The Krakow University Hospital

Environmental, Health and Safety Initial Training

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What will you learn today?

1. Training purpose and participants
2. The essence of the EHS in Hospital
3. Rights and obligations of employer, employees and departments according to EHS regulations
4. Responsibilities for breaking EHS rules
5. Motion rules in University Hospital facilities
6. Health and security threats appearing in University Hospital and basic preventive methods
7. Basic EHS rules of maintenance of devices and internal transport.
8. Order and cleanliness in a workplace – their impact on health and safety
9. Profilactive health care
10. Fire protection rules
11. Premedical help.

1. Training purpose and participants

Training participants:

This training has been prepared for all students practicing in the University Hospital

Training purpose:

- Familiarize with basic rules of health and safety stated in Labour Code,
- Familiarize with health and safety rules effective in the University Hospital,
- First aid and fire protection rules.

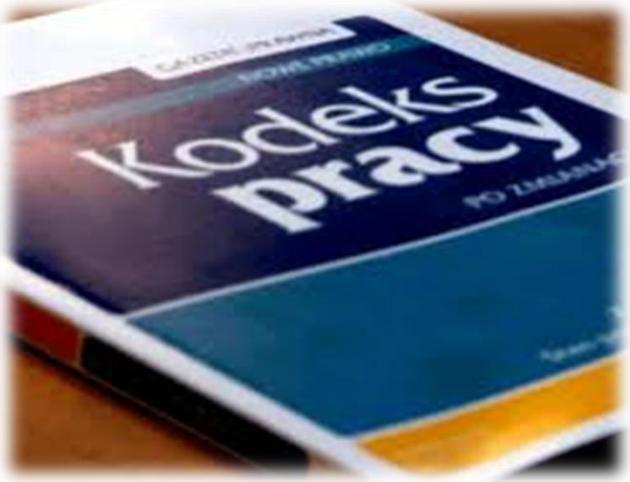
2. The essence of the EHS in Hospital

The purpose of protection is to secure man and his health in a workplace.

Labor protection consists of legal guarantees for **preservation of human life and health in the workplace**.

That includes the content of all labor standards laid down in the interests of workers and to protect those interests. Also part of labor standards that directly serve the purpose of protecting the health of workers from the risks that may arise in the workplace.

This purposes are governed by the objectives of safety and health at work. Their scope is very wide and includes risks associated with the objects in workspace, use of machinery, equipment and tools, processes, dangerous and harmful work, organization of work, health status and qualifications of employees.



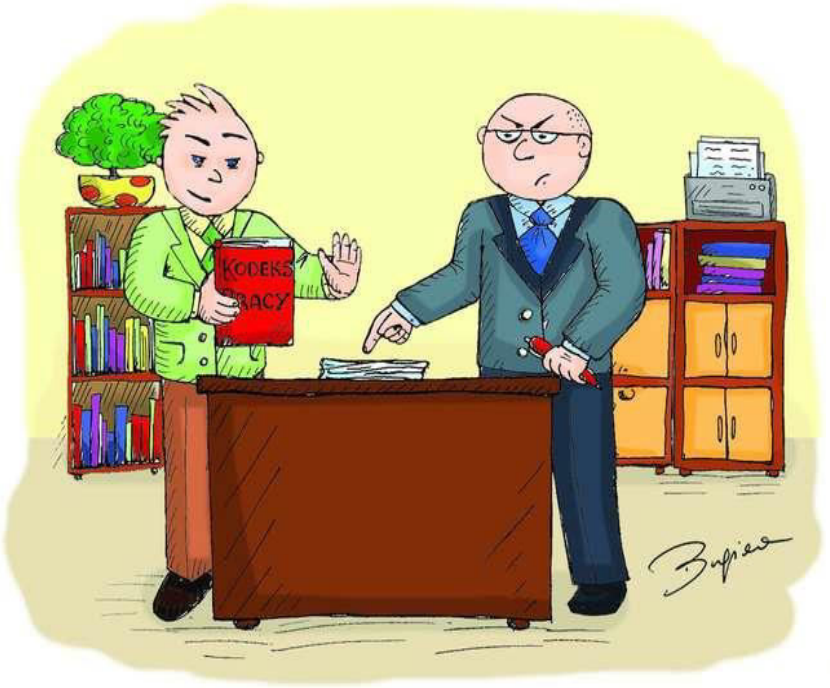
Occupational health and safety stated in the Labour Code is a basic set of security standards work and is gathered in section X. Health and safety standards are also announced in Regulations. Following standards by employees will improve working conditions, and as a result - better protection of their health and a life.

3. Rights and obligations of employer, employees and departments according to EHS regulations.

A. Employer duties

B. Employee duties

C. Employee privileges



According to labour code employer is obliged to:

- familiarize workers with the scope of their duties, the way to work in designated positions and their fundamental rights,
- organize work in a way that ensures effective use of working time, employees talents and skills, high productivity and quality of work,
- organize work in a manner that reduce burden of work, especially monotonous work and working ata predetermined rate,
- eliminate discrimination in employment, in terms of gender, age, disability, race, religion, nationality, political opinion, ethnic origin, religion, sexual orientation and also because of the employment contract: definite or indefinite period or in full or part-time work,
- provide safe and healthy working conditions and lead regular staff training in health and safety at work,

According to labour code employer is obliged to:

- timely and properly pay wages, facilitate staff professional development,
- create to workers taking up employment after training or college graduation conditions to adapt to proper performance of work,
- satisfy social needs of employees,
- have objective and fair criteria for employees appraisal and the results of their work,
- store documentation related to employment and personnel files of employees,
- influence on social coexistence in the workplace.

The employer is responsible for the state of health and safety in the workplace.
The employer is obliged to protect the health and lives of employees by providing a safe and healthy working conditions, in particular:

- organize work in a way that ensures a safe and healthy working conditions,
- ensure compliance with the laws and workplace safety and health, give instructions to remove offence in work area and to control the execution of these orders,
- ensure the execution of orders, regulations and decisions issued by the supervision of working conditions,
- ensure the implementation of recommendations of the social labor inspector.

When in the same place at the same time work is performed by employees from different employers, employers are also obliged to:

- cooperate with each other,
- establish coordinator supervising health and safety of all employees in the workplace,
- determine principles of cooperation procedures in situation of threat to employees health or life.

Other obligations of employer related the Labor Code:

- ensure that the construction or reconstruction of a building was carried out on the project that take into account requirements of health and safety at work,
- provide adequate working space to performed work and the number of employees,
- when hiring employees for the position exposed to carcinogenic substances, replace those substances and factors with less harmful to health or use other available limiting the degree of exposure,
- record all types of work basing on contact with carcinogen and probable carcinogen substances,
- protect workers against ionizing radiation occurring in the workplace originating from artificial and natural sources,
- in case of sudden danger to employees life or health, employer takes action to prevent this danger by:
- ensuring appropriate to the type of emergency equipment and rescue equipment and their use by staff properly trained,

Other obligations of an employer related the Labor Code:

- give first aid to injured,
- ensure that work in which there is a possibility of special hazards for human health or life are performed by at least two people, in order to secure each other,
- inform employees about occupational risks associated with their work and rules of protection against threats, apply measures preventing occupational diseases and other diseases associated with their work, in particular:
- maintain in constant efficiency devices reducing or eliminating harmful environmental factors and devices measuring these factors,
- carry out tests and measurements of harmful health factors, store results of these tests and measurements and make them available to employees,
- apply measures to prevent occupational diseases and other diseases associated with their work, in particular:

Other obligations of an employer related the Labor Code:

- maintain in constant efficiency devices reducing or eliminating harmful environmental factors and devices measuring these factors,
- carry out on his own expense, researches and measurements of harmful health records and store the results of these tests and measurements and make them available to employees,
- provide (out of charge) employees working in onerous conditions with adequate food and drink, if this is necessary for reasons of prevention,
- provide employees with adequate hygiene and sanitation equipment, necessary personal hygiene accessories, and first aid in case of an accident,
- in case of accident at work take necessary steps to eliminate or reduce risk, provide first aid to injured, determine circumstances and causes of the accident and take appropriate measures to prevent similar accidents in future,
- provide trainings to staff concerning occupational health and safety before allowing them to work and conduct periodic training in this area,

Other obligations of an employer related the Labor Code :

- provide for free personal protection against dangerous and harmful factors occurring in work place and inform workers how to use those resources,
- provide to employees free of charge clothing and footwear:
  - if employee's own clothing may be destroyed or significantly soiled,
  - due to the technological requirements or requirements for health and safety at work.

Employee duties

- **Employee is obliged** to perform his work diligently and carefully and follow instructions of his superiors, until they don't stay in opposite to law or contract of work. Employee shall in particular:
- Comply with working time established in the workplace,
- obey working rules and workplace policy,
- comply with the provisions and principles of occupational health and safety and fire regulations,
- take care and protect property of employer, keep secret information which disclosure could harm employer,
- observe confidentiality set out in separate regulations,
- observe rules of social coexistence.
- responsibility of every employee is to **comply with regulations of health and safety rules**.
  In particular, employee is required to:
- be familiar with the rules and principles of occupational health and safety,
- take part in the trainings and instructions of that scope and undergo required examinations,

Employee duties

- perform work in accordance with the principles of occupational health and safety,
- adhere to published in this area commands and instructions of superiors,
- take care of the proper condition of machinery, equipment, tools, order and harmony in the workplace,
- use collective protective measurments,
- use assigned personal protective equipment, clothing and footwear, and as intended by EHS regulations,
- undergo initial and periodic trainings and other prescribed medical examinations,
- immediately notify supervisor about noticed accident in workplace or danger to lives or health of people and warn co-workers and other persons in the hazardous area,
- cooperate with the employer and supervisors in carrying out the duties of health and safety regulations..

Procedures

All applicable procedures, documents, ISO and risk assessment for individual positions are published on the University Hospital intranet. They are available to users with the University Hospital login. So far intranet site is available only in polish.

Knowledge of the rules is the responsibility of every employee.

The employee has the right to refrain from performing work, **notifying the supervisor immediately**, in situation that conditions do not conform to health and safety rules and might cause direct threat to health or life of employee or where performed work might be threated by any danger.

Employee has the right to **leave the endangered area, what must be reported to the supervisor immediately**, if refraining from work does not remove the threat to the health or life of the employee.

For the period of abstention from work or being away from danger in the cases referred to above, **employee shall be entitled to compensation**.

The employee has the right, upon notice supervisor, to refrain from performing work which requires special medical fitness if his mental and physical condition does not ensure the safe conduct of work and might cause a threat to safety of other people.

The types of work requiring special medical fitness are given in the Regulation of Minister of Labour and Social Policy of 28 May 1996 on the types of jobs that require specific psychophysical (**Journal of Laws No. 62, item. 287**).

The above does not apply to employee whose duty is to save lives and property.

Everyone responsible for managing employees is obliged to:

- organize workplace in accordance with the occupational health and safety principles,
- take care of the efficiency of personal protective equipment and their proper application,
- organize, prepare and conduct work, taking into account protection of workers against occupational accidents, occupational diseases and other diseases related to the conditions of working environment,
- take care of safe and hygienic condition of work premises and technical equipment, as well as the efficiency of collective protection measures and their use as intended,
- enforce staff to work in line with regulations and rules of safety and health at work,
- ensure implementation of the recommendations of medical doctor holding health care workers.

4. Responsibilities for breaking EHS rules

Every employer and every employee is obliged to follow rules and principles of occupational health and safety.

For offence against order in workplace (art. 108 of Labour Code)

conerns all employees in the workplace; employer can punish all the staff for violation of rules and principles of occupational health and safety:

- admonition,
- reprimand,
- fine;

for offences against employee rights (art. 283 of Labour Code)

concerns staff responsible for the state of occupational health and safety in the workplace or managers in the situation of non-compliance to health and safety; offense against employee rights, may be punished by the State Labour Inspectorate with fine up to 1,000 PLN or request to the court district to apply fine;

Penal liability (art. 220 i 221of Penalty Code)

concerns staff responsible for the state of occupational health and safety in workplace, who don't fulfill their duties thereby exposing employee to immediate danger of loss of life or serious injury.

those people may be sentenced to imprisonment up to 3 years, or if the perpetrator acts unintentionally - the penalty of restriction of liberty or imprisonment for a year.

People who despite the obligation do not notify competent authority about an accident at work or occupational disease, and do not prepare the required documentation, may be sentenced pay a fine of up to 180 daily rates or imprisonment or the penalty of restriction of liberty.

Basic occupational health and safety rules

- When performing work focus full attention on what you do, work carefully and a thoroughly.
- Always perform work in accordance with the documentation and guidance from your supervisor.
- If there is anything you do not know or do not understand, ask supervisor for instructions.
- Always use required personal protective equipment (helmet, goggles, respirator, etc.).
- Work carefully and check if you do not threat others.
- Do not perform work, if you do not have correct permission.
- Do not remove the protective covers from mechanical equipment.
- Do not use damaged tools and equipment.
- Do not repair tools and equipment by yourself.
- Do not smoke or use an open flame in the area where it is prohibited.
- Before performing any work, think how to do it safety.

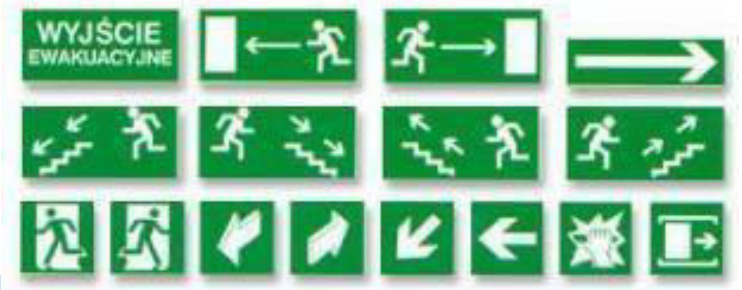
5. Motion rules in facilities of the University Hospital

Motion rules in facilities of the University Hospital

- Use only designated roads, pavements and passages.
- Mechanical vehicles should move only on designated roads.
- When you are moving on foot, you are required to use only designated roads for pedestrians.
- If there is no sidewalk - walk on the left side of the road.
- When carrying items, machine parts or tools, secure them so they do not disturb other road users.
- Crossing the road, make sure that there are no approaching vehicles.
- Do not barricade and litter transport routes.
- Do not block, adjust, change, or remove traffic signs and warning devices.
- Use extreme caution when using stairs.
- Do not enter areas of restricted entrance (operating rooms, X-ray labs, magnetic resonance imaging studios) without permission of responsible person.

Basic rules for usage of safety signs and signals

- Employer should ensure safety signs or signals wherever threats can not be eliminated by using collective protection.
- Workplace should be marked with signs and signals proper for road and air transport - depending on used type of transport.
- Employer should provide instructions concerning signs and safety signals used in the workplace, explaining particularly signs, signals and rules directly affecting his employees.
- Signs of prohibition, warnings and evacuation information should be used as permanent signs.
- Places with risk of fall or collision with obstacles, should be permanently marked with a safety color or safety signs.
- Roads should be permanently marked with a safety color.



Requirements for marking obstacles, dangerous places and routes

- Places in the workplace, accessible by workers during their work, where exist risk of collision with obstacles, falling from heights or falling objects should be marked with diagonal stripes (yellow and black or red and white).
- Dimensions of diagonal stripes should be appropriate to the size of obstacle or dangerous location.
- The yellow and black or red and white stripes should be drawn at the angle of about 45° and should be of similar size.
- Roads in buildings should be clearly defined by continuous belts of a conspicuous color (depending on color of the ground) - preferably yellow or white.
- Location of belts designating roads should take into account required (safe) distance between the vehicle and any obstacle which might be near and between pedestrians and vehicles.

6. Health and security threats appearing in the University Hospital and basic preventive methods

Personal injury or even death of an employee, occupational disease or reduced efficiency are caused by the influence of dangerous, harmful and disruptive factors in the workplace. Decisive is contact „employee – factor", values exceeding limit of exposure, their concentration, and duration of exposure. This is what we call **occupational exposure**.

Employer's actions reducing occupational exposure will reduce likelihood or frequency of disadvantageous changes, though will reduce occupational risks.

Hazardous factors (traumatic) which affect humans, can cause trauma (accident at work). You can distinguish several basic groups of these factors:

- threat of loose and moving parts,
- threat of sharp and protruding elements,
- threat associated with the movement of people,
- threat of electric shock,
- threat of burn,
- threat of fire and / or explosion.

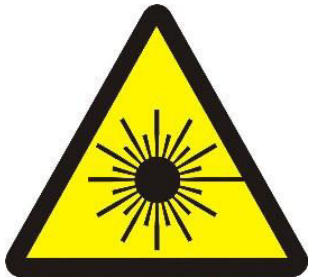
Mentioned above risk factors are mostly acting on employee suddenly.

Harmful factors affecting on employee for a longer period of time may reduce physical and mental effectiveness of employee (eg. lower labor productivity) or cause changes in health status, resulting occupational diseases.

<u>These factors may be divided into 5 groups:</u>

- physical
- chemical
- biological
- psychophysical
- social

Physical factors

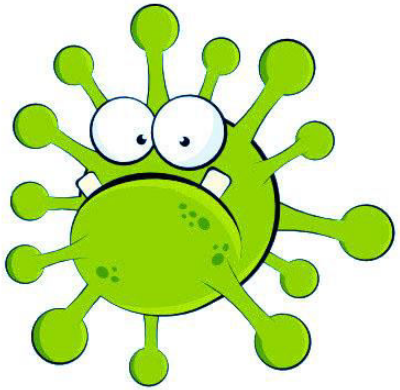


- noise, infrasound, ultrasonic noise,
- vibration (general and acting on the human body by the arms),
- microclimate,
- optical radiation (visible, infrared and ultraviolet),
- ionizing radiation,
- laser radiation,
- electromagnetic fields (low and high frequency),
- electrostatic field,
- industrial dusts.

Chemical factors

- explosive,
- oxidizing,
- extremely flammable,
- highly flammable,
- flammable,
- very toxic,
- toxic,
- harmful,
- corrosion,
- irritation,
- sensitization,
- carcinogenic,
- mutagenic
- harmful to reproduction,
- environmentally hazardous.

Biological factors



- microorganisms: (bacteria, viruses, rickettsiae, fungi, protozoa) and the toxins and allergens produced by them,
- macroorganisms.

Psychophysical factors

- physical load (static and dynamic),
- psychological load.

Social factors

- dependencies and contacts between superiors and subordinates, and between employees,
- application of the basic principles of labor law:
  - the principle of equal treatment,
  - the principle of respect for the dignity and personal property (harassment, mobbing),
  - prohibition of discrimination.

This division is obviously not strict due to fact that certain factors are included in group of chemical factors, but their effects can be sudden and cause an accident at work (eg, poison classified as toxic substances).

Basing on this division will be helpful in identifying factors in the workplace. In case of harmful factors degree of risk can determined by tests and measurement of these factors (at the expense of the employer).

The legislator paid attention to factors and processes presenting a particular risk to the health or life.

It is unacceptable to use materials and processes without determining their degree of hazard to health of employees and to take appropriate preventive measures.

It is unacceptable to use unmarked, allowing ease identification, chemical substances and preparations.

It is unacceptable to use hazardous substances and hazardous chemicals without basing on current list of these substances and their cards of details and without packaging protecting against harmful effects, fire or explosion.

FIRMA Warszawa ul. Konoprickiej
tel. 032/002-21-21

azotan(III) sodu
azotyn sodu
sodium nitrite
CZYSTY
$NaNO_2$
M = 69,00 g/mol

_rodukcji:
02.2010 r.

Terminwaźności:
03.2013 r.

Masa: 200 g

CAS: [7632-00-0] WE: 231-555-9 RID/ADR: 5.1,III UN:3288

R8: Kontakt z materiałami zapalnymi może spowodować pożar.
R25: Działa toksycznie po połknięciu.
R50: Działa bardzo toksycznie na organizmy wodne.
S45: W przypadku awarii lub jeżeli źle się poczujesz, niezwłocznie zasięgnij porady lekarza — jeżeli to możliwe, pokaż etykietę.
S61: Unikać zrzutów do środowiska. Postępować zgodnie z instrukcją lub kartą charakterystyki.

Use of hazardous substances and hazardous chemicals is acceptable, if employees are equiped with personal manners protecting their health and life.

- In case of employment in workplace with exposure to carcinogenic or mutagenic substances or factors, employer shall replace these substances or factors with less harmful to the health or use other available preventive measures limiting the degree of exposure.
- In case of employment exposing to harmful biological factors, employer shall take all available measures to eliminate exposure, or if this is not possible - limiting the degree of exposure.
- The employer is obliged to protect workers against ionizing radiation originating from natural and artificial sources present in the workplace.
- The dose of ionizing radiation from natural sources, obtained by the employee at work, may not exceed the dose limits specified in separate regulations for artificial sources of ionizing radiation.

On 19 June 2013 a new Regulation has been published by the Minister of Health considering health and safety in performance of work related to exposure to injury tools used in health services.

The Regulation sets conditions of health and safety works associated with exposure to sharp tools used in health care services by entities carrying out medical activities

Sharp instruments are medical devices used for cutting, stabbing and those that can cause injury and infection transfer.

In order to eliminate or reduce exposure employer, in cooperation with representative of employees, takes the following actions:

- develop and implement procedures for safe handling of sharps, including medical waste, particularly including prohibition of re-establish sharp tools covers/casings
- eliminates unnecessary use of sharps by changing work practices
- develop and implement procedures for use of appropriate type of personal protective equipment according to degree of exposure

The employee shall immediately report any case of injury to employer or EHS department. In case of contact with blood or other potentially infectious biological material injury must be also reported to the doctor.

Employer develops and implements post-exposure procedure, allowing immediate medical assistance to the victim and helping to prevent from the effects of exposure as well as preventive health care after exposure according to current medical knowledge

The employer is required to make risk assessment for sharp instrument injuries and transmission of infections through exposure to blood or other potentially infectious biological material in the workplace, taking into account in particular:

- classification and the list of biological factors and the threat to life and health due to diseases that may occur in consequence of infection and toxic or allergenic biological factors,
- state of health, in particular chronicle diseases,
- define exposures, including type, degree and duration of activities, which may involve the exposure,

- types of sharp tools used for medical treatment, working conditions, organization of work, level of qualifications of the staff, social factors, and other factors related to working environment,
- decisions and recommendations of audit reports considering working conditions in certain medical institution.

Each of these factors should be analyzed in terms of affecting on human beings and possibility of its elimination or reduction.

1. Elimination of sources of harmful factors.

Is realized by:

- selection of non-hazardous materials (or replacement more hazardous with less harmful materials), semi-finished products and other materials used in processing,
- selection of processes, machinery and equipment not causing risk of physical, chemical and biological factors,
- waste disposal.

2. Reducing the impact of harmful factors by removing employee from area of influence.

- replacement human with robots,
- mechanization, automatization (remote controlling and observing process),
- proper placement or separation of onerous devices,
- ensure proper handling of raw materials, semi-finished products and industrial waste generating physical, chemical and biological threats,
- lights (signals) to prevent unsafe entrance to danger zone.

3. Reducing impact of harmful factors by covering danger zone. It is important to take into account:

- use appropriate volumes of buildings, use protection against penetration of emitted factors (eg protection against penetration of various forms of radiation, sound insulation etc.),
- isolation of productions processes and preventing gas, vapors, and solids (dust) from escaping into the work environment of human,
- application of collective protection measures in workplaces (guards, shields, enclosures, insulation, ventilation, air conditioning).

4. Reducing impact of harmful factors by usage of personal protective equipment.

- selection and proper usage of personal protective equipment, depending on the risks involved,
- proper storage of personal protective equipment and their proper maintenance,
- use of signs ordering usage of certain protection.

5. Reducing risk factors by proper selection of employees, proper organization of work and promoting safety behavior among employees.

- compliance with medical contraindications of employment,
- obligation to employ staff with appropriate qualifications,
- psychological abilities,
- reorganization of work processes (work pause, rotation, short-time work),
- trainings, systems of rewards and punishments, impact of management to keep workers safe,
- warning about dangers and prohibition to perform certain operations (safety signals, signs and a safety colors).

Risk assessment

- Identification of all hazards in the workplace and determine level of their risk is the basis of risk assessment.
- Occupational risk is the probability of existence adverse event associated to performed work, resulting in losses, in particular losses in employees health due to occupational hazards in the working environment or the way work is performed.
- Risk assessment bases on comparing level of risk (defined by analysis) with the level of risk considered as acceptable.
- Employer shall assess and document occupational hazards that occurs at workplace and take necessary preventive measures to reduce the risk.

Employer is particulary obliged to:

- ensure organization of work in that will protect empoyees from harmful factors - including mental and physical capacity of emplyees,
- ensure elimination of threats to health and life of employees by using technology, equipment, materials and substances not causing such threats, if due to the nature of the work process elimination of hazardous threats is not possible, use appropriate organizational and technical solutions, including appropriate engineering controls limiting the impact of these risks on health and safety of employees,
- when reducing threat as a result of organizational and a technical modification is not sufficient, employer is obliged to provide employees with personal protective equipment appropriate to the nature and level of risks,
- inform employees about risks against which they will be protected by their personal protective equipment , inform about rules of their usage, (in accordance with the requirements of Annex 2 of the Regulation),
- safety signals should be used to warn employees performing works of higher risk of harmful factors, (in accordance with the requirements of Annex 1 of the Regulation).

7. Basic EHS rules of maintenance of devices and internal transport.

Terms of occupational health and safety when operating machinery and equipment are regulated in art 215, art, 216 and art 217 of the Labor Code.

It is unacceptable to equip workplace with machines and other technical equipment that does not meet the requirements of conformity assessment.

Machines should be constructed in a way which ensures:

- safe and healthy working conditions, employees protection from injury, hazardous chemicals, electrical shock, excessive noise, noxious shock, vibration and radiation and harmful and dangerous influence of other factors of working environment,
- principles of ergonomics,
- **machines and other devices which do not meet these requirements must be equipped by the manufacturer with proper security covers** and if the construction of security covers is dependent on local conditions and regulations employer is responsible for necessary modification.

- production machines and equipment shall meet requirements of health, safety and ergonomics in the entire duration of usage, also during installation, deinstallation, repair, transport and storage, both when used alone and by service teams.
- installation, deinstallation, usage and maintenance of machines should be done in line with requirements of health and safety and ergonomics, taking into account instructions of technical manual. Place and installation method of machines should take into account minimization of occupational exposure, in particular by:
- provide sufficient space between moving parts of machinery and surrounding elements of the environment,
- ensure that all materials used in production process (including energy) are provided safely to the workplace.

Safety of machines should be ensured by:

- selection of appropriate design solutions, safety components and construction solutions such as:
  - automatization and remote control
  - suitable materials,
  - individual and collective protective equipment,
  - fire and explosion requirements,
  - ergonomic requirements.

Collective protection is a term describing equipment and technical solutions adopted in production workplace for simultaneous protection of a group of people, including the individual, protecting from dangers and harmful factors, occurring singly or in combination in the workplace.

During operating machinery and equipment it is required to remember about basic principles of safe work:

- employee may work on machine if posses appropriate qualifications and is trained in safe operation.
- operation of machine or equipment shall be in accordance with the instructions for safe operation.
- employee is required to use appropriate clothing and footwear and personal protective equipment.
- employee must keep clean and tidy workstation, and especially take care about the state of tools.
- do not let anyone unauthorized work on position without permission from superior.
- in case of power failure turn off operated machines and after finishing work stop machinery and equipment, clean work station, place tools and instruments in purposed place.
- Each machine must be equipped with control designed for total and a safe stop.
- when risks posed by the machine and nominal time required to stop may cause danger to surrounding people, machine should be equipped with an emergency stop device.

- machine control elements that affect safety must be clearly visible and identifiable and labeled in accordance with the requirements of Polish Standards.
- control elements can not cause any threat, particularly due to their inadvertent use.
- machines should be equipped with easily identifiable and appropriately marked devices enabling isolation it from all energy sources. Power switch can must be safe for operating worker.
- multi-station machines should be equipped with a sound or visual signalization device automatically informing about launching machine. This signals should be received by all employees operating on the machine.
- machines supply with their own drives should have easily accessible, efficient and protected against accidental operation power switch.
- machines with more than one control panel, except portable hand devices, shall be equipped with an emergency stop marked with distinctive color and shape. The design and location of this switch should, in case of emergency, provide the ability to quickly turn off the machine, even by a person not employed by the service.

- in case of operating machine by a group of employees or in case of threat caused by machine to environment warning lights and alarm, easily perceived and understood, must be installed.
- moving parts of machines considered as a source of risk must be covered or protected by other means of protection.
- belts, chains, bands, gears and other power transmission components located in workplaces or crossing at a height of more than 2.5 m from the floor should be covered at least from the bottom with permanent shelter.
- guards used on machines should prevent direct access to the danger zone. Partial shields (made of mesh, perforated metal sheet, rods, etc.) shall be placed at a distance preventing from touching dangerous parts.
  Safety distances are determine by Polish standards.

Machines and technical devices

- noticed defects or damages of equipment must be reported by the employee immediately to the supervisor.
- machines, which damaged has been noticed during performing work should be stopped immediately and turned off. Resumption machine without removing the damage is unacceptable.
- damaged , defective equipment, or under reparation should be withdrawn from use or clearly marked and secured from accidental launch.
- machine in motion, can not be left without supervision , unless the operation and maintenance manual states otherwise.
- employer shall determine types of machines which require constant maintenance and leaving them without supervision may cause crash, explosion or fire. Employer shall establish specific conditions for use and supervision of work on these machines.
- machinery in motion must not be repaired, cleaned and lubricated, apart from lubrication with special equipment specified in the technical manual.
- employees performing work on machines with moving parts can not work in loose cloths, such as loose- ended sleeves, ties, scarves, skirts, hats etc.
- for machinery supplied with electricity use working practices and procedures prepared for maintenance of electrical equipment.

Guidelines for safe operation of electrical equipment:

- always refer to the manual for machines with electric drive.
- follow the basic principles of fire protection.
- work on connecting, testing, maintenance and repair of electrical equipment may be performed only by authorized staff (having the qualification of " E" type).
- Do not provide electrical devices to employees unfamiliar with the rules of use and user manual.
- in workplace of extreme risk, admission to employment shall be given in assistance of professional electrician to check the effectiveness of fire protection.
- each time before starting work, check the condition of the covers, cables and connectors, in the case of damage report them to repair.
- after work completion turn off device according to the instructions and secure against being switched by unauthorized persons.

It is forbidden to:

- maintain equipment, installations and networks without protection, protective and other equipment provided for the protection,
- remove covers from moving parts of machines during they movement,
- perform any maintenance and repair of machinery, equipment and electrical devices,
- connecting devices to the network in a different way than using factory plugins,
- connecting extensions otherwise than by pre-made extension cords,
- act in a manner inconsistent with applicable regulations, detailed instructions and instructions of supervisor.

Manual handling

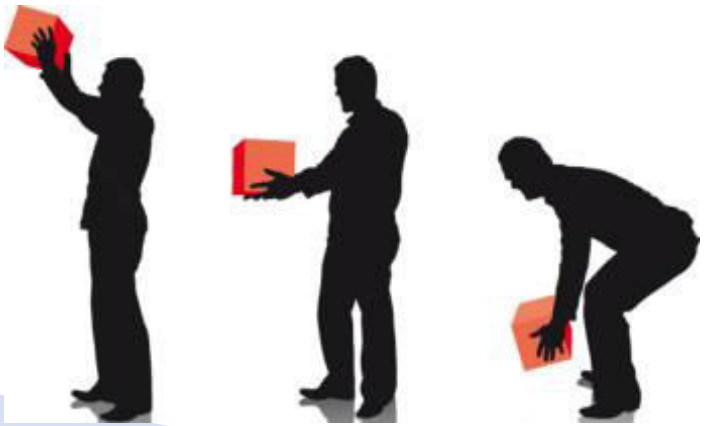
- In spite of common mechanization of transport, lifting and carrying loads by employees still plays important role. Below are the basic principles of lifting and carrying loads.

Lifting weights

- vertical movement from lower to higher level: in practice, weight increase is usually associated with the simultaneous displacement over a certain distance in the horizontal direction.

Carrying weights

- simultaneous increase and movement load on a distance of maximum 2 meters. Carrying the weight of a distance greater than 2 meters should be regarded as lifting and carrying weight.



Lifting weights – proper posture

Incorrect position while lifting loads

Correct position while lifting loads

Principles of proper manual handling :

- keep the weight as close to your body as possible (load on body and arms increase parallel with increasing distance between the weight and the employee).
- lift weight in a range from hand to shoulder, if the weight is below the height of hands, use appropriate loops, harness or hook.
- try to keep weight in your hands as short as possible.
- avoid high-frequency of lifting (fast pace).
- when lifting loads minimize body movements (tilt, slopes and twisting).
- avoid large objects that go beyond the hands and reduce vision.
- avoid lifting objects with moving specific gravity.
- carry loads on abandoned arms; lifting heavy weight with arms bent at the elbow doubles the load on involved muscles.

Transport norms – adults

How to lift, move, movement, roll, carry	Norm (kg)	Comment
Manual lifting: a) Permanent work b) Casual work c) To height up to 4 m d) To distance up to 25 m	 **30** **50** **30** **30**	It is forbidden to manually lift loads heavier than 30 kg on height greater than 4 m or on distance greater than 25 m.
Manual rolling round shape objects (barrels, pipes etc.) on: a) Flat tarrain b) slopes	 **300** **50**	Initial force required to start movement with both hands can not exceed: 300 N – when pulling, 250 N – when dragging, Force counted as component values parallel to substrate.
Movement of hazardous materials	**25**	✓ concerns total weight (with container and holder) ✓ glass containers with acids and other corrosive liquids should be transported on dedicated trolleys or (depending on situation) by two people using basket with firm holders ✓ it is forbidden to carry glass containers (baloons) on the shoulders or directly in front of oneself

Transport norms – adults

How to lift, move, movement, roll, carry	Norm (kg)	Comment
Transport on trolley without rails: a) Firm ground, up to 5% slope b) Up tp 8% slope, distance up to 200 m	 **450** **350**	- Total trolley weight - Distance between single trolley on rail slopes should equal at least 25 m and between trolley sets composed of a few trolley - 50 m
Transport on rail trolleys: a) On rails up to 2% slope b) On rails up to 4% slope and on a distance up to 400 m	 **600** **450**	Total trolley weight
Transport on barrows: a) Firm ground up to 8% slope and up to 200 m b) Loose ground up to 8% and distance up to 200 m	 **100** **75**	Total barrow weight

Items exceeding 4 meters and weight above 30 kg can be moved by a group of employees, not less than two, with restriction that for one employee fall mass up to:

25 kg, for permanent work,

42 kg, for casual work.

It is acceptable move objects with weight up to 500 kg.

Transport norms – women

Physical works related to transport of weights and forced posture	Norm per person
All works, where highest values of load related to physical work are counted with calories net required to perform job exceed:	
At permanent work	**5000 kJ/shift or 1200kcal/shift (2900 kJ/shift or ca. 700 kcal/shift *)**
At casual work	**20 kJ/minute or 4,8 kcal/minute**
Manual lifting loads with weight exceeding:	
At permanent work	**12 kg (3 kg*)**
At casual work (up to 4 times an hour during one shift)	**20 kg (5 kg*)**

* For pregnant and in feeding period

Transport norms – women

Physical works related to transport of weights and forced posture	Norm per person
Manual handling machines (levers, cranks, steering wheels, etc.), when required force exceed:	
At permanent work	**50 N (12,5 N*)**
At casual work (up to 4 times an hour during one shift)	**100 N (25 N*)**
Handling machines with legs (pedals, buttons etc.), when required force exceed:	
At permanent work	**120 N (30 N*)**
At casual work (up to 4 times an hour during one shift)	**200 N (50 N*)**

* For pregnant and in feeding period

Transport norms – women

Physical works related to transport of weights and forced posture	Norm per person	Comment
Transport of loads of weight exceeding: On one-wheel barrows on firm, even ground, up to 2% slope Uneven ground On 2, 3, 4 wheels barrows on firm, even ground, up to 2% slop Uneven ground Trolleys on rails, firm, even ground, slope less than 1%	 **50 kg (12,5 kg*)** **30 kg (7,5 kg*)** **80 kg (20 kg*)** **48 kg (12 kg*)** **300 kg (75 kg*)**	Maximum allowed weights include also weight of transport device

* For pregnant and in feeding period

Transport norms – women

Physical works related to transport of weights and forced posture	Norm per person
Manual lifting on slopes, stairs etc, where maximum slope angle exceeds 30°and height 5 m – for loads with waight exceeding: At regular work At casual work (up to 4 times an hour during one shift)	 **8 kg (2 kg*)** **15 kg (4 kg*)**
Pregnant women and in feeding period (others works forbidden): • forced working position • works in standing position, totally more than 3 hours during one shift	

* For pregnant and in feeding period

Internal workplace transport is divided to:

1. Warehouse transport,

2. Production transport:

   - Between departments,
   - Internal department,
   - Within single workplace,
   - between single workplaces

Transport is realized by machines characterized as:

1. Intermittent (eg. cranes, hand rails etc),

2. permanent (eg. lifts, pipes, compresors etc).

Transport machines might be divided according to movement direction:

- vertical,
- horizontal,
- mixed.

Due to the high risk to workers caused by transport machines it is important to follow health and safety rules. Below are the basic rules of safety when operating the transport equipment :

- good condition of machine, confirmed with note in relevant documentation of operational equipment,
- good technical condition of surfaces of transport roads,
- trained staff operating the device with adequate certification (if required),
- usage of only certified materials as pieces of equipment for vertical transportation equipment such as chains, ropes, hooks, drums, etc.,
- adequate lighting area served by the transport device,
- efficient warning signalization.

Employer is obliged to ensure in a workplace:

- lines of communication, transport, for pedestrian (passes, pavements) and fire ways in accordance with polish standards,
- keeping them in a state not posing any danger to users (roads and passes, can not lead to places where threats appear),
- dimensions of the road and passes should be appropriate to number of potential users and type and size of used transport machines,
- even, firm or hard surface roads, parking and storage, fire access roads and passess with adequate capacity, adapted to vehicles used and transported and stored materials (surface transport routes should be paved, smooth, resistant to wear, should be characterized good adhesion and easily washable and capable of being easily and quickly repaired),
- equipped with other technical solutions to ensure draining off rainwater from roads, passages and maneuvering, parking and storage.

Transport roads and storage areas should be flat and without steps. For any variation floor levels, in case of difference of levels they should be connected with slopes related to used machines but not steeper than 8%.

Roads, walkways and fire access roads can not be blocked with materials, transportation equipment and other materials. On road crossings should be provided good visibility.

Marking - road transport in industrial buildings should be clearly and permanently marked (eg. lines painted with yellow paint).

Width - the minimum width of the road transport: 120 cm.

According to the Labour Code, the employer is obliged to provide employees personal protective equipment (such as helmets, gloves, hearing protection, gloves, goggles, masks, etc.) to protect them from occurring at work dangerous and harmful factors. He must also inform the employee about how to use those resources.

Personal protective equipment must meet requirements of conformity assessment.

Employer can not permit employee to work without a personal protective equipment and clothing intended to be used in the workplace.

Types of work that require to use protective clothing:

- work in exposure to harmful chemical and biological factors,
- work in exposure to carcinogens,
- work in contact with objects of rough surfaces, sharp edges and posing a risk of injury,
- Work involving exposure to wet body or clothing soaked through the use of water, fats or other liquids, wet, oily or greasy,

The types of work that require usage of arms protection:

- work with sharp objects or materials, cutting, stinging, with the exception of work
  there is a danger of pulling the glove by operating machine,
- jobs that expose workers to chemical and biological substances hazardous to health,
- work at which hands of workers are exposed to toxic substances, corrosive or irritant,
- work in exposure to carcinogens,
- work in contact with corpse or with substances derived from them,
- work in contact with dirty underwear or dirty clothing, rags, old clothes and garbage,
- all work, during which hands are exposed to substances that contain germs,

The types of work that require usage of face / eyes protection

- operation where eyes are exposed to irritants, such as coal dust and other particles or vapors corrosive substances,
- work with lasers,
- observation of intense sources of light,
- work requiring use of hook lamps or other sources of ultraviolet radiation,
- work with sharp particles, molten metals or corrosive liquids,
- work in exposure to carcinogens,
- work requiring spraying of liquids,
- work with acids and caustic solutions, disinfectants and corrosive cleaning products.

8. Order and cleanliness in a workplace – their impact on health and safety

Personal hygiene principles

Schedule of the workday shall be planned in accordance to the indications of hygiene and should include:

- eating (e.g. prophylactic or regenerative) at a certain time constant,
- rational organization of work,
- frequent, if possible, change of underwear and clothing,
- frequent washing of the body.

Employees should remember that:

- after changing personal clothes to protective clothing before starting work, one should store personal clothing in dedicated cabinets,
- everyone should take care of the cleanliness and condition of workclothes and repair if necessary,
- **before each meal, wash your hands, do not touch lips and eyes with dirty hands,**
- in the washing sinks do not wash any of the materials for the manufacture or spill liquid used in the work,
- **do not drink the water complying with the sanitary requirement,**
- maintain order in clothing cabinets,
- after finished work it's important to wash oneself, change into personal clothing.

9. Profilactive health care

Personal injury or even death, occupational disease or reduced body efficiency are caused by the influence of dangerous, harmful and disruptive factors in the workplace.
Decisive is contact with these factors, exceed over exposure limits and duration of exposure. This is called occupational exposure.

Employer's actions reducing occupational exposure **will reduce** the likelihood or frequency of adverse changes and in consequence will decrease the occupational risk.

Influence of harmful and disruptive factors to human body over several years may result in pathological changes and development of professional disease, and decreased productivity. Early detection of these changes and appropriate preventive measures should prevent from deterioration of health of the worker. For this purpose prophylactic medical examination are regularly conducted.

Preventive medical examination are intended to appraise whether hired employee has no contraindications to perform work at a given position. Employee takes medical examinations at the time of employment.

Employer may not allow employee, who did not provide a valid medical certificate, to perform intended work.

Relegation to prophylactic tests need to be prepared by employer.
It should contain :

- determine the type of prophylactic examination (initial, periodic or control),
- definition of work or number of positions at which new person is to be employed,
- definition of the work for which the employee is employed,
- information about the occurrence on job position factors harmful to health.

Prophylactic tests end with medical certificate stating no medical contraindications to work on a specific workstation or medical contraindication to work on a specific workstation.

The medical certificate, issued in the form of a certificate, is delivered to the employee and the employer.

An employee or an employer who does not agree with the contents of the certificate may, within **7** days from the date of issuing the certificate, request to the doctor who issued the certificate for re-examination, which is carried out at the regional medical center jobs. It should be carried out within **14 days** from the date of filing. Established on this basis medical certificate shall be final.

Prophylactic tests may be carried out by authorized doctors

10. Fire protection rules.

INSTRUCTION IN CASE OF FIRE OR OTHER TREAT

On the basis of Regulation of the Minister of Internal Affairs and a Administration stated on 7 June 2010 on the protection of buildings and lands (2010 No. 109, item. 719) below manual shall be used.

Everyone who will notice fire or other threat is obliged to:

- notify about the danger of fire or other threats people remaining in the property.
- notify Fire-brigade by telephone or any other way describing the nature of threats:
- where fire appeared - address, name of a building, stage,
- what is on fire - the roof, apartment, basement, shop, office,
- if human life is at risk,
- your name and phone number,
- after you hang up, wait for a while to check the reliability of call by Fire-brigade officer ⚠
- notify porter of the object about the incident.

Rules in case of fire:

- at the same time when alerting about the danger one must be ready to fight fire with handy fighting equipment and help victims,
- evacuate people from the building with particular emphasis on people with disabilities, children and persons unfamiliar with the facility,
- as far as possible secure documents and other valuables from fire and third parties,
- until the arrival of fire and rescue units one leader should be pointed and lead activities and control rescue actions.
- after the arrival of fire and rescue units leadership is delegated to rescue manager who has the right to request the necessary assistance from state institutions, business, civil society organizations and citizens.
- people using the facility should remain calm and follow instructions of evacuation leader.

Everyone who does not observe the provisions of this instruction and fire regulations may be punished according to the Criminal Code and the Code of offenses.

How to use internal fire hydrant (Type PN-EN 671-1-3)

- open the door of a fire hydrant.
- remove hydrant nozzle from the holder,
- unscrew the hydrant valve,
- expand the hose in the direction of source of fire,
- direct the stream of water flowing out of the nozzle on the source of fire. Twisting as shown on the nozzle obtain the necessary type of stream water (stream compact or dispersed),
- after the fire fighting:
- turn off the hydrant valve,
- dry hydrant hose,
- wound on the drum,
- place the nozzle in the holder.

It's forbidden to perform activities that may cause a fire, its spread, difficulty of the action rescue or evacuation in the areas and buildings nearby scene of evacuation:

- use open flames, smoking and use of other substances which can set on fire materials:
  - in potentially explosive atmospheres, with the exception of devices designed for this purpose,
  - in the locations of fire-hazardous materials,
  - in places with other flammable materials, defined by the owner or manager, and labeled in accordance with European Union standards on safety signs;

- use of installations, equipment and tools technically inefficient or in a manner inconsistent with manual, where it may contribute risk of fire, explosion, or spread of fire;

- garaging motor vehicles in public places not intended for this purpose;

- warm up with open fire, tar and other materials at a distance less than 5 meters from the object with stored flammable materials. It is allowed to perform these tasks on roofs with non-combustible construction and covering if appropriate heaters are used;
- lighting fires or dumping hot ash and slag in place enabling set of fire of combustible materials or neighboring buildings and the distance from the objects of less than 10 m;

- use electric heating devices set directly on flammable surfaces, with the exception of devices operated under the conditions specified by the manufacturer;

- storage of flammable materials and usage of interior design elements of a combustible material closer than **0.5 m from**
  - equipment and installations, which the outer surfaces can heat up to temperatures above **373.15 K (100°C),**
  - cable lines with voltage above **1 kV** cables, grounding conductors lighting, the electrical power and strength sockets for a voltage exceeding **400 V;**
- use covers on points of light made of combustible materials, with the exception of flame-retardant materials and a non-inflammatory, if they are placed at a distance of at least 0.05 m from the bulb;
- installation of lighting and electrical equipment, such as circuit breakers, switches, sockets, directly on flammable surfaces, if their design 's does not protect against setting fire;
- storage of combustible materials on the evacuation roads or placing objects on the road in a manner that reduces the width or height below the required value;
- closing doors to prevent the escape of their immediate use;
- locating decorations, facilities and equipment in a way that reduces the size of the escape route below required technical and building regulations;

- use the escape route of the auditorium or another of similar purpose, of simultaneous exchange of the audience (users), as a place to wait for the entrance to the hall;

- prevent or restrict access to:

  - fire extinguishers and fire protection equipment,
  - explosion relief devices,
  - water sources for firefighting,
  - extinguishing systems and control of such systems and other systems that affect the fire safety of the object,
  - emergency exits or windows for rescue teams,
  - switches and switchboards and main gas valves;

- filling LPG cylinder on gas stations, LPG stations and other facilities not intended for that purpose.

Distribution of extinguish equipment

- The equipment should be placed in easily accessible and visible place, at the entrance and a staircase, the aisle, the outputs outdoors.
- Type of extinguishers should be tailored to types of fires, defined in the Polish Standards, regarding which may occur at the facility.
- One unit of extinguisher mass stored in 2kg (or 3 dm3) fire extinguishers should fall, with the exception of the cases referred in specific rules for each:
  - **100 m²** area of the fire in the building, unprotected with fixed fire extinguishing device:
    - qualified to danger category ZL I, ZL II, ZL III, or ZL V,
    - production and storage area with fire load density of over 500 MJ/m²,
    - containing room with potentially explosive atmosphere;

    300 m of the fire zone is not listed in point 1), except for qualified people to danger category ZL IV.

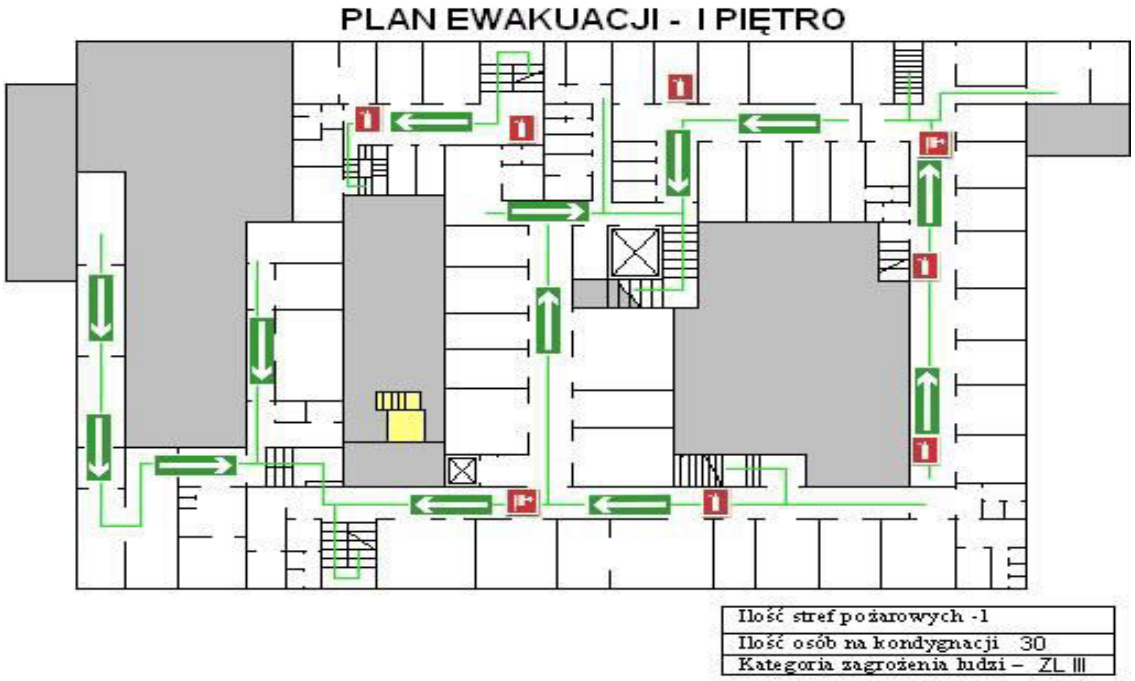
Distribution of extinguish equipment

- **Fire extinguishers should be placed:**
  - In easly accesible places:
  - At the entrance to the building,
  - In staircases,
  - In corridors,
  - At the exits from rooms;
  - In places safe from mechanical damages;
  - In many-storied buildings – in the same places on every floor.

- **Fire extinguishers should have at least 1 m free space around.**

- Distance to fire extinguisher shouldn't be bigger than **30 m**.

In every workplace must be created suitable conditions for evacuation in case of fire or explosion. For this purpose, fire routes and exits need to be clearly marked, according to European Union standards.



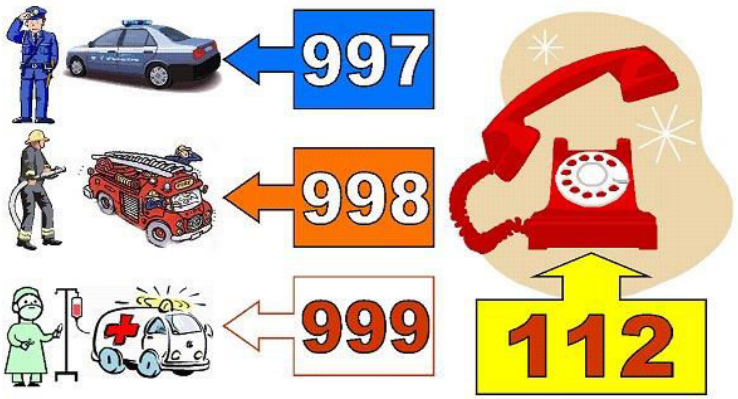
Escape routes can not be blocked. Closing door preventing their immediate opening is prohibited.

Instruction for employees in case of fire

- In accordance with Art. 4 of the Act of 24 August 1991 on fire protection, owner, manager or operator of the building, shall secure building in case of fire or other threat:
- comply with the requirements of fire protection construction, installation and technology,
- equip the building, facility or area with fire-fighting equipment and fire-fighting measures in accordance with the principles set out in separate regulations,
- ensure the maintenance and repair of equipment and facilities in accordance with the principles and requirements that ensure their smooth and reliable operation,
- provide to people in the building, facility or site security and a possible evacuation,
- prepare a building, facility or area for a rescue operation,
- familiarize employees with firefighting procedures,
- establish procedures in the event of a fire, natural disaster or other local hazards, such as fire safety instructions.

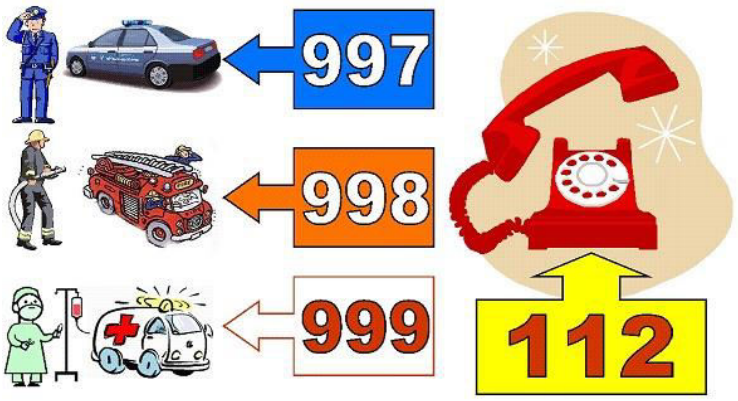
In order to familiarize employees with the rules in of case of fire, the employer shall prepare "procedure in case of fire" and places it in a visible place. Instructions should include:

- principles of organization of evacuation including ways of publishing alerts, evacuation routes using general communication, organized and individual evacuation,
  - behaviour in case of fire, including:
  - fire fighting until the arrival of fire and rescue units and cooperation with managing the emergency team,
  - rules for other people using the facility,
- list of emergency phone numbers.



How to notify fire to fire brigade?

- **Shortly describe place of fire.**
  - **Precise describing location of fire shortens time required to find the origin of fire by firefighters.**
- **Give your name and telephone number.**
  - **To check if fire notification is authentic dispatcher might call back to verify notification.**
- **Confirmation of notification.**
  - **Do not hang up until notification is not confirmed by dispatch.**



Behaviour in case of evacuation

- **Stop your work, secure important document, switch off electric devices.**
  - **Close windows and doors to prevent spread of smoke and fire.**
- **Stay calm, do not panic, leave building using evacuation routes.**
  - **Using routes other than purposed for evacuation and moving in wrong direction may easly cause panic.**
- **Follow commands of evacuation leaders.**

Emergency phone numbers	
Emergency	112
Fire fight	998
Police	997
Emergency service	999
Electro / energetic service	991
Gas service	992

When calling from your desk phone use „0” in front of above numbers

11. Premedical help

First aid in case of emergency

The concept of first aid is fast, organized action carried out by a person with ambient victim of an accident.

Efficient and reasonably competent performance by providing first aid is very often decisive for the further results of treatment performed by healthcare professional - often essential for the life of the victim.

First aid should normally be made at the scene.

If more than one person are witness of an accident, one of them should take leadership of rescue operation until professional help arrives.

What shall witness of an accident do:

- assessment of the incident scene, take action;
- remove as soon as possible victim from harmful factor;
- assessment of danger to life of victims;
- check pulse;
- check breathing and air-passage patency;
- assessment of the state of consciousness;
- determine the type of trauma (wounds, fractures, etc.);
- protect the patient against the possibility of additional injury or other risks
- call for professional help (doctor, ambulance, etc.);
- organize transport of the victim (if it is not possible to quickly reach by a doctor).

First to do:

- immediately try to stop bleeding;
- protect the wound from infection by cleaning the wound area (deep wounds should not be cleaned with any antiseptic liquids or wiped, just cover them with sterile bandage);
- in the case of wounds contaminated rinse thoroughly with hydrogen peroxide;
- Cover wound with sterile gauze, impose a lignin or wool;
- secure gauze with bandage, adhesive plaster, triangular shawl - depending on the size of the injury;
- all patients with more serious injuries should be sent immediately to the hospital, proper medical attention should be given after 6-8 hours from the time of injury.

Do not remove foreign objects from wounds or gouge through wounds.
Wounded, whose wounds are contaminated with soil or dust, must necessarily receive tetanus serum.

Hemorrhage is a major and fast bleeding from a damaged blood vessel. Slow and sparse flow from vessel is called bleeding.

Internal hemorrhage might be the effect of:

- diseases such as tuberculosis, peptic ulcers, lung cancer,
- falling from a height,
- impact,
- crushes.

First aid-as soon as the transfer of a patient in doctor's hand.

First aid:

- The passage of blood from the arteries may be stopped temporarily by:
  - finger pressure on bleeding vessels:

- if bleeding from a limb, lift it up,
- squeeze strong with thumb, four-finger or fist;
  - establishment pressure dressing:

- temporarily stop bleeding (finger pressure),
- put a bandage with sterile gauze,
- bandage tightly.

Fracture is any break of the bone, for example, as a result of mechanical trauma (fracture may be due to the disease).

Symptoms od fracture:

- considerable pain in the site of the injury increasing when touched, and any attempt to move;
- inability to move a broken limb;
- change of bone contour;
- in spine fractures - sometimes paralysis of the arms and legs;
- rib fracture cause pain with each breath, and coughing or tightness in the chest;
- pelvic fractures cause pain when sitting down and at every try of getting up.

First aid:

- put a sterile dressing on the wound (in the case of an open fracture);
- immobilize the broken limb by immobilization two neighboring to fracture bone joints (eg: fracture of forearm: wrist joint and elbow joint). To immobilize limbs use special bus wire Kramer, and in their absence, other measures such as slats, triangular scarves , bandages (used eg for the immobilization of healthy limbs);
- in case of fractures of the upper limbs, lower leg and ribs patient can be moved and transported in a sitting position;
- in case of broken thigh, pelvis and spine - transport only in the supine position;
- in case of spine fractures patient must be placed on a hard surface (eg, boards, doors, etc.);
- give painkillers;
- provide transportation to the doctor.

Dislocation is partial or total displacement of one or more bones within the joint. Apart from displacement dislocation damage joint capsule and ligaments.

First aid:

- Apply cold compress on the sprained joint (eg altacet);
- immobilize joint with rails and ties;
- give painkillers;
- transport patient to the doctor (with dislocation of knee joint, hip and ankle - in the supine position).

Burns is a soft tissue injury (skin, mucous membranes, tissue and muscle) caused by:

tempreature

chemicals (acids)

electricity

radiation (infrared radiation, electromagnetic, high frequency laser ionization).

Considering the depth of damage to the skin or the subcutaneous tissue we distinguish 4 degrees of burns:

I degree - appearance of redness on the skin accompanied by burning pain;

II degree - appearance on the surface fluid-filled vesicles and severe pain;

III degree - burns also applies to the subcutaneous tissue, skin changes color to white, gray or dark brown;

IV degree - carbonization of tissue and far-reaching necrosis.

First aid:

- break contact with blister factors;
- reduce the pain by pouring fresh, cold water for a few minutes (in addition to reducing pain water prevents deep burns) and by administration of medicines.
  In the case of burn by chemicals wound should be washed under a strong stream of cold water;
- protect injured area from infection by dressing (with sterile gauze) burns I, II and III on small areas of the body and cover with clean sheets, tablecloths burns on large surface of the body;
- remove to professional medical care as soon as possible.

Frostbite are soft tissue damage caused by application of cold.

Frostbites are divided to three degrees:

- **I degree** - pallor and numbness of frostbitten parts of the body, burning of the skin;
- **II degree** - in addition to red color of the skin appear fluid-filled blisters;
- **III degree** - tissue necrosis.

First aid:

- gradually warm up (with first degree);
- apply a sterile dressing (II, III degree);
- give painkillers (II, III degree);
- transport to hospital (II, III degree);
- at all degrees of frostbite give warm fluids to drink.

Interaction of electricity on human body:

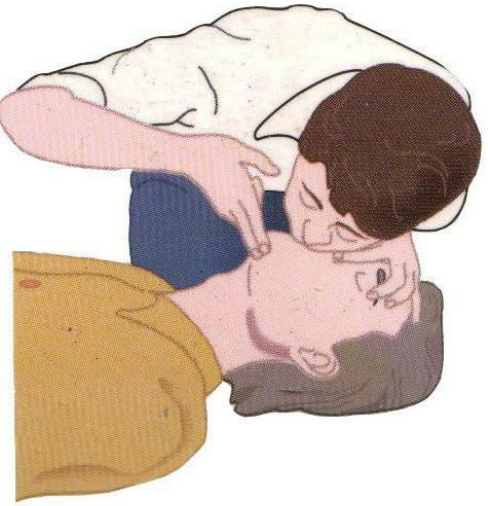
locally - as burns;

in general - in the form of cardiac arrhythmia, including the danger of cardiac arrest.

First aid:

- immediately release affected person from the source of electricity by:
  - switching off the appropriate electrical circuit,
  - pull away from electricity source (be sure to use adequate security to save yourself from electric shock);
- depending on the condition of affected persons take appropriate emergency actions:
  - when you stop breathing - artificial respiration,
  - with cardiac arrest - cardiac massage,
  - burns, bleeding, wounds, etc. Proceed as in such cases it is necessary.

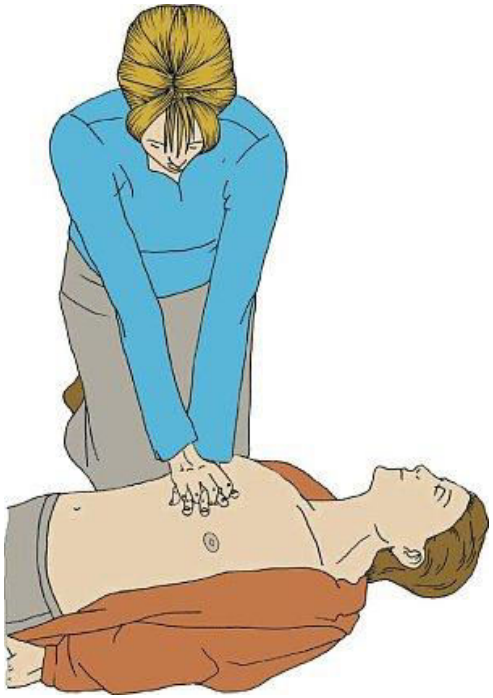
The first step is to ensure airway by placing the victim in a supine position on a hard surface and the inclination of the head to the rear. We control if there are items in mouth disrupting the airway, such as prostheses, other foreign bodies.



Than as follows:

- leading artificial respiration kneels down on the side of the victim,
- tilt the head upwards and backwards,
- blowing air into the patients mouth is preceded by a deep breath of rescuer, the correct volume of air blown into the lungs is indicated by elevation of victims chest,
- whenever the air is blown into victims mouth, block his nose to prevent air from moving out,
- after finishing artificail respiration the victims's chest will fall down due to the resilience of its walls and you should hear the murmur of passive exhalation,
- respiration rate - 1 puff every 5 seconds.

It is a procedure performed simultaneously with artificial respiration and both of these need to be synchronized.



Steps at cardiac massage:

- the victim lays down on a hard surface, such as during artificial respiration,
- leading cardiac massage kneels on the side of the victim,
- hands, crossed one on another, are placed on the third lower part of the sternum, with straight arms in both elbows, perform dynamic pressure, moving the body weight on your forearms straight,
- effective cardiac massage requires chest compressions at about approximately 4 cm and the appearance of the pulse at the periphery, eg the carotid or femoral,
- Massage is performed with a frequency of about 60 times per minute,
- During CPR it should be used proportion pressures vs blows ratio 30:2,
- It should be noted that the resuscitation must lead until appearance of medical assistance.

Because of the absorbtion way of poison to the body we distinguish :

inhalation,

gastrointestinal tract,

skin.

Immediately get medical attention or provide transportation to hospital. Give the doctor name of toxin. In case of unknown poisons gather first vomit and pass to the doctor, what will help in analysis and facilitate treatment

First aid:

Poisoning by inhalation:

- remove the patient from the place where the poisoning occurred, and get out into fresh air;
- loose all oppressing cloths;
- remove clothing in case of contact with the toxic factors;
- ensure pace to the victim;
- protect the patient from heat loss by covering him with a blanket;
- in the absence of heart rate and respiration (strictly keeping in mind the controlling airway) begin artificial respiration and heart massage;
- to control seizures protect the patient from biting the tongue

Poisoning via gastrointestinal tract or via skin:

- React according to safety data sheet – every substance require different reaction

We kindly encourage you to contact us in case of any problems or doubts related to health and safety.

You will find us in Administration building at Kopernika 19 street, on first floor, rooms 2, 3 and 4.

Or call our phone numbers:
12 424 70 15
12 424 70 14