

Ministry of Healthcare of Ukraine
O. O. Bogomolets National Medical University

Department of hygiene and ecology №2

METHODICAL INSTRUCTIONS

For individual work of students
During preparing for practical lesson in the discipline "Occupational
health and safety in the healthcare sector"
On the topic:

**Hygienic description of working conditions and
health status of medical workers**

Kyiv – 2020

**MINISTRY OF HEALTHCARE OF UKRAINE
O.O. BOGOMOLETS NATIONAL MEDICAL UNIVERSITY**

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Hygiene and Ecology meeting
from _____ 20__.

Head of Department
Professor _____ O.
Yavorovskiy

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20__ .

INSTRUCTIONS

FOR STUDENTS' INDEPENDENT STUDIES IN PREPARING FOR PRACTICAL WORK

<i>Discipline</i>	Occupational (Labor) hygiene
<i>Module № 1</i>	Occupational health in the field
<i>Module № 2</i>	Occupational health issues in the medical field
<i>Topic</i>	Hygienic description of working conditions and health status of medical workers
<i>Course</i>	II, III
<i>Faculties</i>	Medical №1-4, FTDAFU, dentistry, medical-psychology

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Hygienic description of working conditions and health status of medical workers

1. Relevance of the topic:

The medical sector is one of the most widespread spheres of human labor. In particular, Ukraine has about 600,000 health workers in the health care system, while in the United States there are 18 million women who work in the medical sector, accounting for almost 80% of all health workers.

Healthcare workers face a number of serious safety and health hazards. They include bloodborne pathogens and biological hazards, potential chemical and drug exposures, waste anesthetic gas exposures, respiratory hazards, ergonomic hazards from lifting and repetitive tasks, laser hazards, workplace violence, hazards associated with laboratories, and radioactive material and x-ray hazards. Some of the potential chemical exposures include formaldehyde, used for preservation of specimens for pathology; ethylene oxide, glutaraldehyde, and paracetic acid used for sterilization; and numerous other chemicals used in healthcare laboratories (OSHA).

Thus, the ability to properly assess occupational risks and early diagnosis of pre-morbid conditions in persons who work under the influence of harmful and dangerous factors is one of the important stages in the prevention of occupational diseases and occupational injuries in order to preserve the health of medical staff of different levels and specialties.

2. Specific goals:

1. To characterize hygienic working conditions of medical workers.
2. Analyze the health status, including professional, medical staff.
3. Treat the criteria for assessing the severity, tension, harmfulness and occupational hazards of health workers.
4. Explain the methodology for assessing gravity, tension, harmfulness and occupational hazards in accordance with the Order On Approval of State Sanitary Norms and Rules "Hygienic Classification of Labor on the Indicators of Hazards and Dangers of the Factors of the Industrial Environment, the Severity and Stress of the Labor Process" No. 248, 04/08/2014, Ministry of Health of Ukraine.

3. Basic knowledge, skills, skills needed to study the topic (interdisciplinary integration).

The names of previous disciplines	Skills learned
1. Human anatomy	Analyze information about the structure of the human body, its system, organs and tissues. To determine the topographic-anatomical relations of human organs and systems.
2. Medical and biological physic	Explain physical bases and biophysical mechanisms of external factors influence on human body systems. To interpret the general physical and biophysical patterns that underlies

	human life.
3. Medical chemistry	To interpret the types of chemical equilibrium for the formation of a holistic physico-chemical approach to studying the processes of vital activity of an organism. Apply chemical methods of quantitative and qualitative analysis. To classify chemical properties and transformation of bionorganic substances in the process of vital activity of an organism. To interpret the general physical and chemical laws that are the basis of human life processes.
4. Microbiology, Virology and Immunology	To interpret biological properties of pathogenic and non-pathogenic microorganisms, including viruses and patterns of their interaction with macroorganism, with the human population and the external environment.
5. Human physiology	Analyze the health of a person under different conditions based on physiological criteria.
6. Biological chemistry	To interpret the significance of biochemical processes of metabolism and its regulation in ensuring the functioning of organs, systems and the integral organism of a person.

4. Task for independent work during preparation for the lesson.

4.1. List of basic terms, which the student should acquire when preparing for the lesson:

Terms	Definition
1. Work conditions	a combination of factors of the production environment and the labor process, which affect the health and efficiency of a person while performing her labor duties.
2. The severity of labor	a characteristic of the labor process, which reflects the predominant load on the musculoskeletal system and functional systems of the body (cardiovascular, respiratory, etc.), providing its activity.
3. The tension of labor	a characteristic of the labor process, reflecting the load on the central nervous system, the senses, the emotional sphere of the worker.
4. Potential industrial hazards	hidden hazard (the presence of hazardous substances, exceeding the life of the equipment, the state of emergency of buildings and structures, dangerous technological processes, violations of safety rules, etc.) or dangerous natural phenomena (showers, floods, earthquakes, storms, etc.) which under certain conditions can cause an emergency (accident).
11. Occupational	a pathological condition of a person caused by excessive strain of

illness	an organism, or by the action of a harmful production factor during labor activity.
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4.2. Theoretical questions to the lesson:

1. Hygienic peculiarities of working conditions and health status of surgeon physicians.
2. Hygienic peculiarities of working conditions and health status of doctors of the therapeutic profile.
3. Hygienic peculiarities of working conditions and health status of doctors of dental profile.
4. Hygienic features of working conditions and health status of doctors of sanitary-epidemiological profile.
5. Features of professional sickness of medical workers.
6. The notion of harmfulness, danger, severity and tension of labor.
7. Principles of "Hygienic Classification of Labor" № 248 04/08/2014 Ministry of Health of Ukraine ..
8. Ergonomic and physiological indicators of the severity and intensity of labor.
9. Criteria for assessing the hazards, hazards, severity and tension of labor.
10. Methodology for assessing the hazard, hazard, severity and intensity of labor in accordance with the "Hygienic Classification of Labor"# 248 04/08/2014 Ministry of Health of Ukraine.
11. Attestation of workplaces under working conditions. Purpose, main tasks and attestation content. Organization of works and the procedure for attestation of workplaces. Map of work conditions.

4.3. Practical work (tasks), which are performed at the lesson:

Situational task 1

An orthopedic surgeon conducts operations using an electro-pneumatic drill and orthopedic saw for four days a week, while the noise level reaches 97 dB with a regulation of 50 dBA.

1. Indicate the risk of a professional illness that increases most with the effects of increased levels of noise.
2. Name other probable illnesses that may arise when working with higher levels of noise.
3. Suggest and justify preventive measures.

Situational task 2

The women-surgeon, after two years of work in the surgical department, complains about headaches, increased irritability, sleep disturbances, anxiety and anxiety related to work. It also notes that the number of conflict situations has increased at work and in the family.

1. What are the factors of the working environment that could lead to these complaints?

2. Propose measures to prevent emotional overload on the work places.

Situational task 3

An anesthesiologist notes that after anesthesiologic accompaniment of surgical interventions, he has the euphoric emotional state and increased anxiety, which then change into drowsiness.

1. What professional factors can lead to the named changes?
2. What measures of protection against the effects of such harmful factors on the body of health workers you can offer?

Topic content:

Hygienic features of working conditions and health status of surgeon physicians.

The specializations of the surgical profile include: general surgery, the sphere of activity of which is predominantly abdominal pain; Thoracic surgery, which covers operations on the lungs, heart, and esophagus; urology, traumatology and orthopedics, neurosurgery, obstetrics and gynecology, otorhinolaryngology, ophthalmology, oncology, facial surgery, plastic surgery, surgical dermatology, surgical stomatology, etc. In addition to the listed, the surgical profile also includes anatomy, anatomical pathology and forensic medical expertise.

A special feature of the work of surgeons is the multicomponent work process. In addition to the preparation and conduct of surgical interventions, as the main type of activity of surgeon physicians, a significant amount of working time is spent on review and analysis of patients' condition, diagnosis, postoperative procedures, morning conferences, medical appointments and the resolution of questions about surgical intervention, work with medical documentation (stories diseases, operations protocols, etc.), conversations with relatives of patients, for departmental managers - administrative work, etc. A significant part of the working time of a surgeon also takes the form of medical documentation.

In addition to the listed activities, each surgeon substitutes for several shifts, which last for 7, 16, or 24 hours per month. During shifts, surgeons perform planned and urgent surgical interventions provide counseling and medical assistance to patients in different departments. Heads of departments and associate professors have several additional alternatives during the month. At the same time, after every duty on the working day, the surgeon continues to work during the next working day. Thus, the duration of the surgeon's continuous working time increases. There are no scheduled breaks.

During the year, one surgeon has about 185 hours of surgical intervention. One operation on average lasts 1 hour 12 minutes. Thus, the operational burden of one surgeon is about 155operative interventions per year. It is necessary to take into account the peculiarities of performing surgical interventions in the purulent surgery departments, where the number of operations, which lasts much less time (10-35 minutes), prevails, and the average operational load per one such surgeon is

136 interventions per year. However, such specialists have considerably more load during carrying out a dressing in patients with purulent wounds.

In otorhinolaryngology, one surgeon performs more than 170 operations per year and up to 4 - a week; in obstetrics and gynecology, respectively, - 370 and 7 (including abortions, abrasion - 230 and 5), etc. With the increase of the surgeon's qualifications, both the quantity and the complexity of operations increase.

American scientists, studying the personal psychological characteristics of surgeons and comparing them with primary care physicians, noted that surgeons represent a distinct and homogeneous group based on the properties of temperament and personality.

The physiological feature of the work of the surgeon in the operating room is a forced labor standing position, with a static tension of the muscular system. It was found that 37.6% of the operation time of the surgeon's trunk was inclined forward at an angle of about 45 °, and 27% - with an additional return to one or the other side, and only 26% of the time of his body occupies a vertical position. Static muscular tension in surgeons is accompanied by tonic and tetanic contractions of the muscles of the shoulder girdle, back, pelvis, lower extremities, hands, and the appearance of tiredness, which is directly dependent on the duration of the operation. Blood pressure in the legs increases in 2 times, in the pelvic region - by 50%. The brain receives less blood.

The working area of the surgeon is up to 60 cm in diameter, which causes the hands to move forward in a position without support, with the angle of deflection of the shoulder from the body ranges from 35 to 180 °. The angle of inclination of the head reaches 60-80 °.

At work sitting (ophthalmologists, otorhinolaryngologists, neurosurgeons, obstetricians, gynecologists, etc.) the body tilt reaches 60-85 ° forward, hands in a position without support are carried far forward, the spine becomes rounded. From the inclination of the trunk, the pressure of the chest is increased on the upper abdomen, the diaphragm excursion decreases, resulting in diseases of the liver, gall bladder, and the like.

Work related to maintaining a static posture using precise movements leads to the development of pathological states of the musculoskeletal system. The prevalence of pain associated with locomotor apparatus among dentists (61%), followed by surgeons of other specialties (37%) and the least of medical therapists of medicine (20%) was revealed.

Among the adverse factors of physical nature that affect the surgeon, the leading place belongs to the work: with barbed and cutting tools and associated injuries; conditions of the heating microclimate, which leads to the stress of the mechanisms of thermoregulation and increased sweating; the use of electric tools that, if violated by electrical insulation or incorrectly grounded, can cause electric trauma.

When conducting operations in hyperbaric oxygenation, surgeons and their assistants undergo a combined action of a heating microclimate, increased atmospheric pressure, closed space and increased intake of nitrogen. The pressure

in the hyperbaric operating room reaches 3 atm. or more, which is considered to be narcotic in relation to nitrogen. But insufficient cubic capacity in the baroque chamber, sometimes the need to increase pressure to 7-8atm, can create conditions for nitric anesthesia for members of the operating brigade. The process of compression and especially decompression is also an adverse effect. Under the influence of nitrogen, the members of the operating brigade emerge euphoria, changing behavior (groundless laughter, slowing down of motor reactions, reducing attention and clarity of manipulations, etc.). The peculiarity of the compression is to raise the air temperature in the baroque chamber from the initial, for example, 20 ° C, to 27 and even to 37 ° C. On decompression, on the contrary, the temperature drops to 17-15 ° C and even 12 ° C. Relative humidity at compression rises from 40-60% to 70-84%.

With X-ray diagnostics, radio diagnostics, surgical manipulations in traumatology doctors and their assistants are exposed to ionizing radiation. It is generally recognized that the effects of ionizing radiation can lead to genetic damage, and continue to cause congenital anomalies or childhood malignant neoplasms in the next generation. Hematologic malignant diseases (for example, leukemia, lymphoma) are a common form of cancer that is diagnosed in doctors.

The noise from air-electric drills and saws that are used in routine orthopedic practice often reaches 90 to 100 dB, which exceeds the recommended daily noise level of 85 dB, and in this connection, professional hearing loss is common in orthopedic surgeons.

Ophthalmology is unique in that practitioners are not only exposed to harmful and dangerous factors common to surgeons of all specialties, but also have their own professional risks, such as the influence of laser radiation. Laser equipment can cause serious burns.

To participants of surgical brigades, in addition to these physical factors, toxic chemicals are present. These are, first of all, the chemical compounds used for inhalation anesthesia: nitrous oxide (N₂O), ethyl ether, ethyl bromide, ethyl chloride, halothane, methoxyflurane, and the like.

The content of halothane in the operating air at different distances from the mask of the patient increases in proportion to the duration of the operation, especially in the semi-open contour of respiration. In addition, the content of inhaled drugs in the respiratory zone of the members of the surgical teams depends on the volume of surgical intervention, the cubic capacity of the operating room and the volatility of narcotic substances. The professional effect of aerosols of anesthetics can be the cause of numerous pathological conditions, including neurological, renal and hepatic diseases, as well as decreased mental performance and the speed of psychomotor reactions.

Ethylene oxides used for disinfection increase the risk of infertility in men.

During heating of electrocoagulation instruments or laser equipment for tissue dissociation and vascular coagulation, harmful aerosols, which also have unpleasant odors, are formed. Smoke, formed as a result of electrocoagulation,

contains various carcinogenic substances. It has been found that the aerosol formed during reduction mammoplasty has a mutagenic effect.

Surgeons also more closely contact with iodine, isopropyl alcohol, which causes irritation and skin diseases. Eye irritation, nose and throat are due to the effect of aerosols containing detergents or disinfectants (some of them alkaline). The use of formalin increases the risk of developing nasopharyngeal malignant tumors.

Latex allergy is caused by the effects of natural latex gloves and other materials and devices that contain latex.

During surgical interventions, surgeons are in a state of high mental and emotional stress. During long operations (3-6 hours) the time of visual-motor reaction increases, coordination of the movements of the hand and fingers, memory and attention decrease, the central nervous system is dominated by inhibitory processes. At the same time, there are reverse manifestations: in the process of operation, indicators of work functions are improved, emotional excitement comes. However, this occurs as a result of congestive excitation in the corresponding nerve centers. In the future, stagnant excitation goes into exhaustion. This is especially noticeable in emotional experiences caused by an unsuccessful move or results of an operation. Therefore, surgeons often experience conditions such as stress, fatigue, emotional exhaustion or anxiety, sleep disturbance, cognitive dysfunction.

The heart rate during the preparation of a surgeon for surgery increases by 5-10 per 1 minute, reaching 88-110 per 1 minute and increasing in critical periods of the operation.

After surgical interventions, depending on their duration, surgeons increase the volume of lower limbs by 0.5-0.8 cm, foot area - by 2-4%.

Particular attention from the standpoint of occupational hygiene deserves the work of the doctor-anesthetist, which is associated with the preparation of the patient for surgery, anesthesia, constant monitoring of vital processes of the patient's body and maintaining the functions of the organism operated during the operation and in the postoperative period. An anesthetist works with precision equipment, which requires not only practical skills, but also technical knowledge. Professional actions require from the anesthesiologist of purposefulness, long-term attention stress, and quick assessment of the situation.

Among the diseases of surgeons with temporary disability in the first place are acute respiratory diseases, influenza, diseases of the circulatory system, digestion and nervous system.

Among the chronic diseases of surgeons and obstetricians-gynecologists, which are manifested as a result of medical examinations, the largest share is occupied by diseases of the circulatory system and neurasthenia, which is associated with high psycho-emotional and physical stress. These doctors often have pain in the area of the heart, increased blood pressure, significant ECG changes, varicose veins of the lower extremities, nervous system disorders, etc. Female surgeons have a high incidence of gynecological diseases, pathology of

pregnancy, pathological childbirth, etc. Surgeons, too, are more likely to face family problems due to variable workload and stress. Potential emotional stressors for any female surgeon are possible discrimination in male collectives, the lack of role models (the role model is a person whose behavior, example or success may be imitated by others, especially younger, the term "role model" was first used by sociologist Robert K. Merton), a deformed perception of his role and overload. These stress factors can lead to depression, suicide and divorce. In women surgeons group there are more suicides and divorces than in women other professions.

Hygienic features of working conditions and health status of doctors of therapeutic profile.

The specialties of the therapeutic profile include: general practice - family medicine and internal medicine and therapy in other areas: gastroenterology, pulmonology, cardiology, phthysiology, infectious diseases, dermatovenereology, neurology, psychiatry, pediatrics, emergency and urgent medical care.

From the point of view of the peculiarities of the organization of labor and the influence of the adverse factors of doctors of the above specialties should be divided into:

- polyclinic
- working in a hospital.

The work of the family doctor is carried out according to the schedule, which provides for a fixed time for outpatient admission of patients, assistance to patients at home, preventive and other work. According to the schedule, the doctor alternates in different hours of the day and on different days of the week. The important family doctor's work area is the reception of patients in the clinic. The doctor must fully examine the patient, establish a diagnosis and prescribe the right treatment. Family doctor is obliged to carry out early detection of diseases and provide of qualified medical care to the population of the site, both at the outpatient clinic and at home; attend patients, provide systematic and dynamic monitoring of them, active treatment of patients until their recovery or hospitalization. At home, it is more difficult than conducting a diagnostic study at a clinic or in a hospital, the more that almost 2/3 calls come from the elderly. Having examined the patient's house at the call, the family doctor in the future (if necessary) should visit the patient on his own initiative.

Among the unfavorable psycho-physiological factors influenced by therapists, the leading role belongs to the excessive physical activity, which depends on the season of the year (number of calls), the size of the medical unit, the type of building (single or multistory buildings, the presence or absence of elevators in buildings).

In addition, therapists, ambulance doctors, psychiatrists and neuropathologists experience constant psycho-emotional stress. It is conditioned by the severity of the patient's illness, the complexity of the diagnosis, the limited

ability to help the patient, the peculiarity of the doctor's contacts with patients and their relatives.

The main activities of physician in hospitals are: everyday patients monitoring, completing of medical records, conducting diagnostic procedures, consulting with the head of the department and narrow specialists, communication with patients and their relatives, etc.

The actual number of patients who are supervised by a therapist at the same time is an average of 18.5-21.5 persons. On average, a review of a therapeutic patient spends 6-9 minutes, and on the patient who first entered the department - 27-35 minutes.

The medical and diagnostic work takes 43.5-51.9% of the time of the therapeutic department physicians, 30-33% of the medical records, and the rest of the time is spent on conversations with patients and their relatives, as well as conducting official conversations, etc.

The work duration of doctors in the departments of the therapeutic profile is on average 8-8,5 hours. Taking into account the part-time work combination with the main job in several clinics, the duration of the working day can reach an average of 9.5-10.5 hours.

The most prolonged working days during the working week of the therapist are Monday (9.2 hours) and Friday (9.25 hours). The increase in the duration of the working day on Monday is due to a longer follow up of patients after weekends and on Friday - a more detailed examination of patients before weekends, as well as the need to fill in these days of medical documentation (registration of the history of the disease and the written epicrisis).

An adverse effect on the physicians of the therapeutic profile can be made by modern means of technical equipment of medical institutions - X-ray facilities, radiation sources, electronic, ultrahigh-frequency, over high-frequency, ultrasound and laser installations, sources of UV radiation, chemical factors - pharmacological preparations acting on medical personnel in form of solutions, gases, vapors and aerosols.

Thus, the content of vapor and aerosols of caffeine, papaverine, salsolin, dibasole, phenobarbital in the analysis of air samples taken at the workplace of medical personnel, in 6% of cases exceeded the maximal permissible levels in 2-4 times.

For doctors of leprosarium, as well as phthisiologists, infectious diseases, dermatovenereologists, laboratories of anti-plague, bacteriological, virology and helminthological laboratories, specific occupational hazards are pathogens of appropriate infectious diseases.

Among diseases of the doctors-physicians with temporary disability in the first place are acute respiratory diseases, flu, diseases of the circulatory system, digestion and nervous system. In this case, doctors-therapists suffer much more often and longer than doctors-surgeons (respectively, 103.4 cases and 128 days - from therapists and 48.4 cases and 76.9 days of disability per 100 working - from surgeons).

In the structure of chronic diseases of district physicians, the first place is occupied by diseases of the digestive system (chronic cholecystitis, first gastritis, peptic ulcer of the stomach, duodenum), diseases of the nervous system and organs of sensation. Then they go: Ichias and radiculitis, due to frequent changes in the indoor and outdoor accommodation at the home.

The diseases of the medical staff of the therapeutic profile, caused by the influence of the industrial environment and labor activity, include:

- Infectious and parasitic diseases, similar to diseases of patients served by a doctor, nurse or laboratory assistant (tuberculosis, diphtheria, cholera, anthrax, helminthiasis, etc.);

- diseases that arise when dealing with drugs, narcotic, disinfectants and other chemicals (acute and chronic poisoning, drug allergy, dermatosis, etc.);

- diseases that develop with the prolonged direct service of mentally ill, - professional psychoneurosis;

- diseases caused by significant constant nervous-emotional stress (hypertonic disease, angina pectoris, anxiety and depression, etc.).

Among medical staff working as a team of ambulance, the risk of hepatitis B and C, HIV / AIDS, and tuberculosis is increased. It is not uncommon to receive injuries as a result of the aggressive actions of patients and their accompanying persons. Variable work and outbound challenges, the need to work at night is a factor that can lead to coronary heart disease and reproductive health problems.

Hygienic features of working conditions and health status of doctors of dental profile.

Dental specialties are divided into therapeutic dentistry, surgical dentistry and facial cosmetic surgery.

One of the main professional factors for a dentist is the forced body position of the body, which is accompanied by the static tension of individual muscle groups. Depending on the design of the dentistry armchair for the patient, the dentist works in a standing position or sitting.

When using armchairs and equipment of vertical structures, a dentist works about 34% of the working time in a standing position with the body tilt. When using horizontally constructed armchairs, 75% of working time works in a sitting position with a slope and flexion of the spine towards the patient, 22% of working time - with a strong inclination and bending of the spine.

The muscular load of the dentist when working in a standing position increases in 1.6 times and with the tilt of the trunk - almost 10 times. When working in a position sitting with the body tilt, the muscular load increases in 4 times.

Work with small teeth defects and limited accessibility to examine them leads to strain of the visual analyzer and excessive convergence of eyes as a result of the approach of the organ of vision to the object under consideration.

Among the significant physical disadvantages for dentists, there is a noise from the work of the drill, compressors and other devices. Dentists are at risk of

hearing loss as a result of exposure to noise. Loss of hearing in the first stages may not be so noticeable, but the first signal change in hearing may be the appearance of noise in the ears.

The use of photopolymer materials is accompanied by the entry into the respiratory zone of toxic substances of various origins and requires local illumination at the expense of high-power visible and ultraviolet radiation, which can also have a detrimental effect.

One of the main occupational risks for a dentist is the risk of transmitting an infection from a patient with diseases of the upper respiratory tract that runs through it in a mild, eroded, atypical form or in an incubation stage. In addition, the potential risk of developing an infectious disease exists when manipulations involving contact with saliva, gum tissue, blood of patients or infected persons occur. The medical examination of the health status of dentistry doctors showed that with prolonged one-sided loading on the locomotorium, they tend to stretch the tendons, resulting in weakening joints and displacing bones. Offset in the knee joint leads to changes in the hip joint, ankle joints, and the development of flat foot. Gradually developing persistent changes in the spine, scoliosis, kyphosis and lordosis appear in the cervical, thoracic and lumbar regions. In such a position, the weight of the physician's body moves on one leg with the tilt of the trunk in one direction, which provokes the development of scoliosis; the slope ahead provokes a "round back" - kyphosis.

The work of the doctor in a standing position with the tilt of the body often leads to compression of the abdominal cavity with the chest and, as a consequence, to the diseases of the gall bladder. At the same time deterioration of the output of bile, formed stones in the gallbladder, compressed internal organs, and complicated diaphragmatic breathing.

When working in a standing position with a slope of the body and head more than 10-15 °, the static fatigue develops quite rapidly, energy expenditure increases, pain in the spine arises. In 70% of young dental professionals, 6-30 months after the beginning of their activity there are some or other symptoms that indicate skeletal muscle disease.

The work of a dentist in a sitting position near a horizontal dental chair with a body deviation from the vertical of 25-30 ° with the return of the shoulder girdle at 28 ° causes the blood to stop in the organs of the abdominal cavity and pelvis, and as a result - the development of cholecystitis, less often - peptic ulcer, as well as radiculitis and ischias. In such a situation, the dentist spends an extra effort on raising and holding hands in the hinged position, which contributes to an even greater and faster development of fatigue. The forced workplace and the static tension of the locomotor system cause pain in the spine, neuralgia in the shoulder girdle and neck, hemostasis in the lower extremities, platypedias, and osteochondrosis.

The need for accurate and subtle manipulations in the process of therapeutic work, stereotypical movements, static-dynamic tension of the muscles of the fingers, hands and shoulder girdles, the holding of instruments with the efforts of

the fist, and the fingers of hands (as with the holding of a pencil), but with considerable physical effort, causes hypertrophy of certain muscle groups. Thus there is a so-called professional pain, which, gradually increasing, leads to a spastic reduction of the entire group of muscle of the hands up to the shoulder girdle. Prolonged and often repeated tension of certain groups of muscles in an unnatural, forced position leads to tendovaginitis - a very serious disease of the articular bag in the places of attachment of the tendons. The combination of tendonitis with Raynaud's disease leads to professional disability. The fingers become cold, blurred, pale. In severe cases, a gangrene comes.

Prolonged action of vibration, combined with a set of adverse factors (static muscle loads, noise, emotional strain) can lead to persistent pathological disorders in the body of dentists and the development of vibrational disease, the symptoms of which are seizures and pain in the fingers, a feeling of numbness of hands, loss tactile and temperature sensitivity.

As a result of permanent stamping of metal tools, one can develop Dupuitritren's contracture at one and the same place. On the middle, anonymous fingers, or on the little finger, there are rope-shaped nodular thickening of the palm that lead to contractures of the primary and secondary joints. At the same time, the fingers sometimes bend in such a way that the nails grow into the palm of your hand.

The tension of the visual analyzer can lead to spasm of accommodation and the emergence of so-called false myopia, and work with UV lamps can cause photophthalmia, burns of the cornea and turbidity of the lens. In this connection, typical complaints of tiredness of the organ of vision, a cut, a feeling of "sand in the eyes", discomfort. Changing the perception of colors is the result of neurotoxic effects of solvents and heavy metals.

Work with mercury amalgams can be the cause of the emergence of micro-mercurialism among doctors-dentists, nurses and dental technicians, which is mostly manifested by the central nervous system.

More than 25 infectious diseases, including AIDS, prion diseases, hepatitis B and C, can be transmitted through saliva, gum tissue, open wound. Frequent hand brushing can promote the development of mycogenic eczema, dysgrosis, epidermophytes.

The greatest stress during work is experienced by children's dentistry.

FEATURES OF PROFESSIONAL DISEASE OF MEDICAL WORKERS.

In 2001-2015, 1092 cases of occupational diseases in the health sector were detected in Ukraine - from 35 to 103 cases per year, which corresponds to the level of 0.31-0.76 per 10 thousand. Since 2006, Ukraine has been steadily declining cases and reduces the level of occupational disease. In the structure of occupational diseases, the first place is stable in tuberculosis (80-100%, in average for 15 years - 87.7%), the second is the disease of the musculoskeletal system (from 1.3 to 6.7%,

on average - 3.1%), and the third place is allergic diseases - from 1.0 to 5.1% (an average of 2.3%).

Infection with tuberculosis of medical workers is possible both in anti-tuberculosis institutions and in institutions of the general medical profile - branches of thoracic surgery, pathologic-anatomical and forensic medical offices, etc. - where contact with tuberculosis patients or infected material is possible. In 2001-2015, 966 cases of occupational TB cases were registered in Ukraine (958 TB and 8 TB related pneumoconiosis). This is from 29 to 90 cases annually. In recent years, in spite of the deteriorated socioeconomic situation in the country, the number of cases of professional TB is constantly decreasing. The highest percentage of occupational TB incidence in Ukraine is registered among medical workers working in medical institutions of phthisiological type (70-95%).

According to Gorachuk V.V. (2009), manifestations of the defeat of the emotional sphere as a symptom of "professional burnout" were detected in almost 80% of psychiatrists, psychotherapists, narcologists, in 61.8% of dentists, and in 60.6% of nurses of the oncology department.

The mortality rate of health care workers under the age of 50 is 32% higher than the average in Ukraine.

Donetsk, Vinnytsia, Kherson, Dnipropetrovsk oblasts occupy the first places in the occupational diseases of medical workers. The most occupational diseases are found in middle medical staff.

Most doctors deal with self-treatment or are treated by colleagues and thus data on their morbidity do not fall into general statistics. One cannot rule out the fact that most doctors are afraid of losing their job, therefore, they often try to hide the presence of a professional pathology that may be incompatible with their professional activities.

Principles of hygienic classification of labor on the indicators of harmfulness and danger factors of the production environment, the severity and intensity of the labor process 248 08.04.2014 Ministry of Healthcare of Ukraine

The variety of works, which requires unequal strain of functional systems of the organism, necessitated their classification for solving such theoretical issues and practical problems:

- optimization of labor loads and standardization of labor of various categories of workers;
- substantiation and implementation of measures to improve working conditions, reduction and elimination of heavy manual labor;
- planning of measures for rationalization of working and rest regimes;
- justification of the length of the working day and holidays;
- establishment of privileges and compensations for employees who are engaged in heavy and especially heavy work;
- elucidation of the mechanisms of influence of high severity and intensity of labor on the health of workers and the development of diseases.

In this regard, the principles and criteria were scientifically substantiated and classifications of severity and labor intensity were developed.

Hygienic classification of labor on the indicators of the harmfulness and danger of factors of the working environment, the severity and intensity of the labor process № 248 04/08/2014 The Ministry of Health of Ukraine is intended for hygienic assessment of existing conditions and the nature of work in the workplace, the establishment of priority in the implementation of health measures and applies in Ukraine during the labor process certification according to working conditions in accordance with the Resolution of the Cabinet of Ministers of Ukraine of 01.08.1992 number 442 "On the procedure for conducting attestation of workplaces under labor conditions."

It is based on the presence and severity of harmful factors in the working environment, the level of severity and intensity of the labor process.

The principle of differentiation of conditions and the nature of labor involves the degree of deviation of the parameters of the production environment and the labor process from the existing hygienic norms and their impact on the functional state and health of the worker.

Based on the principles of hygienic classification, working conditions are divided into 4 classes.

Class 1 - the optimal conditions and the nature of labor, which excludes adverse effects on the health of working hazardous and harmful production factors, creates prerequisites for maintaining a high level of efficiency (lack or compliance with the levels adopted as safe for the population).

Class 2 - acceptable conditions and the nature of work, in which the level of dangerous and harmful production factors does not exceed the established hygienic standards in the workplace, and possible functional changes caused by the labor process, restored during a regulated rest before the next change and do not cause adverse effects in the near and distant period on the health of workers and their offspring.

Class 3 - harmful working conditions by the level of exceeding hygienic standards and the severity of possible changes in the body of workers is divided into 4 grades:

1 degree (3.1) - working conditions characterized by such levels of harmful factors in the production environment and the work process that cause functional changes beyond the limits of physiological changes (the latter are restored at a longer than the beginning of the next change, the interruption of exposure to harmful factors), and increase the risk of deterioration of health, including the occurrence of occupational diseases;

2nd degree (3.2) - working conditions characterized by such levels of harmful factors in the production environment and labor process, which can cause

persistent functional disorders, in most cases lead to an increase in production-related morbidity and the emergence of individual cases of occupational diseases that arise after prolonged exposures;

3 degree (3.3) - working conditions characterized by such levels of harmful factors of the industrial environment and labor process, which, in addition to the growth of chronic morbidity (caused by production and morbidity with temporary disability), lead to the development of occupational diseases;

4 degree (3.4) - working conditions characterized by such levels of harmful factors of the industrial environment and labor process, which can lead to a significant increase in chronic pathology and levels of incidence with temporary disability, as well as the development of severe forms of occupational diseases;

Class 4 - hazardous working conditions - conditions characterized by such levels of harmful factors in the production environment and labor process, the impact of which during the work shift (or part thereof) creates a threat to life, high risk of acute occupational injuries, including severe forms.

Attestation of workplaces

Attestation of workplaces is a procedure of workplace assessment in correspondence with the requirements of occupational health and safety regulations, providing safety working environment as well as elaboration of documents, reflecting the results of the assessment.

Generally, the attestation of workplaces includes:

- Hygienic assessment of the working conditions and characteristics (instrumental measurements and assessment of physical and chemical factors, i.e. noise, vibration, EMR, lighting, air quality, etc).
- Psycho-physiological assessment of factors of working process (work heaviness and intensity).
- Assessment of traumatic security of workplaces.
- Assessment of provision of employees with personal protective measures in accordance with established norms.

Attestation of workplaces is a complex assessment procedure.

Objectives

- The objectives of the attestation of workplaces are as follows:

- Risk assessment.
- Control over the occupational health and safety situation in workplaces.
- Presentation of adequate information to employees and other stakeholders concerning working environment and conditions in workplaces, risk of potential injuries, necessary protective measures, warranties and compensations, etc.
- Provision of employees with personal protective measures depending on the results of assessment of physical and chemical factors in appropriate workplaces.
- Identification of professions to be undergone to initial and periodical medical examination.
- Identification of measures and actions to be undertaken for improvement of occupational health and safety situation.
- Provision of sanitary and hygienic conditions and facilities for employees in accordance with health and safety requirements, etc.

Documentation

As a result of the attestation of workplaces the following documents should be elaborated:

- List of identified workplaces to be assessed.
- Protocols of instrumental measurements of physical and chemical factors.
- Protocols of traumatic security.
- Protocols of provision of employees with personal protective measures.
- Cards/passports of attestation of workplaces.
- Summary list of results of attestation of workplaces.
- Occupational health and safety action plan.

Materials for self-control:

A. Self-control tasks:

1. Describe the working conditions and the associated occupational morbidity of surgeons.

B. Problems for self-control:

1. Describe the criteria for assessing the severity and intensity of work.

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