

- watch the chest for movements,
- listen for breath sounds near casualty's mouth,
- try to feel for air movement on your cheek.

5. If the person is breathing:

- put casualty into the recovery position,
- send someone or go for help yourself (call an ambulance, make a phone call for help),
- regularly assess breathing.

Putting casualty into the recovery position

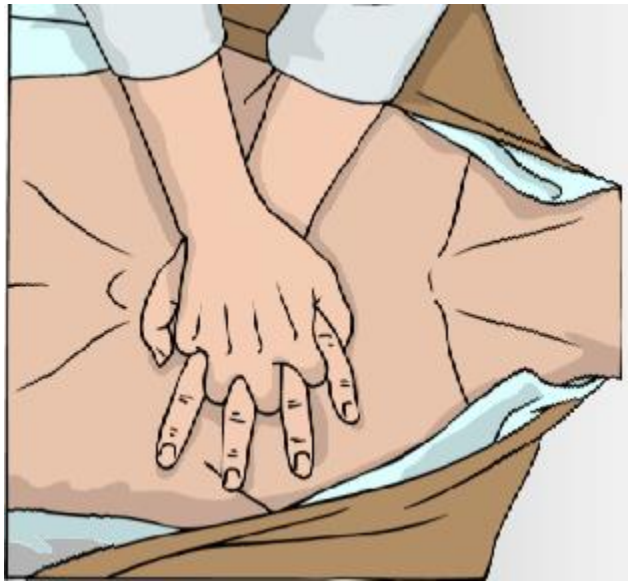


6. If the person is not breathing:

- Send someone for help, or if you are alone, call an ambulance yourself, return and begin chest compressions as described below:
- kneel next to the casualty, place the wrist of one hand on the centre of the casualty's chest,

place the wrist of the other hand

on top of the wrist already placed,



- Interlace the fingers of both hands and make sure you do not put pressure on the casualty's ribs; do not press on the epigastrium or lower end of the sternum,
- bend over the casualty, straighten arms perpendicular to the sternum and compress to a depth of 4-5 cm, after each compression release the pressure on the chest without taking your hands off the sternum.

- repeat compressions at a rate of 100/min (slightly less than 2 compressions/sec), the duration of compression and release of pressure (relaxation) on the sternum should be the same.
- combine chest compressions with rescue breaths

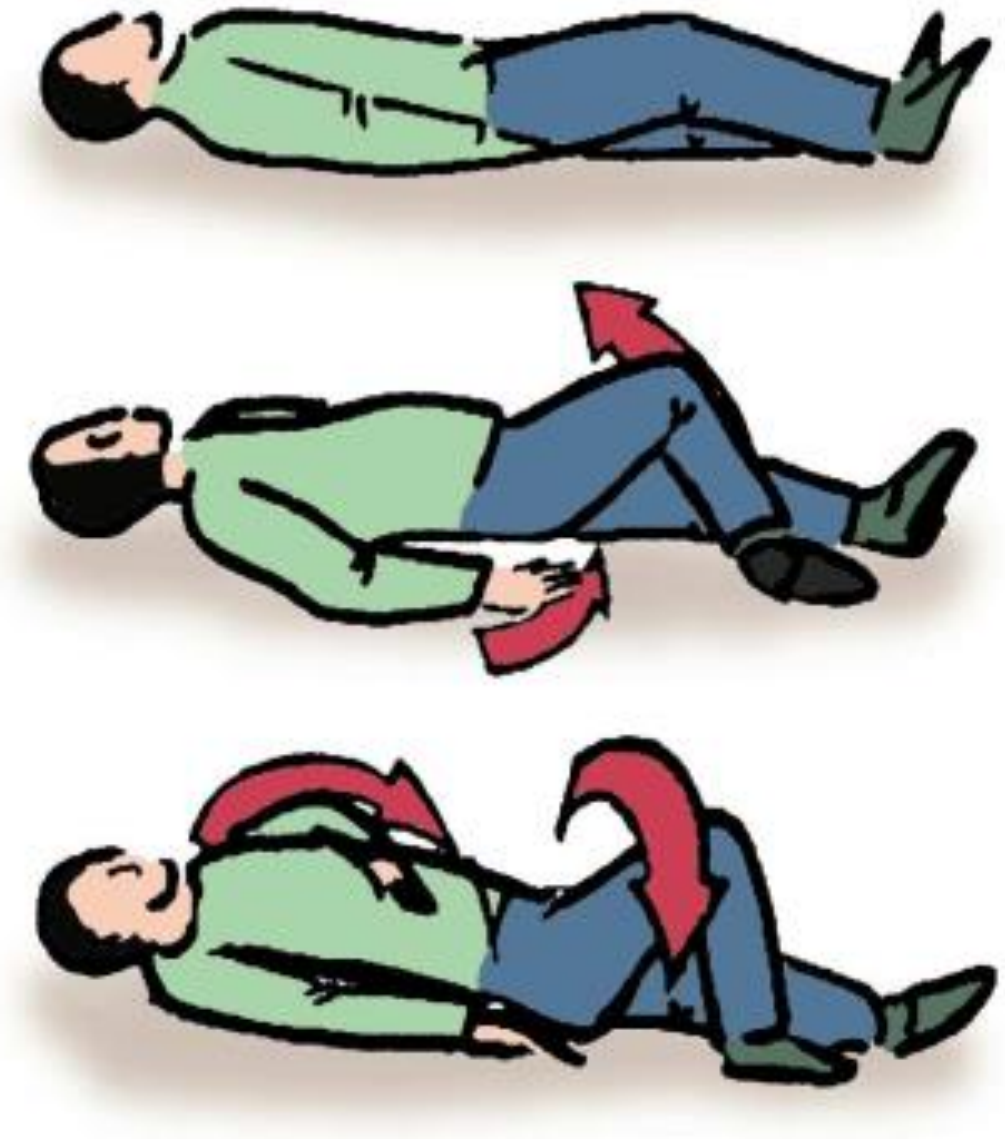
- continue performing compressions and delivering rescue breaths in a 30:2 ratio,
- Stop to check the condition of the casualty only when he/she starts breathing properly. Otherwise, do not stop CPR.

- If you are unable or unwilling to perform rescue breaths, perform chest compressions.
- If you are performing chest compressions only, perform them continuously at a rate of 100 compressions/min.
- Stop to check the condition of the casualty only when he/she starts breathing properly. Otherwise, do not stop CPR.

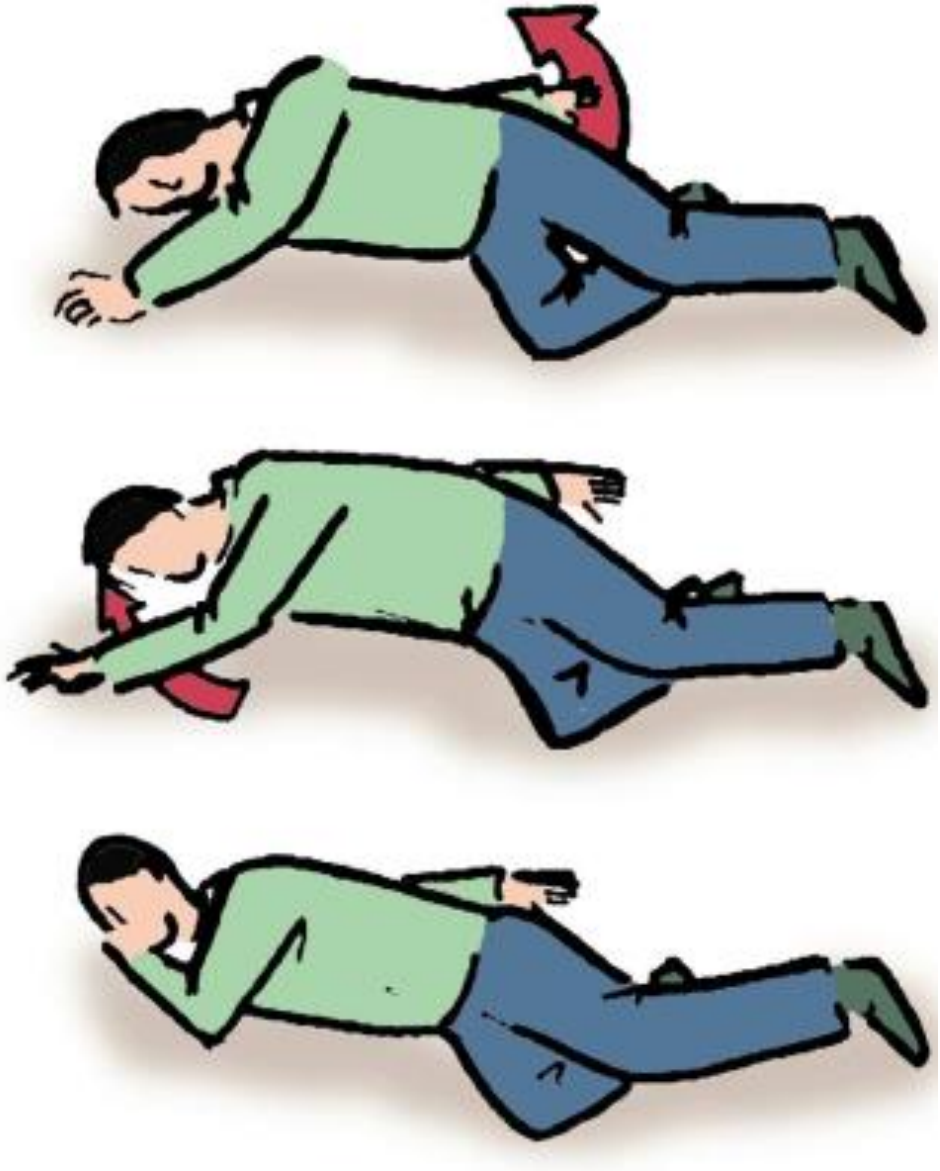
- Continue CPR until:
- medical help arrives and take over,
- casualty starts breathing properly,
- you are forced to stop due to physical exhaustion.

Placing the casualty in the recovery position

- remove the casualty's glasses, kneel by the casualty and make sure that their both legs are straight,
- place the arm closest to you at a right angle to the body, then bend at the elbow at a right angle so that the palm of the hand faces upwards,



- place their closest hand across the casualty's chest and hold it in such position that its back side rests on the casualty's cheek closest to you,
- with your other hand grab the casualty's further leg (right above the knee) and pull it up without lifting the foot off the ground
- keeping the casualty's hand pressed against the cheek, pull the further leg so that the casualty rolls to their side towards you.



- Position the leg you pulled so that both the knee and hip joints are bent at right angles,
- tilt the casualty's head back to make sure the airway is opened, if necessary, place the person's hand under the cheek to keep the head bent,
- check regularly casualty's breath.

Injuries

Types of wounds:

- incised – caused by a sharp weapon or object (e.g. knife, sheet metal edge),
- chop – caused by a heavy, sharp weapon or object (e.g. falling object). Such wounds are usually deep and sometimes reach the bone,
- puncture – usually caused by a sharp object (e.g. nail, pocket knife, screwdriver). These wounds are often deep and especially dangerous when inflicted to the layers of the abdominal wall,
- lacerations – usually caused by being caught between objects (e.g. rotating machine parts),

Remember, when dressing wounds, always take care of your own safety - use protective gloves

First aid in case of wounds:

- stop the bleeding immediately, apply a tourniquet, sterile dressings, clean the wound of foreign body - wood, metal, concrete splinters (only if their removal will not increase bleeding),

do not remove large foreign objects from the wound.

Stopping bleeding

Immediate stopping bleeding
using pressure dressings

First aid in case of wounds:

- protect the wound from infection by cleansing the wound area with a disinfectant (ether, spirit, or alcohol-containing product) within a 4-5 cm radius starting from the wound edges outward.

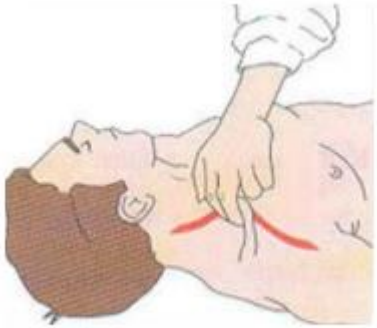
Dressing wounds

First aid in case of wounds:

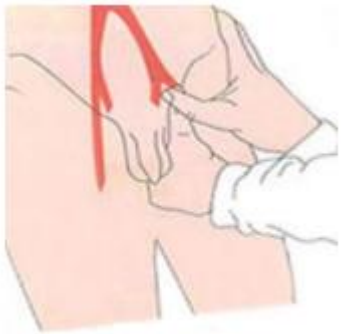
- Deep wounds should not be rinsed with any antiseptics or rubbed, but should be covered with a sterile dressing and bandaged.

Carotid artery

Brachial artery



Subclavian artery



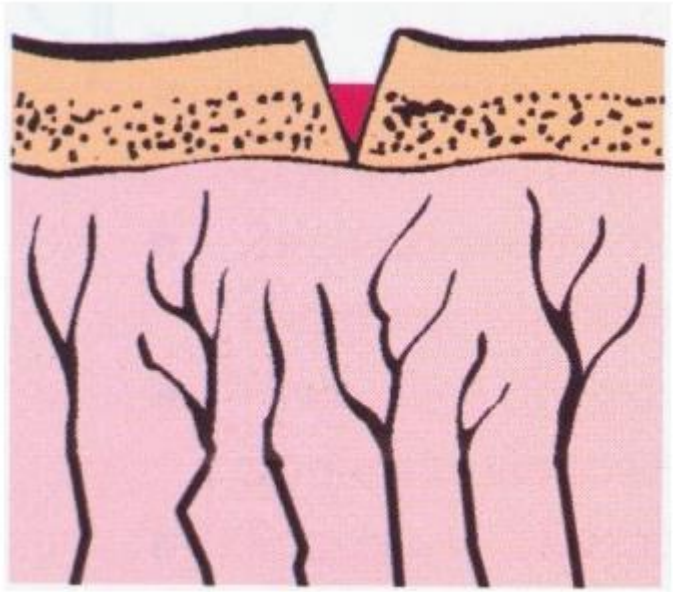
Femoral artery

Haemorrhage

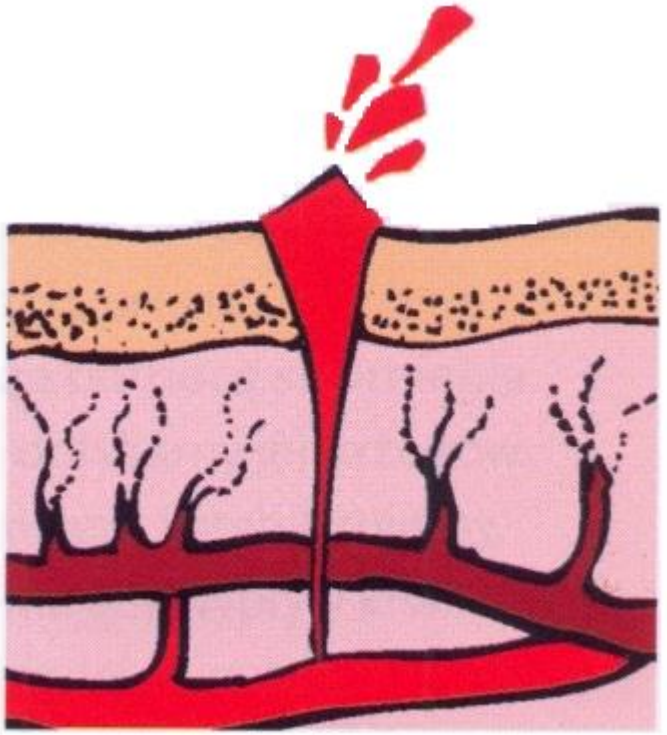
Outlet of blood in its full composition outside the lumen of a blood vessel or outside the heart due to a break in the continuity of the walls.

Haematomas - widespread outpouring of blood into tissues

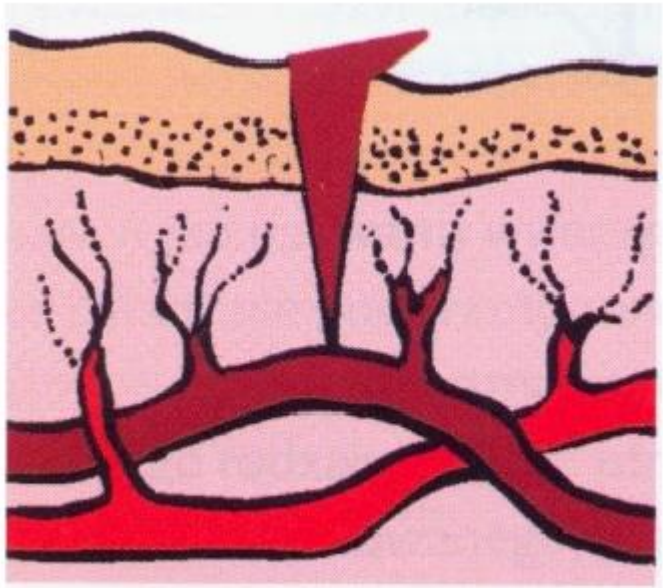
Bruising - bloody swelling accompanying a blow or fall



Slight bleeding

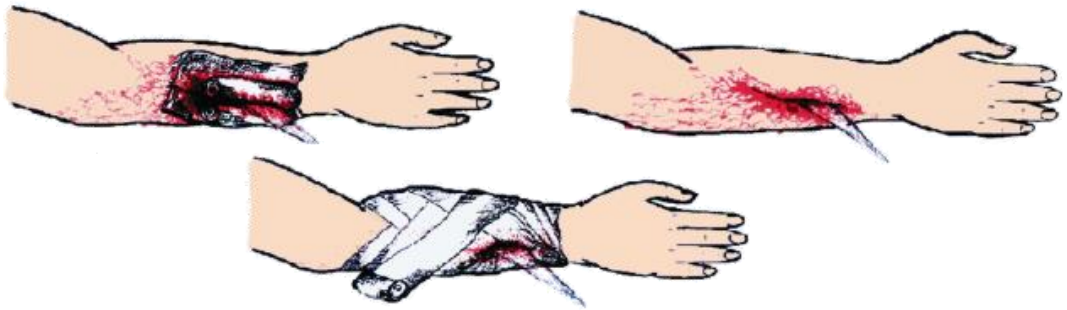


Arterial haemorrhage



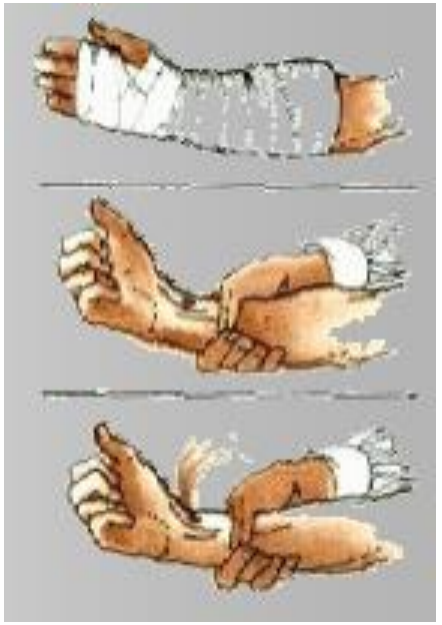
Venous haemorrhage

- in case of a contaminated wound, rinse abundantly with 3% hydrogen peroxide solution, cover the wounded area with sterile gauze, attach the dressing with a bandage, adhesive tape or triangular sling - depending on the size of the wound
- all patients (injured) with more serious injuries should be immediately sent to a hospital. Appropriate medical attention should be given up to 6-8 hours after the injury. **NOTE**: A wounded person whose injuries are contaminated with earth or dust should obligatorily receive tetanus serum.



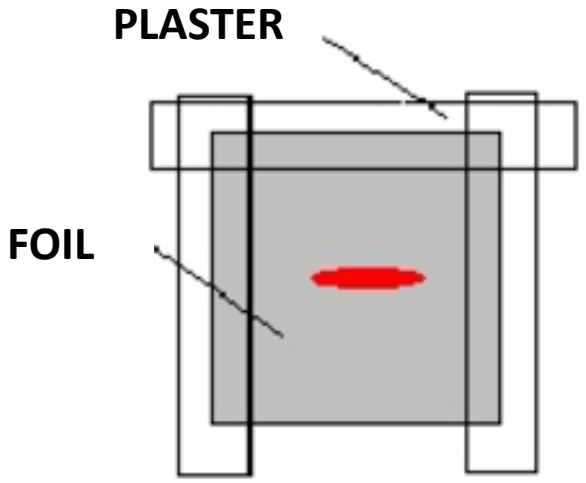
Haemorrhages

- A haemorrhage is a rapid and profuse outpouring of blood from a damaged blood vessel. "Sparse" flow of blood at a slow rate is called bleeding.
- Haemorrhages, depending on the outflow route, are divided into:
  - external - when blood flows outside the body, either from the body or natural openings (mouth, nose, rectum, etc.)



- internal - when blood enters body cavities (e.g. pleural cavity, peritoneal cavity, etc.)
- Depending on the type of damaged vessel, we distinguish between the following haemorrhages:
  - venous,
  - arterial,
  - parenchymal (e.g. liver damage, spleen damage)
  - mixed (any combination of the above three types)

Dressing a chest wound using a foil and plaster dressing, sealing the wound against lung collapse.



First aid:

Blood flow from the arteries is temporarily stopped through:

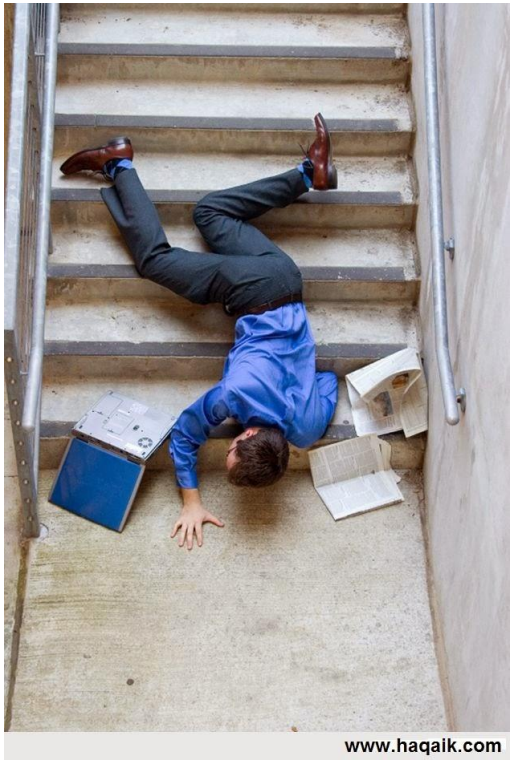
- finger pressure on the bleeding vessel - the arteries are pressed against the bone above the site of injury,
- for haemorrhages from the carotid and temporal artery - below the site of injury,
- application of pressure dressing - temporary stoppage of bleeding (finger pressure) - application of sterile gauze dressing folded several times - firmly bandage.

NOTE: A blood-soaked dressing should not be removed but only covered with a clean one applied on top. Always dress a bleeding wound using disposable protective gloves.

NOSE BLEEDS:

- In case of a nosebleed, adopt a sitting position with the head tilted forward. Gently squeeze the ala of the nose with two fingers for a minimum of 10 minutes. If the bleeding has not stopped by 30 min. Consult a doctor.

- **Internal haemorrhage** (e.g. after a fall from a height, impact, crushing) - transfer the injured person to professional medical services as soon as possible.



Assistance during epileptic seizures

Remain calm.
Put the sick person in a safe place, but try not to move them (unless they are in the middle of the street), just secure the place where they are.
Clear the sick person's airway by pushing the head back slightly.
Put a pillow, jacket or your hands under their head. Leave the seizure to run its natural course, do not try to stop it.
Wait until the attack subsides and try to place the sick person in a so-called safe position on their side.
Stay with the sick person until the seizure stops, they regain consciousness or the ambulance arrives.
If you are able, try to count the time since the seizure began (a seizure should last no longer than 2-3 minutes!). The emergency doctor will certainly ask about this.

Assistance during epileptic seizures

This is not allowed:

Do not try to force the mouth open or put anything between the teeth.

Do not ever try to stop an attack - restrain arms, legs, put pressure on the body.

Do not move the affected person to another location during an attack. It is better to call an ambulance than to travel with a sick person in a car on your own

Do not interfere with the sick person's behaviour when they are in a state of disorientation.

Do not shake the body, do not wake the person up, do not shout and do not force specific reactions, as this can provoke aggression.

Bone fractures

Fractures are divided into:

closed - where in case of damage to the bone and surrounding tissues (muscles, nerves, blood vessels) the skin is not affected,

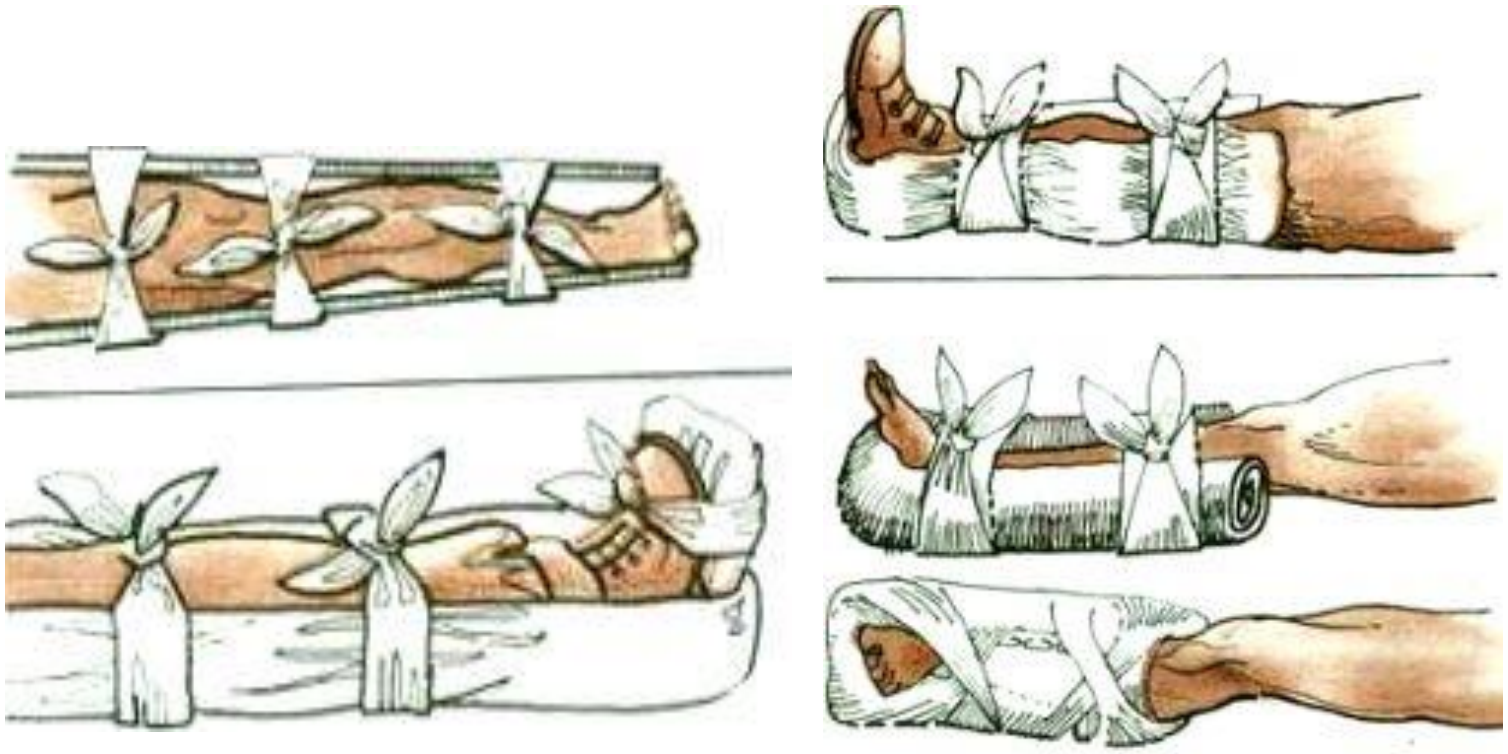
open - the skin is ruptured

Signs of a limb fracture may include:

- deformity
- spontaneous and pressure pain, aggravated by attempts to move
- tissue swelling and haematoma
- segmental redness or paleness
- abnormal position of the limb
- abnormal mobility.

First aid:

The treatment of limb injuries should be started after checking and securing the basic vital functions of the injured person (breathing, circulation). The basis for the treatment of a fractured limb at the scene of an accident is its immobilisation.



Open fractures should be covered immediately with a thick sterile dressing and under no circumstances should visible damaged bones be touched. Immobilise the fractured limb using the principle of immobilisation of two joints adjacent to the fracture (e.g. in case of fracture of a forearm bone: wrist joint and elbow joint) ensure transport to a doctor for the professional assessment of the fracture.

- To immobilise the limb, special splints should be used or, in the absence of splints, any possible means of stiffening.

The purpose of immobilisation is:

- Pain relief,
- Facilitation of bleeding control in open fractures, prevention of secondary soft tissue injuries
- The basic principles of immobilisation are as follows:

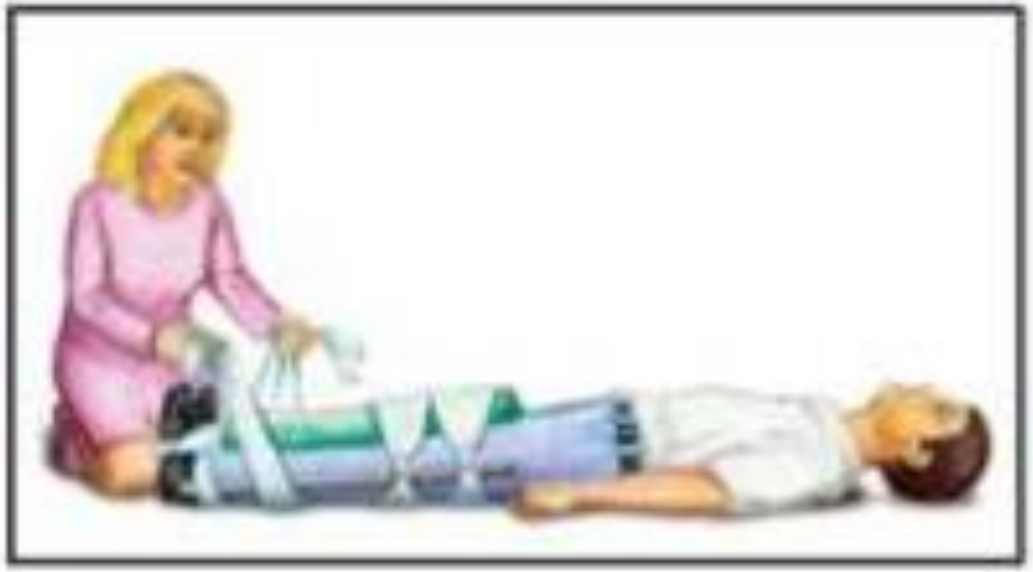
When a long bone is fractured, at least two adjacent joints should be immobilised. When a joint is damaged, the bone that makes up that joint should be immobilised.

FRACTURES OF THE UPPER LIMB:

In the case of bone fractures of the upper limb, the simplest way to immobilise it is to bandage it, bent at the elbow joint, to the torso. After an injury to the hand, wrist or forearm it is sufficient to rest the hand on a triangular sling tied around the neck. Regardless of the type of dressing, the fingertips should always be visible.

FRACTURES OF THE LOWER LIMB:

A board, cane, stick, etc. can be used as a splint to immobilise the fractured lower limb. If suitable materials are not available, the broken leg should be bandaged to the healthy leg. The lower limb should be stabilised in an upright position with the foot bent at a right angle.



Dislocations

- A dislocation is the partial or complete displacement of one or more bones within a joint. In addition to displacement, there is usually damage to the joint capsule and ligaments.
- Signs of a dislocation:

  acute pain in the joint

  deformity of the joint

  loss or restriction of movement in the joint

- **First aid:**

  - apply a cold compress to the sprained joint

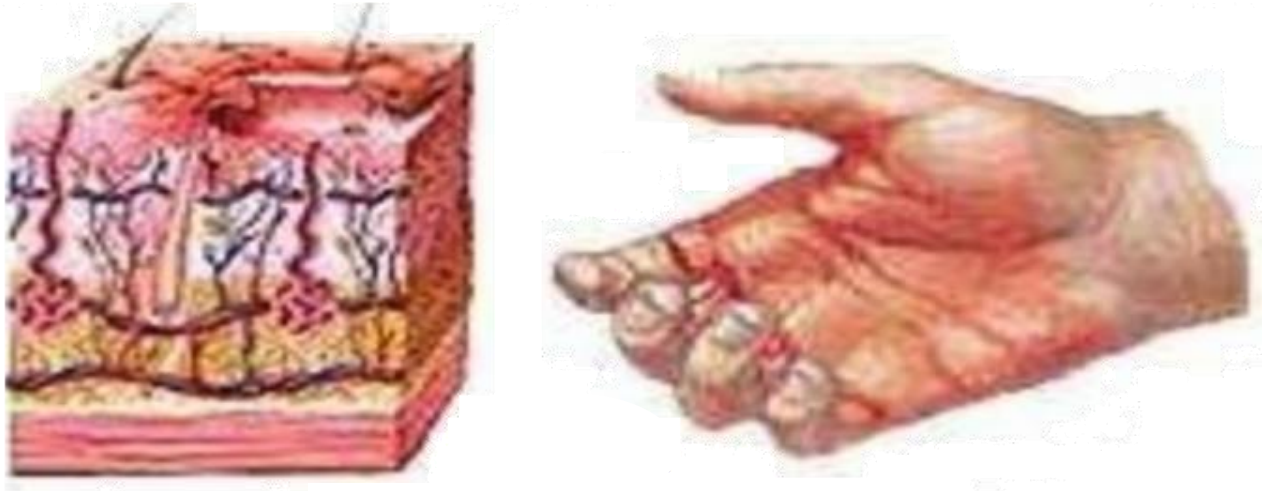
  - immobilise the joint with a splint and tourniquet

  - transport the patient to the doctor (for sprains of the knee, hip and ankle joints - in the lying position)

Thermal injuries:

There are four degrees of burns – first, second, third, and fourth – based on the depth of skin or subcutaneous tissue

First-degree burn	• **Epidermis only involved** • **Redness** • **Swelling** • **Pain**



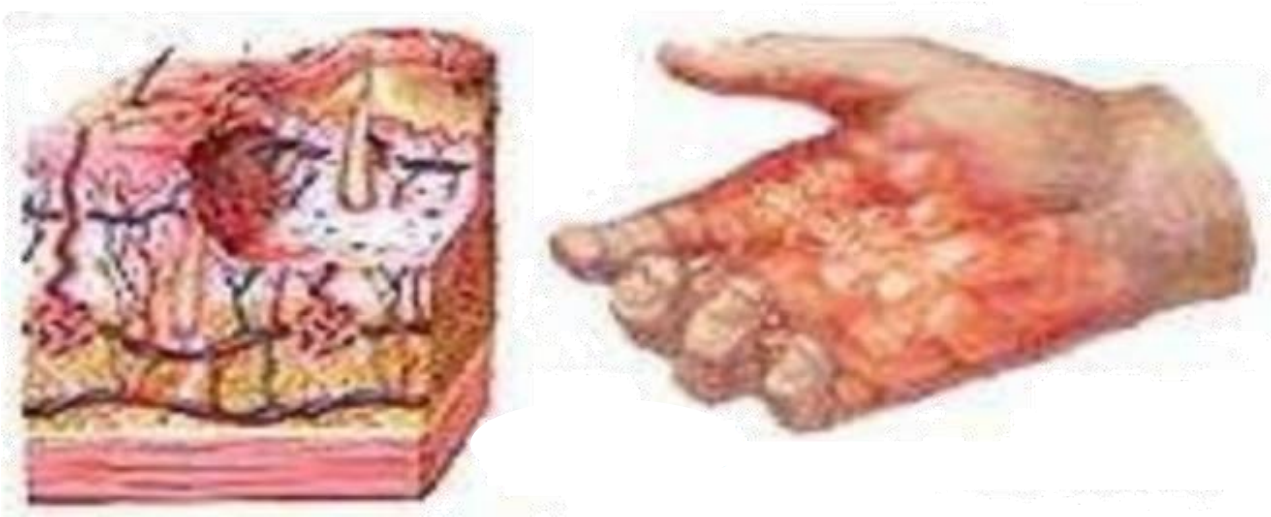
First-degree burns

First degree – redness on the skin accompanied by burning pain.

First-degree burns

Second-degree burn

- Epidermis and superficial layers of the dermis are only involved
- The skin is red
- Blisters form
- Sensation maintained



Second-degree burns

Second degree – vesicles filled with serous fluid form on the red skin accompanied by typical severe pain

Second-degree burns

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Third-degree burn

- Necrosis of the entire epidermis and damage to tissues below the skin
- The skin is red
- Blisters form
- Sensation maintained

Third-degree burns

Third degree– the burn also affects the subcutaneous tissue, the skin takes on a white, grey, or dark brown appearance

Third-degree burns

Fourth-degree burn

- **Tissue charring**
- **Necrosis**

Fourth degree– the burn affects the entire skin thickness, during which the tissues under the subcutaneous tissue – muscles, tendons, bones, and joints – are burned. Charred body parts are a typical symptom of this type of burn.

Fourth-degree burns

First aid:

- stop contact with agents causing burns,
- alleviate the pain by applying clean and cold water for several minutes (apart from pain alleviation, water prevents deep burns from forming) and by administering painkillers. For chemical burns, remove the chemical agent with a strong cold water jet.

First aid:

- for first-, second-, and third-degree burns on a small body surface, protect the burned area from infection by applying a dressing (e.g. sterile gauze), and for burns on a large body surface, cover them with clean sheets, tablecloths, unrolled patches.

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Electric shocks:

The electric current affects the human body:
locally in the form of a burn generally in the form of cardiac rhythm disturbances, including the risk of

cardiac arrest.

First aid:
immediately free the electrocuted person from the electrical current by turning off the power supplied to the appropriate electrical ciruit;

Effects of the flow of an electric current through the human body

Indirect effect without the flow of the current through the human body causes the following types of injuries:

- skin burns caused by fires started by a short circuit
- life threatening skin burns caused by arc flash
- visual impairment due to high arc brightness
- mechanical injuries to the body caused by falling from heights or dropping an object held

Effects of the flow of an electric current through the human body

Direct effect - electrical shock due to the flow of an electric current through the human body (electric shock current) may cause many physical, chemical, and biological changes in the body (or even death) by affecting the nervous system and as a result of the electrolysis of blood and physiological fluids.

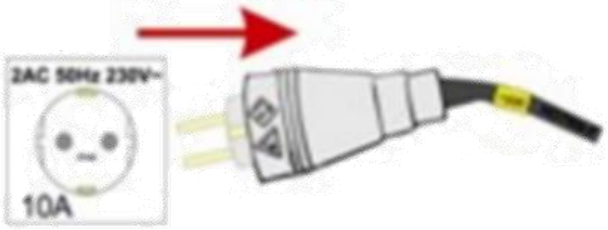
Electrical shock can manifest itself in:

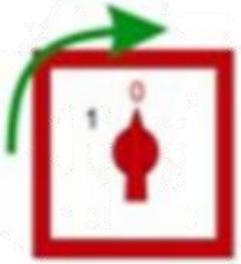
- current flow sensation, pain, slight muscle spasms
- strong hand muscle spasms that prevent the electrocuted person from freeing himself/herself
- respiratory arrest, blood circulation disorders
- visual, hearing, and balance impairments
- unconsciousness
- ventricular fibrillation, which is life-threatening
- skin and internal body part burns

Electric shocks

Free the electrocuted person from the source(s) of electric shock.

Freeing the electrocuted person from the source(s) of electric shock is a vital prerequisite for rescue operation





Use an (appropriately insulated) object to free the electrocuted person from the source(s) of electric shock.

Electric shocks

Depending on the condition of the electrocuted person, give appropriate emergency treatment:

- for respiratory arrest – artificial respiration;

- for cardiac arrest – cardiac massage;

- for burns, haemorrhages, injuries, etc. administer treatment that is appropriate for the type of injury.

Electric shocks

Identify the emergency situation of the electrocuted person

Emergency identification is very important because the selection of the rescue method depends on it

Choose the best rescue method

Thank you for your attention

JAN
MIKULICZ-RADECKI
UNIVERSITY HOSPITAL
IN WROCŁAW

"We are here to treat, teach, and develop medical knowledge"