Safety at Hospitals in the European Union in the Case of Poland

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Abstract: A significant subject in the functioning of a hospital is the issue of safety of patients, the personnel that directly or indirectly takes care of them and people visiting them. The safety is influenced by, among other things, such factors as: a hospital’s infrastructure, equipment, financial situation and human resources. An important thing is engaging highly qualified employees and training them in order to increase the awareness and skills necessary to protect a patient from any hazards and to eliminate their consequences. Health care institution should on a regular basis perform the tasks connected with the obligation to maintain the level of safety and to undertake new actions in order to increase this level. A hospital has to be supervised by the National Sanitary Inspectorate and has to implement its decisions and orders on a regular basis. Moreover, a hospital has to maintain the adequate level of fire protection system in the facility. The rules of HACCP system also apply to a hospital – Hazard Analysis and Critical Control Points System, ISO 9001:2008 System.

Keywords: Safety, Hospital, Health Service Management.

I. INTRODUCTION

Considering the issue of a hospital’s safety and the safety of a patient and the employed personnel, one has to pay a particular attention to sanitary-epidemiological condition of a given facility. Hospital-acquired infections are one of the causes of present-day diseases that occur as a result of providing health services and apply to all hospitals around the world. Aiming at decreasing the number of these infections is the basic, ethical and professional duty of directors and health care personnel. The act on preventing and combating infections and infectious diseases in humans [23], specifies, among other things, the duties of directors of health care institutions and the duties of other people providing health services. These entities are obliged to undertake actions that aim at preventing the spread of infections and infectious diseases. The directors of hospitals are obliged to implement and ensure the functioning of hospital-acquired infections prevention and combat system, that includes: appointment and supervision over the actions of a team and a committee of hospital-acquired infections control; the risk evaluation and monitoring of the occurrence of hospital-acquired infections and alarm factors; organizing the way in which health services are provided; monitoring and registering hospital-acquired infections and alarm factors; preparing and delivering to the competent national sanitary inspector the reports on current epidemiological situation of a hospital; reporting within 24 hours about a confirmed epidemic increase of the number of hospital-acquired infections to the competent national sanitary inspector. Moreover, directors of hospitals are obliged to gather information about hospital-acquired infections and alarm factors and they have to keep a register of hospital-acquired infections and alarm factors. The act defines a hospital-acquired infection as an infection that occurred in connection with providing health services, in case when a disease did not remain at the moment of providing health services in the period of incubation or occurred after providing health services, in the period not longer than the longest period of its incubation.

II. SANITARY-EPIDEMIOLOGICAL CONDITION

The supervision over hospital-acquired infections should be understood as an external control that confirms or doesn’t confirm the correctness of tasks undertaken as part of internal control of health service facility. Such controls are carried out by the National Sanitary Inspector on the territory of a province. They are performed on average once a year or depending on the needs [2].

Internal controls are performed periodically in accordance with the act, at intervals not exceeding 6 months and when needed, by hospital-based team of control of hospital-acquired infections. A hospital must have all necessary epidemiological procedures which are updated on a yearly basis. The element that ensures a patient’s safety, as well as the safety of personnel, is maintaining cleanliness of rooms and adhering to epidemiological procedures by hospital’s personnel.

Controls of hygienic condition of hospital rooms must be carried out regularly. All hospital workers must have valid periodic medical examinations and valid medical record books for sanitary and epidemiological purposes (at appropriate posts). Dealing with clean and dirty linen must be in accordance with developed procedures at a hospital: there are separated, necessary storerooms and doing the laundry must be performed by an external

IJTRD | Jan - Feb 2016
Available Online@www.ijtrd.com

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company. Microbiological cleanliness of hospital linen must be checked at least twice a year. Changing bed linen and towels during a stay at a hospital is carried out by patients (according to individual needs) [1]. Additionally, there have to be present procedures on maintaining cleanliness and disinfection and on preparing working solutions. Disinfection plans must be available at a work post, whereas at Rehabilitation Clinics and at Physiotherapy Offices these plans can be available for inspection by patients. Chemical agents necessary to maintain cleanliness of surfaces and equipment are dosed with the use of automatic dispensers provided for in all organizational units of a hospital – not available to outside persons.

Municipal solid and medical waste management at a facility must be performed basing on proper approvals and must be regulated by the provisions of internal procedures, aiming at human health and life protection and the protection of environment. It is mandatory that a hospital has its own water intake. Water tests must be performed at least twice a year. With regard to microbiological and physical-chemical aspect within the range of basic water analysis, water must meet the sanitary requirements set up for water intended for consumption. Moreover, at a hospital must be performed trainings on preventing measures regarding hospital-acquired infections. These should include key trainings on disinfection and hands hygiene, considering that many diseases can be transmitted from medical personnel to a patient through hands. That is why such trainings should be performed every year in the form of workshops by our hospital. To sum up, the sanitary and epidemiological safety at a hospital is very important and it is connected with many fields [5].

III. HAZARD ANALYSIS AND CRITICAL CONTROL POINTS SYSTEM (HACCP)

Each hospital should have its own kitchen and canteen operated by regular employment workers. In connection with increasing the quality of meals production and meeting the requirements of provisions related to food processing, in year 2006 HACCP system was introduced to hospitals. It became obligatory in all areas of food production, processing and circulation, irrespective of the size of a company and the type of activity from the day of entering the Republic of Poland to the European Union. HACCP – the approach aiming at ensuring food safety through identification, assessment the scale of threats from the point of view of health requirements of food and the risk of occurring threats during all stages of production and food circulation. The system is also aimed at specifying the methods of elimination and decreasing the threats and setting up the corrective actions [22].

HACCP system not only refers to identifying all potential threats to the safety of food that can have a negative influence on health of a consumer, but it also refers to applying the methods and finding effective solutions that will enable the elimination of threats or reducing them to the acceptable level. The basic condition for correct implementation of institutional catering, ensuring the overall safety of consumers and correct quality of foodstuffs, is creating an adequate technical-organizational setting (GMP - Good Manufacturing Practice) and meeting all hygienic norms requirements (GHP – Good Hygienic Practice), which refer to storing food commodities, semi-products and finished food products and production of meals and their distribution. In HACCP system the main emphasis related to the supervision over food is put to the causes of threats directly at the place of their emergence. Owing to this fact, it is possible, just before producing the meals, to eliminate the health threats connected with food commodities, additives, auxiliary materials, personnel, machines, devices and technological process [3].

Within HACCP system, hospital workers are obliged to apply and adhere to the following procedures concerning: cleaning and disinfection, workers’ hygiene, admission of food articles and the way in which they are stored, examination of health status of workers, protection against pests at the facility, waste and liquid effluents disposal, maintenance of machinery and devices, water tests, training of workers, taking water samples, checking the control-measurement equipment with the use of a reference thermometer, entering the facility, making meals, diets specification, supervision over lighting, wood and plastic. By the way of internal regulation of each hospital there must be appointed a Hazard Analysis and Critical Control Points Team, made up by at least three members. The team is set up in order to carry out ongoing verification of HACCP system in the department of hospital’s catering.

IV. PROCEDURES RELATED TO EMERGENCY MANAGEMENT IN CASE OF OCCURRENCE OF HAZARDS AS A RESULT OF RANDOM EVENTS.

A hospital has to develop and update on a regular basis the procedures connected with emergency management in case of occurrence of hazards as a result of random events and events of massive nature. These procedures has to specify types of hazards, ways in which they are identified, reaction to their occurrence, notifying a hospital’s director, officers and adequate institutions, undertaking proper actions and possible evacuation [4]. Personnel has to be trained and familiarized with handling instructions in case of hazards of: flood, fire, toxic industrial agents, radioactive, a terrorist attack, in case of receiving the message about placing or finding an explosive charge, in case of bio-terrorist attack.

V. INFRASTRUCTURE AND FIRE SAFETY
Aiming at safety of its workers, each hospital prevents and introduces good practices for workers, that concentrate on the most significant types of risks in this sector, particularly: biological factors, musculoskeletal system disorders, psychosocial disorders, chemical factors [9]. At the same time a hospital fulfils its duties resulting from the provisions that refer to employers, particularly: carries out trainings of workers, carries out periodic health examinations of workers, evaluates occupational risk at work posts, cares about fire protection at a hospital [15].

The tasks specified by a hospital in the range of work safety and fire protection, constitute a significant element of quality management, risk management and social responsibility of an employer. In this context the aspects of work safety and fire protection must constitute an integral element of all directive processes of development, such as the strategy of a company, human resources and organizational development. All directors at a hospital start their professional development from completing a training for employers or other persons who manage the workers. The basic idea is creating better, healthier and safer work posts at a hospital which will translate into satisfaction of workers and at the same time it will improve the quality of performed work. Through professional development the workers of a hospital will become experts on their work posts, which will translate into higher quality of performed treatment processes at a hospital [18].

The undertaken tasks concerning work safety and fire protection are integrated with quality management system, which is implemented at a hospital. Occupational risk evaluation is a process undertaken on a regular basis, which is often repeated by directors and the results are documented and taken into account in work processes. A patient who stays at a hospital sees the actions connected with work safety and fire protection and pays attention to: dangerous places marked with yellow and black stripes, work safety and fire protection instructions hung on the walls, a hospital’s personnel wearing working clothes and personal protective equipment, escape routes are clear and marked in accordance with Polish Norm in this respect, fire extinguishers and hydrants are in generally accessible and clear places, they are functional and marked in accordance with Polish Norm in this respect [6,7].

In a hospital one adheres to the Act on fire protection [20], which specifies that fire protection means the implementation of actions aiming at life, health and property protection against fire, natural disaster or other place hazard. An owner, administrator or a user of a building, a facility or an area ensuring its fire protection has a duty to equip a building, a facility or an area with necessary fire protection devices and extinguishers, has to adhere to technical-construction, installation and technological fire protection requirements, ensure the maintenance and repairs of fire protection devices and extinguishers in a way that guarantees their functional and reliable operation, has to provide safety and possibility to escape to the persons that stay in a building, in a construction facility or in the area; has to prepare a building, a construction facility or an area to perform a rescue action, has to familiarize employees with fire protection provisions and has to determine (in the form of instructions) the procedures of conduct in case of a fire, a natural disaster or other hazard at the place.

Practical application of these requirements, both within the organizational sphere and within the sphere of technical fire protection measures and ordering actions, requires specifying the tasks and responsibilities of particular users and workers in a facility, in conformity with the division of competences. Enforcing the realization of these duties is performed by a hospital’s director, personally or through designated persons. Therefore, optimal specification of organizational, technical and ordering requirements constitutes a guarantee of safety of persons who stay at a facility and it prepares well the grounds for the rescue action from the outside.

In order to carry out an effective activity related to fire prevention and fire combating, it is necessary to have the knowledge about a process of combustion, since it allows for a comprehensive evaluation of elements that form broadly understood phenomenon of a fire. Combustion of anything is a chemical process in which burning material is combined with an oxidant (most often with an oxygen). During this process heat and luminous energy and other combustion products are emitted. Combustion process can only occur and then develop, when there is a proper proportion of a burning substance, an oxidant and the source of ignition (energy stimulus). Therefore, it is clear that in order to break the combustion process, the change of proportions of process elements is necessary, that is removal of burning material or making it incombustible in locally occurring circumstances, eliminating the thermal stimulus that supports combustion process (e.g. cooling the burning system), closing off the flow of oxidant (oxygen) to the burning system. The above mentioned actions constitute the essence of fire-fighting technique. However, fire extinguishers play a decisive role in this technique in situations, when there is a possibility to extinguish a slow fire, that is in the first phase of its occurrence. Therefore, the function of fire extinguishers is connected with elementary action (cooling the burning material or closing off the access to oxygen), or with actions that combine these two extinguishing mechanisms. In this function one should take into account: rules of choice, placement and use of fire extinguishers, specifying the type of extinguishing equipment, rules of using extinguishing equipment, internal and external hydrants, the number of fire
blankets, choice and placement of fire-fighting and evacuation safety signs [11,12,13].

Ensuring the possibility of evacuation not only means the existence of evacuation routes in each facility. These routes should have parameters that allow people for safe leaving the zone in which there is or might be the fire. Good evacuation conditions are also connected with such marking these routes and placement of fire-fighting equipment, that will enable their correct identification during a fire and evacuation. Additionally, it is necessary to make proper signs that will show the route leading to evacuation route in those rooms, where at least two evacuation exits are required.

VI. ORGANIZING AN EVACUATION AND ITS CONDITIONS

Evacuation is a quick and safe leaving the endangered rooms with the use of designated routes and exits and coming to safe zones. It is assumed that in a facility, at the same time there may appear only one source of fire or other threat (a smoke grenade, gas). Evacuation from a facility may occur spontaneously after discovering the fire (or other threat) or after ordering an evacuation [19]. Considering the safety of people and property, depending on the type of threat, fire situation and a level of fire threat, there can be made a decision to order a full or partial evacuation. Preparing a facility for evacuation, one has to check whether all persons who stay in a building are able to leave a facility on their own and within relatively short time. Particularly, one should take into account the following rules: at each place of evacuation route where there may arise a doubt as to the direction of evacuation, there should be a visible, evacuation sign; evacuation signs and other markings of photo-luminescent system should be situated in relation to sources of light in such a way, that ensures their proper luminescence; illuminated signs pointing the directions of evacuation and obstacle lighting that makes visible the obstacles that result from the layout of a building or evacuation route or the way in which a building is used, should be used in rooms that are operated with switched off basic lighting; fire-fighting safety signs and information signs should be used in such a way that allows for their instant identification – it is recommended to use them perpendicularly to the direction of a man’s movement [8,16].

During rescue-extinguishing actions one should remember that in the first place one should alert the Fire Brigade and start the evacuation of people and then, as much as it is possible, one should organize an extinguishing action and evacuation of property. Evacuation of property must not be organized at the expense of strengths and measures that are necessary for evacuation and rescuing people. When danger occurs that brings the necessity to perform the evacuation of people and property from a facility, such decision is made by a competent person, who is responsible for safety in a facility. This decision should particularly contain information about the scope of evacuation, the number of people to be evacuated, the ways and sequence of leaving a facility, but it also must specify the routes of movement and the area where evacuated people and property will be gathered [17,21].

In a situation when a decision about the evacuation of people is made, one should take the following actions:

1. All persons staying in rooms should be instantly informed about the occurrence and nature of threat and about the necessity to carry out the evacuation. Do not let the evacuated people panic. In order to inform the people one should use available means of communication and alert (depending on the situation and the scope of evacuation one should use the means and ways of alerting about the danger);
2. Informing the people who are staying in a building and who are in the evacuated area lies within the duties of designated workers;
3. The objective is that among evacuated people in the first place should be persons with limited (because of various reasons) ability to move, while the stream of movement should be closed by persons who can move on their own. Both before announcing the evacuation and during this procedure, the personnel who carries out the evacuation should prepare evacuation routes by opening and securing them, making sure that they are not blocked and that they are free from smoke etc.
4. In case of closing off the movement routes for single persons or groups of people, one should immediately inform a person who manages the evacuation action with the use of available means: by phone, directly or with the help of persons who are outside the closed zone. Persons who don’t have access to exit routes and who are staying in the danger zone should be gathered in a room that is furthest from the source of danger and with the use of available means and existing conditions these persons should be evacuated from the outside, with the use of rescue equipment of National Fire Service units or other rescue units e.g. Volunteer Fire Service.
5. At strong smoke within evacuation routes one should move in a bent position, trying to keep one’s head as low as possible, because of fewer amount of smoke at lower parts of rooms and corridors. If possible, respiratory tracts should be covered with a kerchief etc. – it makes breathing easier. While passing through sections of evacuation routes with heavy smoke, one should move along the walls in order to keep the track of direction in which to move;
6. Before finishing the evacuation action one should check if people are still present in rooms. In case when they are found in controlled rooms, one should provide them a safe evacuation;
7. Upon finishing the evacuation of persons one should check, if it is possible, whether all people have left the
evacuated facility. In case when the number of evacuated persons does not agree with the supposed number of persons staying at the facility before the announcement of evacuation, the rescue units (with the commander of the action) that arrived at the place should be informed about this fact – in order to check the rooms once again.

8. In case when National Fire Service units or Volunteer Fire Service units arrive during the evacuation action, the person who manages the action is obliged to provide short information about the course of this action to the commander of rescue unit that has arrived and then this person should follow his directions.

In a situation when a decision about the evacuation of property from a facility has been made, one should adhere to the following rules:

1. Evacuation of property must not be organized at the expense of strengths and measures that are necessary for evacuation and rescuing people;
2. A decision about evacuation of property is made by a person who manages the action or personnel who organizes the evacuation when: the property of great value is directly in danger or it is the only way of saving it; the property hinders the access to the source of threat or enables its spreading out;
3. The evacuation of property should be started from the most valuable equipment and devices, important documentation and objects, means of payment, valuable baggage, materials and substances that are dangerous in terms of fire (burning liquids, bottles with burning gases);
4. In order to disassemble and evacuate the property into a safe place and to secure it from destruction or theft, one should use: all physically fit workers; the equipment used for evacuation of property and means used for securing it that are available in a facility; the equipment of rescue units that arrived at the place from the outside (e.g. for pulling away the cars).

The evacuation of people and property is done along with fire extinguishing action. Making a decision concerning the choice of evacuation route should be made upon recognizing the situation, the evacuated people should be provided with maximum safety.

CONCLUSIONS

In order to ensure safer operation of facilities, devices and equipment with the help of specialized companies and persons that have relevant powers and qualifications and through designated workers, a hospital implements a series of actions required by law, that is periodic controls, technical inspections and maintenance works. Each inspection, control, measurement or maintenance work is followed by drafting a protocol. Among the most important one can list:

1. Operational measurements of electric devices and installations depending on a type of a room, including the measurements of effectiveness of fire-fighting protection and insulation resistance, depending on a type of a room these are performed not less frequently than every year or every five years,
2. Portable fire extinguishing equipment undergoes technical and maintenance inspections in accordance with an instruction specified by a manufacturer, however, not less frequently than every year and it undergoes immediate inspections performed every 30 days. These inspections include checking whether fire extinguishers are in designated places, are clearly marked, are not blocked, don’t have visible damages and signs of corrosion, whether the seal that secures a pin is not broken, whether in fire extinguishers equipped with a gauge, the indicator is within the green area,
3. Internal fire hydrants undergo technical inspections and maintenance actions in accordance with an instruction specified by a manufacturer, not less frequently than every year and routine inspections performed every 30 days. These inspections include checking whether internal fire hydrants are not blocked and have readable markings and instructions of use, whether they don’t have visible damages, signs of corrosion or leakages or whether the equipment of a hydrant is complete,
4. Technical devices, such as: lifting equipment, water boilers, pressure vessels that undergo periodic, full, technical supervisions every year by the Inspector of Technical Supervision.
5. For each building, construction site log books are held which are documents in which records are made concerning undertaken examinations and controls of technical condition, repairs and reconstructions, during the use of a construction site. At least once a year buildings undergo a periodic control that includes checking the technical condition of elements of a building and installations exposed to damaging atmospheric agents and destroying actions of factors that occur at the time of using a facility. At least once in five years buildings undergo a periodic control including checking the technical condition and applicability for the use of a construction site, checking the aesthetics of a construction site and its surroundings. This control also includes examining the electric and lightning-conductor installation concerning the condition of performance of connections, equipment, safety devices and safety measures against shocks, insulation resistance of wiring and earthings of installations and devices.
6. At least once a year buildings undergo a periodic control including checking the technical condition of flues (smoke, combustion and ventilation),
7. At least once a year buildings undergo a periodic control including checking the technical condition of gas installations.
References

[16] POLISH STANDARD PN-EN 60849 Sound systems for emergency purposes.
[17] Regulation of the Minister of Internal Affairs and Administration of 7 June 2010 on the fire protection of buildings, other facilities and areas (Dz.U.2010.109.719)
[18] Regulation of the Minister of Infrastructure of 12 April 2002 on the technical specifications for buildings and their location (Dz. U. of 2002 No. 75, item 690 as amended).
[19] Regulation of the Minister of Internal Affairs and Administration on water supply of fire-fighting and fire roads of 24 July 2009 (Dz. U. No. 124, item 1030).