

MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
Educational Institution
BELARUSIAN STATE MEDICAL UNIVERSITY

**Контрольный
экземпляр**

APPROVED

by Rector of the Educational
Institution «Belarusian State
Medical University»

S.P.Rubnikovich

26.06.2024

Reg. # UD: 091-079/2425 edu.

GENERAL HYGIENE

**Curriculum of the educational institution
in the academic discipline for the specialty**

7-07-0911-01 «General Medicine»

Curriculum is based on the educational program «General Hygiene», approved 26/06/2024, registration # УД-091-079/2425/уч; on the educational plan in the specialty 7-07-0911-01 «General Medicine», approved 15.05.2024, registration # 7-07-0911-01/2425/mf.

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RECOMMENDED FOR APPROVAL:

by the Department General Hygiene of the educational institution «Belarusian State Medical University»

(protocol # 17 of 27.05.2024);

by the Scientific and Methodological Council of the educational institution «Belarusian State Medical University»

(protocol # 18 of 26.06.2024)

EXPLANATORY NOTE

«General Hygiene» – the academic discipline of the Medical-prophylactic module, which contains systematized scientific knowledge about the influence of environmental factors on the human health, the concept of risk factors as a basis of modern ideas about disease prevention, principles of prevention measures and regulations governing their conduct.

The aim of the discipline «General Hygiene» is the formation of basic professional competencies for organization of preventive, sanitary and hygienic measures in order to preserve and strengthen human health.

The objectives of the discipline «General Hygiene» are to form students' scientific knowledge about about the patterns of the impact of environmental factors on human health, the concept of risk factors, prenosological hygienic diagnostics; skills and abilities necessary for the organization of preventive measures aimed at maintaining and strengthening health, increasing working capacity.

The knowledge, skills, and abilities acquired during the study of the academic discipline «General Hygiene» are necessary for successful mastering of the academic disciplines «Radiation Medicine and Ecology», «Public Health and Healthcare».

Studying the educational discipline «General Hygiene» should ensure the formation of students' basic professional competency: use knowledge about the laws of the environmental factors impact on human health, apply methods of hygienic assessment of the human environment to develop basic preventive health-preserving measures.

As a result of studying the discipline «General Hygiene» the student should

know:

theoretical and practical aspects of the problems of preserving and strengthening the health of the population, preventing premature aging and deterioration of the body, using the favorable influence of human environmental factors on the course and outcome of the disease, restoring health and working capacity;

physiological basics of a healthy lifestyle and the concept of risk factors as the basis of modern ideas about disease prevention;

the laws of rational nutrition, methods for assessing actual nutrition and nutritional status, the basics of therapeutic nutrition in healthcare organizations;

hygiene requirements for healthcare organizations;

be able to:

perform a hygienic health assessment;

identify the premorbid state of the human body;

identify adverse factors affecting a person's health and performance;

perform hygienic training for patients and the population to promote a healthy lifestyle;

master:

methods for assessing in a health care organization the sanitary and hygienic condition of operating rooms, maternity rooms, treatment rooms, diagnostic rooms,

intensive care and resuscitation wards, wards for somatic patients, wards for patients with infectious pathologies, wards for newborns, laboratories, pharmacies, sanitary facilities and others;

methods of hygienic assessment of internal layout and finishing materials (wall panels, paints, wallpaper, ceramic tiles and others) in the premises of a healthcare organization (HO);

methods of hygienic assessment of materials for the manufacture of disposable medical clothing and footwear;

methods of hygienic assessment of the level of exposure to harmful production factors (physical, chemical, biological, psychophysiological) in healthcare organization;

methods for developing proposals and measures for the prevention of occupational diseases among healthcare workers from exposure to harmful production factors;

methods of hygienic assessment of the safety of medical waste management in healthcare organization.

Total number of hours for the study of the discipline is 210 academic hours. Classroom hours according to the types of studies: lectures - 18 hours (including 6 hours of supervised student independent work (SSIW), practical classes – 58 hours, student independent work (self-study) - 134 hours.

Intermediate assessment is carried out according to the syllabus of the specialty in the form of a credit (3 semester), and differentiated credit (4 semester).

Form of higher education – full-time.

ALLOCATION OF ACADEMIC TIME ACCORDING TO SEMESTERS OF STUDY

Code, name of the specialty	semester	Number of academic hours						Form of intermediate assessment
		total	in-class	including			out-of-class self-studies	
				lectures	supervised student independent work	practical classes		
7-07-0911-01 «General Medicine»	3	108	41	6	3	32	67	credit
	4	102	35	6	3	26	67	differentiated credit

THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures	practical
1. Environment and it's hygienic importance	4,5	18
1.1. Hygiene as a medical science. Assessment of human health. The concept of risk factors as the basis of modern ideas about disease prevention	1,5	2
1.2. Hygienic characteristics of the human environment. Physical properties and chemical composition of atmospheric air. Hygienic assessment of the impact of microclimate on human health	3	6
1.3. Hygienic assessment of impact of accommodation conditions on the human health	-	6
1.4. Hygienic assessment of the quality of drinking water	-	4
2. Hygienic requirements for accommodation conditions of patients and workers in healthcare organizations	1,5	10
2.1. Health care organizations and their role in medical care of the population. Hygienic assessment of the layout of healthcare organizations	-	4
2.2. Sanitary and hygienic requirements for catering units and buffets in medical departments of healthcare organizations	-	2
2.3. Hygienic requirements for building materials for interior decoration, for hospital furniture in healthcare organizations	1,5	-
2.4. Hygienic requirements for microclimate parameters and room illumination in healthcare organizations	-	2
2.5. Hygienic requirements for the gas composition of air and ventilation of premises in healthcare organizations	-	2
3. Sanitary and anti-epidemic measures in healthcare organizations	3	4
3.1. Hygienic requirements for personal hygiene of healthcare workers and patients	-	2
3.2. Hygienic requirements for organizing and performing cleaning of premises of healthcare organizations	1,5	-
3.3. Hygienic requirements for the management of medical waste in healthcare organizations	1,5	2
4. Hygiene of nutrition	7,5	18
4.1. Food as a factor of the environment. Nutritional diseases and their prevention	4,5	-
4.2. Hygienic assessment of the energy significance and	-	6

Section (topic) name	Number of class hours	
	lectures	practical
nutrient adequacy of the diet		
4.3. Hygienic assessment of nutritional status and vitamin supply of the human body	-	4
4.4. Prevention of food poisoning	-	4
4.5. Hygienic bases of human nutrition in the case of common somatic diseases	3	4
5. Hygiene of children and adolescents	-	2
6. Occupational hygiene. Prevention of negative impact of occupational environmental factors on the human body in healthcare organizations	-	6
7. State sanitary supervision of healthcare organizations	1,5	-
Total hours	18	58

CONTENT OF THE EDUCATIONAL MATERIAL

1. Environment and it's hygienic importance

1.1. Hygiene as a medical science. Assessment of human health. The concept of risk factors as the basis of modern ideas about disease prevention

Hygiene: definition, purpose, subject, objectives, theoretical foundations and methodology of science. The place of hygiene among other medical sciences. Challenges of hygiene at the present stage. Differentiation of hygienic science.

The origin and development of hygiene. Development of hygiene in Russia. The largest Russian hygienists: A.P. Dobroslavin, F.F. Erisman, G.V. Khlopin, A.A. Pokrovsky, K.S. Petrovsky. Ideas of prevention in the works of clinical scientists M.Ya. Mudrov, N.I. Pirogov, S.P. Botkin, G.A. Zakharyin, A.A. Ostroumov. Belarusian hygienist scientists: Z.K.Mogilevchik, P.V.Ostapenya, I.A.Chakhovsky, Kh.Kh.Lavinsky, O.P.Shepelin, M.S.Omelyanchik.

Human health as a state of complete physical, mental and social well-being, the harmonious unity of physical, mental and labor functions, which determines the possibility of a person's full participation in various types of social and occupational life.

Assessment of human health at the individual, group (collective) and population level. Criteria for assessing individual health: parameters of physical development (somatometric, somatoscopic, physiometric), physical qualification (speed, strength, endurance), homeostasis indicators (functioning of the cardiovascular system, respiratory system, metabolism and energy), higher nervous activity, immune status. Integral indicators of individual health: a person's performance (physical, mental, professional), the duration of his labor (creative) activity. Methods and techniques used in solving scientific and practical problems in assessing human health. Hygienic prenosological diagnostics: definition, purpose,

subject, procedure. Premorbid conditions of the human body, their signs, evaluation criteria.

Preventive medicine. Types of medical prevention. Primary, secondary, third stage of prevention. Public health, infrastructure, direction of activity, content and role of intersectoral interaction.

Classification of risk factors. External risk factors: food, housing, working conditions and occupational hazards, recreation, ethnic characteristics, standard of living and lifestyle, natural and geographical conditions. Internal risk factors (congenital and acquired): arterial hypertension, hypercholesterolemia, excess body weight, endocrine regulation disorder and others. Individual constitution as a set of morphological and functional characteristics of the human body that determine the uniqueness of its reactivity and the result of the implementation of the genotype in specific environmental conditions. Grouping of risk factors according to Yu.P. Lisitsyn: lifestyle, human genetics (biology), habitat, including natural and climatic conditions, healthcare.

The most effective areas of disease prevention in the field of public health: creating conditions for a healthy lifestyle, improving the environmental situation. Healthy lifestyle, its components. Hygienic training and education of the population, forms, methods and means.

Non-infectious diseases and models of their development: environmental, accumulation, ontogenetic and genetic models. Prevention of major non-infectious diseases. Models of development and nutritional prevention of atherosclerosis. The influence of tobacco smoking on human health. Stress as a risk factor. Physical activity as an important factor in maintaining human health and preventing major non-infectious diseases. Aging of the human body and associated non-infectious diseases.

Hospital hygiene as an integrated field of scientific and practical activity that studies the relationship between the organization of medical care for the population and its health status.

Basic regulatory legal acts of the Republic of Belarus regulating issues of public health protection.

1.2. Hygienic characteristics of the human environment. Physical properties and chemical composition of atmospheric air. Hygienic assessment of the impact of microclimate on human health

The human environment as a set of natural (air, water, soil, radiation, food, biosphere) and social (work, life, socio-economic structure) elements, as well as objects, phenomena and factors that determine the conditions of human life. Properties of natural factors (mechanical, physical, chemical, biological) and social elements of the living environment: labor (severity, tension, regime, the nature of the connection between a person and a tool, external working conditions), everyday life (accommodation conditions, clothing, food, water supply, rest), socio-economic structure (socio-legal status, material security, level of education, culture).

Hygienic regulation of human environmental factors, principles of regulation.

The structure of the earth's atmosphere, characteristics of the basic properties of the atmosphere. The influence of the atmosphere on the human body. Electrical

state of the air, characteristics of the main indicators, impact on human health. Air ionization. The concept of heavy and light, positive and negative ions. The influence of ionization on the human body. Natural radioactivity of the air, features of the effect on biological objects and human health.

Chemical composition of the air environment, its hygienic characteristics. Anthropotoxins in the air of residential premises: conditions conducive to their accumulation and impact on human health. Hygienic characteristics of the main sources of air pollution in populated areas. Mechanical and gaseous impurities in the air. Features of the quantitative and qualitative composition of impurities in atmospheric air and indoor air. Organization of monitoring of the state of atmospheric air.

Weather and climate. The influence of climatic factors on the human body. The concept of seasonal and meteorological diseases. Meteor dependence. The importance of active prevention, taking into account the influence of weather conditions on the human body.

The concept of microclimate. Acclimatization and adaptation as a complex socio-biological process of human adaptation to new living conditions. Physiological changes in the human body that develop during the period of acclimatization and adaptation to unusual conditions. The importance of the conditions and regime of work, rest, life, nutrition, features of the layout of settlements, physical training and hardening for faster and more complete acclimatization and adaptation. Hygienic characteristics of physical factors of the air environment - temperature, humidity, air mobility, barometric pressure. Instrumental methods for studying the physical properties of air (temperature, humidity, air speed, barometric pressure). Hygienic standardization of microclimate indicators. The effect of high and low atmospheric pressure on the human body (caisson and altitude sickness). Hygienic significance of the «wind rose».

Hygienic assessment of the complex effect of meteorological factors on the human body. Assessment methods: catathermometry, effective and resulting temperatures. Research methods and hygienic assessment of the thermal state of the human body. Measurement of indicators characterizing the human body's response to the influence of meteorological factors: heat sensation, weighted average body temperature, cold test, Minor's starch iodine method.

1.3. Hygienic assessment of impact of accommodation conditions on the human health

Placement as a hygiene factor. The influence of the level of improvement and sanitary condition of populated areas on the health of the population. Hygienic requirements for housing, building materials, structures and interior decoration.

The concept of light climate. Hygienic characteristics of the visible part of the solar spectrum. General biological effect of the visible spectrum, specific effect on eyes.

Natural light. The influence of various factors on the state of natural light in open spaces and indoor spaces.

Insolation regime and its characteristics (duration, insolated area, room heating) depending on the orientation of buildings to the cardinal points. Natural light factor. Lighting and geometric methods for assessing natural light.

Artificial lighting. Hygienic characteristics of the main types of artificial lighting. Research methods and hygienic assessment of natural and artificial lighting in enclosed spaces using a luxmeter.

Natural and artificial ventilation, types and their hygienic characteristics. Carbon dioxide concentration as a sanitary-chemical indicator of the degree of cleanliness of indoor air. Methods for studying the concentration of carbon dioxide in the air. Indicators characterizing the efficiency of ventilation, principles of their calculation and evaluation: ventilation volume, air exchange rate, air cube. Instrumental determination of CO₂ concentration in indoor air. Air conditioning.

1.4. Hygienic assessment of the quality of drinking water

Physiological and hygienic importance of water. Sources of natural water and their hygienic characteristics. The influence of human economic and industrial activities on the properties of natural waters. The concept of endemic diseases. Epidemiological significance of water. Infectious diseases transmitted through water. Providing the premises of health care organizations with drinking water. Backup hot water supply HO. Providing water to HO in rural areas that do not have running water.

Hygienic requirements for drinking water quality. Assessment of physical and organoleptic indicators; substances that are indifferent and have a positive physiological significance (carbonates, bicarbonates, calcium, magnesium, iron). Assessment of chemical indicators of organic water pollution: pH, content of ammonium salts, nitrites, nitrates, chlorides, oxidability. Hygienic assessment of the quality of drinking water supplied to HO.

Methods for improving water quality: clarification and bleaching (coagulation and filtration), disinfection (chlorination, ultraviolet irradiation, ozonation). Chlorination of water with normal doses of chlorine. Chlorine requirement. Chlorine absorption. Residual chlorine.

2. Hygienic requirements for accommodation conditions of patients and workers in healthcare organizations

2.1. Health care organizations and their role in medical care of the population. Hygienic assessment of the layout of healthcare organizations

Nomenclature of healthcare organizations. Hospital and outpatient clinic organizations, their role in providing medical care to the population.

Hygienic requirements for the planning, construction and operation of HO. Hygienic assessment of the project of HO. Hygienic requirements for the land plot allocated for the construction of HO: choice of location, size, zoning of the territory, landscaping. Hygienic assessment of the master plan of HO. Hygienic examination of the project of HO. Hygienic assessment of the internal layout of a HO. Hygienic requirements for the design and equipment of the ward section of HO. Hygienic assessment of the area of wards (on the plan of HO). Standards of space per patient and per workplace.

2.2. Sanitary and hygienic requirements for catering units and buffets in medical departments of healthcare organizations

Sanitary and hygienic requirements for catering units in HO: a set of warehouse and production premises and their areas. Availability of the necessary equipment and its hygienically justified arrangement during the technological process. Ensuring temperature conditions in rooms for storing raw materials (meat and meat products, fish, etc.), raw vegetables and fruits, milk and fermented milk products, etc. Hygienic requirements for the technological process of preparing ready-made dishes. Compliance with sanitary requirements when issuing and transporting ready-made meals to the buffets of medical departments of HO.

Hygienic requirements for buffets (area, availability of technological equipment, required set of utensils, number of seats for patients). Hygienic requirements for serving portioned meals to patients. Hygienic requirements for washing and storing kitchen and tableware in HO buffets. Hygienic requirements for refrigerators for storing patients' personal products, monitoring the expiration dates of stored products. Requirements for the selection and storage conditions of «daily samples» of ready-made dishes. Rejection of ready-made dishes. Treatment of food waste in HO.

Assessment of the sanitary and hygienic condition of the catering department and buffets in HO. Hygienic assessment of the actual nutrition of patients in HO based on the results of the analysis of the menu layout.

2.3. Hygienic requirements for building materials for interior decoration, for hospital furniture in healthcare organizations

Hygienic requirements for materials for covering the walls of the building: ceramic tiles, glass wallpaper. Hygienic properties of wall panels in operating rooms operating on the «clean room» principle.

Hygienic requirements for surface paints. Advantages and disadvantages of latex, acrylic, alkyd paints, indications for use in certain rooms of HO.

Floor coverings (linoleum, porcelain stoneware, self-leveling floors (rubber, polyvinyl chloride), indications for use in certain rooms of HO.

General hygienic requirements for hospital furniture. Requirements for the design features of hospital beds, obstetric chair-beds, resuscitation beds, changing tables, incubators.

2.4. Hygienic requirements for microclimate parameters and room illumination in healthcare organizations

Microclimate indicators (temperature, humidity, air speed) in the main premises of HO: operating rooms, maternity rooms, blood transfusion departments, endoscopy rooms, somatic/infectious diseases wards and boxes, prenatal wards, postpartum wards, postpartum wards with the combined stay of mothers and newborn children, wards for newborn children, intensive care wards and others, as well as in diagnostic rooms (fluoroscopy, computed tomography, magnetic resonance imaging, ultrasound diagnostics, endoscopy) and in clinical laboratories.

Hygienic requirements for lighting in premises of HO. Hygienic assessment of artificial lighting (general and local) and lighting equipment in HO.

Artificial lighting. Color (spectrophotometric) temperature. Comparative assessment of the color temperature of artificial lighting sources in the outdoor environment (incandescent, halogen, fluorescent, LED) with the daylight spectrum. Hygienic and technical characteristics of light sources in terms of radiation spectrum, luminous flux, illumination, economic efficiency, service life, safety, environmental friendliness, disposal features. Advantages and disadvantages of individual sources of artificial lighting.

Hygienic requirements for shadowless lamps and ergonomics of their placement in operating rooms. Providing a shadow-free effect with polygonal reflectors.

Hygienic requirements for the disposal of artificial lighting sources used in HO.

2.5. Hygienic requirements for the gas composition of air and ventilation of premises in healthcare organizations

Gas composition (O_2 , CO_2 , N_2 content) of atmospheric, exhaled and alveolar air. Hypoxia. Hypercapnia. Carbon dioxide as an indirect indicator of the purity of the gas composition of indoor air. The volume of CO_2 emitted by a person.

The frequency of air exchange (volume of supplied and removed air) in individual rooms of the HO: operating rooms, wards (somatic, intensive care, infectious diseases), clinical laboratories, hospital pharmacy, utility rooms (collection and temporary storage rooms for medical waste, used linen, disinfectants, etc.), diagnostic rooms (fluoroscopy, magnetic resonance imaging, computed tomography, ultrasound diagnostics, endoscopy, etc.).

Ventilation systems in HO. Natural ventilation and artificial ventilation. Laminar and turbulent air flows. A system for purifying air supplied to premises operating on the «clean room» principle. Ultrafine air purification filters (HEPA filters). Hygienic requirements for suspended ceilings in operating rooms and other rooms operating on the «clean room» principle. Features of air supply and removal in operating rooms, intensive care wards, and wards with sanitary facilities. Local air exhaust. Indications for recirculation and air conditioning in HO. Photocatalytic filters.

The main air pollutants in the environment of HO are: biological (bacteria, viruses, etc.), chemical (medicines, etc.), mechanical (dust, etc.). Air disinfection in HO with ultraviolet rays. The design of bactericidal lamps and the principle of operation. Ozone and ozone-free bactericidal lamps and indications for their placement. Hygienic requirements for caring for bactericidal lamps. Procedure for disposal of bactericidal lamps. Safety requirements when using ozone bactericidal lamps for air disinfection in HO.

Hygienic assessment of the effectiveness of ventilation (general and local) in HO.

3. Sanitary and anti-epidemic measures in healthcare organizations

3.1. Hygienic requirements for personal hygiene of healthcare workers and patients

Sanitary and anti-epidemic measures. Organization and implementation of disinfection in HO. Hygienic aspects of the prevention of infections associated with the provision of medical care.

Hygienic treatment and disinfection of hands of healthcare workers and patients. Transient and resident microflora of the skin of the hands. Hygienic requirements for detergents and disinfectants. Algorithm for hygienic and surgical antisepsis of the hands of medical workers.

Medical gloves. Advantages and disadvantages of latex, neoprene, vinyl, nitrile gloves. Indications for the use of medical gloves. Algorithm for putting on sterile and non-sterile medical gloves. Algorithm for removing used medical gloves from hands.

General requirements for medical linen. Hygienic features of nonwoven materials (spunbond, meltblast) used for the production of medical linen.

Hygienic requirements for sterile and everyday sanitary clothing for workers in HO. Organization of washing and disinfection of clothing of healthcare workers. Hygienic requirements for hospital bed linen, underwear and footwear of patients. Frequency of changing bed and underwear of patients. Sanitary treatment of shoes.

Sanitary and hygienic requirements for showers and sanitary facilities in HO.

3.2. Hygienic requirements for organizing and performing cleaning of premises of healthcare organizations

Hygienic requirements for cleaning premises in HO. Peculiarities of cleaning premises in health centers. Types of cleaning: wet, dry. The principle of cleaning from clean to dirty. Daily and general cleaning. Types of cleaning in operating rooms: preliminary, current, final, general. Features of cleaning treatment and diagnostic rooms, wards, showers and sanitary facilities. Hygienic requirements for chemicals used for wet cleaning, conditions for their storage. Cleaning equipment, its marking. Methods of modern cleaning of environmental protection using a bucketless method. Washing and disinfecting soft cleaning equipment. Storage conditions for disinfected cleaning equipment.

3.3. Hygienic requirements for the management of medical waste in healthcare organizations

Hygienic, epidemiological and environmental significance of medical waste. Classification and types of medical waste: safe, epidemiologically hazardous, extremely epidemiologically hazardous, toxic, radioactive. Organization of collection and temporary storage of medical waste. Requirements for packaging for separate collection, temporary storage and transportation of waste outside the premises of the facility. The procedure for collecting food waste at the catering unit and in the buffets of HO.

Methods of disposal of medical waste: chemical, thermochemical, incineration, pyrolysis and others. Methods for recycling metal and plastic waste. Disposal of mercury-containing waste: amalgamation, thermal demercurization, mechanical-chemical method. Methods of destruction and disposal of pharmaceutical waste:

incineration, electrochemical destruction. Disposal of radioactive medical waste: self-decontamination, incineration, pressing, cementing.

4. Hygiene of nutrition

4.1. Food as a factor of the environment. Nutritional diseases and their prevention

Definition and content of hygiene of nutrition. The influence of nutrition on public health. Preventive and therapeutic role of nutrition. Contribution of domestic and foreign scientists to the development of nutrition science. Types of nutrition.

Modern problems of human nutrition. Genetically modified products. Functional foods. Biologically active food additives.

Qualitative nutritional imbalance, causes and consequences. Modern ideas about the importance of proteins in human nutrition. The concept of reference protein and the biological value of proteins. Protein intake standards, recommendations of the Food and Agriculture Organization of the United Nations and the World Health Organization (WHO). Content and quality of proteins in basic food products. Fats in human nutrition. Highly unsaturated fatty acids, cholesterol, phosphatides and their biological role. Consequences of insufficient consumption of essential fat components. Excessive fat consumption: consequences, prevention measures. Standards for the consumption of fats and their essential components. Carbohydrates in human nutrition. The role of fiber and pectin substances. Sources and norms of carbohydrate consumption. Vitamins and their role in human nutrition. Prevention of vitamin deficiency and hypervitaminosis. Sources of vitamins. Minerals in human nutrition. Lack and excess of minerals in the diet, preventive measures.

Laws of rational nutrition. Law of energy adequacy of nutrition. Methods for determining energy expenditure and methods for determining actual nutrient energy consumption. Law of nutrient nutritional adequacy. Classification of nutrients based on their functional purpose and the principle of irreplaceability. Balanced nutrition formula. The law of biorhythmic adequacy of nutrition, rational diet and its physiological basis. Law of enzymatic nutritional adequacy. Violations associated with changes in the chemical composition of food products under the influence of modern agricultural technologies. Consequences caused by the use of hormones, antibiotics, and genetic engineering in animal husbandry. Changes in the quality composition of food products caused by preservatives and food additives. Hereditary and acquired enzymopathies. Law of biotic adequacy of nutrition.

Nutritional diseases: definition of the concept, causes, classification. Diseases of protein-energy malnutrition: classification, diagnosis, clinical manifestations, prevention. Inadequate nutritional status. Hypotrophy: clinical manifestations, prevention. Nutritional dystrophy and dwarfism. Excessive nutritional status. Obesity as a social problem: the relationship of excess weight with morbidity and mortality. Diagnosis, prevention and diet therapy of obesity. Protein overnutrition syndrome: causes of development, clinical manifestations, prevention. Methods for assessing the protein supply of the human body.

Microelementoses: definition, classification. Microelementoses characteristic of the population of the Republic of Belarus. Hyposelenosis: clinical manifestations,

prevention. Iodine deficiency diseases: clinical manifestations, prevention. Iron deficiency anemia: causes, clinical manifestations, nutritional prevention.

4.2. Hygienic assessment of the energy significance and nutrient adequacy of the diet

Human needs for basic nutrients: proteins (animal and vegetable origin), fats (animal and vegetable origin), carbohydrates, minerals, vitamins (water and fat soluble). Food products that are sources of these nutrients. Determination of the human body's energy needs: calorimetric, time-table, calculated using the physical activity coefficient. Determination of the individual needs of the human body for energy (according to the WHO method using the physical activity coefficient) and nutrients. Calculation of actual nutrient consumption and energy value of the diet according to the menu layout.

4.3. Hygienic assessment of nutritional status and vitamin supply of the human body

Hygienic assessment of nutritional status (somatometric, somatoscopic, physiometric and biochemical indicators). Hygienic assessment of the human body's supply of vitamins. Methods for studying the vitamin value of diets: questionnaire, calculation, weight, chemical-analytical. Methods for studying the vitamin status of the human body: somatometric, physiometric, general clinical, somatoscopic, physiological and biochemical testing, hematological and immunological. Recommendations for optimizing the nutritional status and vitamin supply of the human body.

4.4. Prevention of food poisoning

Classification of food poisoning. Food poisoning of microbial etiology: types, clinical manifestations, prevention. Foodborne toxic infections, botulism, staphylococcal toxicosis: transmission factors, clinical manifestations, prevention. Mycotoxicoses and phycotoxicoses.

Food poisoning of non-microbial nature. Chemical intoxication, prevention. Food poisoning by products of plant and animal origin. Prevention of poisoning from poisonous mushrooms. Methodology for investigating food poisoning.

Doctor's tactics when identifying food poisoning. Timely transmission of emergency notification to bodies and institutions carrying out state sanitary supervision when food poisoning or an infectious disease is detected in a patient. Performing an emergency notification in the event that a patient is diagnosed with an infectious disease or food poisoning.

Prevention of food poisoning.

4.5. Hygienic bases of human nutrition in the case of common somatic diseases

Hygienic principles of dietary and therapeutic human nutrition. Characteristics of the main therapeutic diets. Organization of catering in the health center. Features of nutrition during viral infection.

5. Hygiene of children and adolescents

Hygiene of children and adolescents: definition of the concept, purpose, objectives. Criteria for hygienic assessment of physical development and health status of children and adolescents. Basic patterns of growth and development of the child's

body. Biological and passport age. Age periods of life of children and adolescents and their characteristics. Structure of chronic diseases of children and adolescents. Methods for assessing the physical development of children and adolescents. Indicators for assessing the health of children in children's and adolescent groups. Factors influencing the development of children's health. Health groups. School maturity: definition of the concept, evaluation criteria.

6. Occupational hygiene. Prevention of negative impact of occupational environmental factors on the human body in healthcare organizations

The purpose and objectives of occupational hygiene. Physiological-hygienic and socio-economic concept of labor. Classification of types of labor.

Optimal working conditions: definition of the concept, biological and social role. Factors determining the nature and conditions of work. Optimal, maximum permissible and maximum tolerable levels of factors that determine working conditions. Mode, severity, intensity of work. Classification of labor by severity and intensity. Indicators characterizing the severity and intensity of work.

Work and rest schedule: impact on people's health, performance and neuropsychic state. The hygienic role of the dynamic stereotype. Physiological and hygienic assessment of the work and rest regime.

Main harmful occupational factors. Acute and chronic occupational diseases. Preventive medical examinations and their role in the prevention of occupational diseases.

Industrial dust: classification, physical and chemical properties. Methods for studying dust levels in the air of industrial premises. Dust occupational diseases, their prevention.

Chemical factor in production. Routes of poisons entering the human body, hygienic characteristics of poisons. General patterns of action of industrial poisons on the human body. Occupational poisonings, their prevention. Lead, mercury, benzene, nitrogen oxides in production, clinical manifestations of poisoning, their prevention. Study of toxic substances in the air.

Industrial noise, physical and hygienic characteristics. Noise classification. The concept of intensity levels, sound pressure, sound volume. Measurement of general sound pressure level, instruments. Specific and nonspecific effects of noise on the human body. Hygienic noise regulation. Personal protective equipment. Vibration, types, hygienic characteristics. The impact of general and local vibration on the human body. Prevention of noise and vibration disease.

Infrared radiation in production: sources, measurement methods, standardization. Measures to prevent the adverse effects of thermal radiation.

Harmful production factors of physical, chemical and biological nature in HO. Maximum permissible levels (MPL) and maximum permissible concentrations (MPC) of factors affecting human health. The severity and intensity of the work of medical workers. Burnout syndrome. Harmful production factors when working in medical and diagnostic rooms (magnetic resonance imaging, computed tomography, X-ray studies, functional studies), in laboratories (clinical, microbiological, etc.). Visual strain when working with optical equipment. Negative effects of ultraviolet and infrared radiation and disinfectants on the human body.

The main directions for the prevention of occupational diseases among medical workers in certain specialties. Mandatory medical examinations and the frequency of their completion by health care employees. Assessing the timeliness and completeness of periodic medical examinations by healthcare workers.

7. State sanitary supervision of healthcare organizations

Legislative framework and structure of state sanitary supervision. Basic regulatory acts of state sanitary supervision: sanitary norms, rules and hygienic standards; sanitary and hygienic requirements; resolutions.

Administrative responsibility for violation of sanitary legislation and the procedure for conducting the administrative process.

ACADEMIC DISCIPLINE CURRICULAR CHART

Section, topic #	Section (topic) name	Number of hours		Supervised student independent work	Practical skills	Form of control	
		lectures	practical (laboratory or seminars)			of practical skills	of current / intermediate assessment
	3 semester						
	Lectures	6	-	3			
1.1	Hygiene as a medical science. Assessment of human health. The concept of risk factors as the basis of modern ideas about disease prevention	1,5	-	-			
1.2	Hygienic characteristics of the human environment. Physical properties and chemical composition of atmospheric air.	1,5	-	1,5			Checking up abstracts
2.3	Hygienic requirements for building materials for interior decoration, for hospital furniture in healthcare organizations	1,5	-	-			
3.2	Hygienic requirements for organizing and carrying out cleaning of premises of healthcare organizations	-	-	1,5			Checking up abstracts
3.3	Hygienic requirements for the management of medical waste in healthcare organizations	1,5	-	-			
	Practical lessons	-	32	-			
1.1	Assessment of human health. (Methods and techniques for assessing human health)	-	2	-			Account of practical exercise

1.2	Hygienic assessment of the influence of microclimate on human health. Research methods and hygienic assessment of microclimate parameters (temperature, humidity, air speed, atmospheric pressure)	-	2	-			Interview; account of practical exercise
1.2	Hygienic assessment of the influence of microclimate on human health. Hygienic assessment of the combined effect of meteorological factors on the human body	-	2	-			Interview, account of practical exercise
1.2	Hygienic assessment of the influence of microclimate on human health. Final class on the topic «Hygienic characteristics of the human environment. Physical properties and chemical composition of atmospheric air. Hygienic assessment of the influence of microclimate on human health»	-	2	-			Colloquium *
1.3	Hygienic assessment of the impact of accommodation conditions on human health. Research methods and hygienic assessment of natural and artificial lighting in enclosed spaces.	-	2	-			Interview; Situational tasks
1.3	Hygienic assessment of the impact of accommodation conditions on human health. Natural and artificial ventilation, types and their hygienic characteristics. Ventilation efficiency assessment	-	2	-	Hygienic assessment of the effectiveness of ventilation (general and local) in premises of healthcare organizations	Situational task*	Interview
1.3	Hygienic assessment of the impact of accommodation conditions on human health. Final class	-	2	-			Colloquium *
1.4	Hygienic assessment of drinking water quality.	-	2	-			Interview,

	Research methods and hygienic assessment of physical, organoleptic and chemical indicators of water quality						account of practical exercise
1.4	Hygienic assessment of drinking water quality. Methods for improving water quality	-	2	-	Hygienic assessment of the quality of drinking water supplied to healthcare organizations	Situational task	Interview
2.1	Health care organizations and their role in medical care of the population. Hygienic assessment of the layout of healthcare organizations (using the example of a master plan for a healthcare organization)	-	2	-			Interview, account of practical exercise
2.1	Health care organizations and their role in medical care of the population. Hygienic assessment of the internal layout of a HO. Hygienic requirements for the design and equipment of the ward section of HO	-	2	-	Assessment of the internal layout and sanitary and hygienic condition in health care organizations: operating rooms, delivery rooms, treatment rooms, diagnostic rooms (endoscopy, ultrasound, CT, MRI, etc.), intensive care and resuscitation wards, wards for somatic patients, wards for patients with infectious pathology, wards for newborns, laboratories, pharmacies, sanitary facilities	Situational task	Interview

2.2	Sanitary and hygienic requirements for catering units and buffets in medical departments of healthcare organizations	-	2	-	Assessment of the sanitary and hygienic condition of the catering department and canteens (buffets) in health care organizations	Written report on class work (protocol)	Interview
2.4	Hygienic requirements for microclimate, illumination and ventilation of premises in healthcare organizations: operating rooms, wards, clinical laboratories, hospital pharmacy, utility rooms, diagnostic rooms	-	2	-	Hygienic assessment of artificial lighting (general and local) and lighting equipment in premises of healthcare organizations	Situational task*	Interview
2.5	Hygienic requirements for the conditions of accommodation of patients and workers in healthcare organizations. Final class	-	2	-			Colloquium *
3.1	Hygienic requirements for personal hygiene of healthcare workers and patients	-	2	-	Hygienic treatment (hygienic antiseptic) of hands before performing manipulations	Written report on class work (protocol)	Interview
3.3	Hygienic requirements for the management of medical waste in healthcare organizations. Final class on topics of 3 semester	-	2	-	Hygienic assessment of the safety of medical waste treatment conditions in healthcare organizations	Situational task	Electronic test* Credit
4 semester							
	Lectures	6	-	3			
4.1	Hygiene of nutrition. Food as a factor of the environment	1,5	-	1,5			Checking up abstracts
4.1	Nutritional diseases and their prevention	1,5	-	-			

4.5	Hygienic bases of human nutrition in the case of common somatic diseases	1,5	-	1,5			Checking up abstracts
7	State sanitary supervision of healthcare organizations	1,5	-	-			
	Practical lessons	-	26	-			
4.2	Hygienic assessment of energy value and nutritional adequacy of the diet. Criteria for rationing the human body's needs for nutrition, physiological requirements for the nutrition of the population. Methods for determining the human body's needs for energy and nutrients	-	2	-			Interview, account of practical exercise
4.2	Hygienic assessment of the energy value and nutritional adequacy of the diet. Calculation of the actual nutrient intake and energy value of the diet according to the 24-hour re-call method	-	2	-			Interview, account of practical exercise
4.2	Hygienic assessment of the energy value and nutritional adequacy of the diet. Assessment of the adequacy of actual diet to the needs of the human body, recommendations for rationalizing nutrition	-	2	-			Account of practical exercise
4.3	Hygienic assessment of nutritional status. Recommendations for optimizing nutritional status	-	2	-			Interview, account of practical exercise
4.3	Hygienic assessment of of nutritional status and provision of the human body with vitamins. Recommendations for optimizing the vitamin supply of the human body	-	2	-			Interview, account of practical exercise
4.4	Prevention of food poisoning of microbial etiology	-	2	-	Performing an emergency notification in the event that a patient is diagnosed	Written report on class work (protocol)	Interview

					with an infectious disease or food poisoning		
4.4	Prevention of food poisoning of non-microbial etiology	-	2	-			Interview, account of practical exercise
4.5	Hygienic basics of human nutrition in case of common somatic diseases. Hygienic principles of clinical nutrition	-	2	-	Hygienic assessment of the actual nutrition of patients in health care organizations based on the results of the analysis of the menu layout	Situational task*	Interview
4.5	Hygienic basics of human nutrition in case of common somatic diseases. Final class	-	2	-			Colloquium*
5	Hygiene of children and adolescents	-	2	-			Interview, account of practical exercise
6	Occupational hygiene. Prevention of negative impact of occupational environmental factors on the human body in healthcare organizations. Harmful occupational factors of physical, chemical and biological nature in HO	-	2	-	Hygienic assessment of the degree of exposure to harmful occupational factors (physical, chemical, biological, psychophysiological) in health care organizations. Development of proposals and measures for the prevention of occupational diseases among healthcare	Situational task	Interview

					workers from exposure to harmful occupational factors		
6	Occupational hygiene. Prevention of negative impact on the human body of occupational factors in healthcare organizations. Obligatory medical examinations and the frequency of their completion by health care employees	-	2	-	Assessing the timeliness and completeness of periodic medical examinations by healthcare workers	Situational task	Interview
6	Occupational hygiene. Prevention of negative impact on the human body of occupational factors in healthcare organizations. Final class.	-	2	-	Performing of educational materials (lectures, presentations, booklets, etc.) on health care profiles for health education of patients and the population for the purpose of disease prevention	Written report on class work (protocol)*	Electronic test*
		12	76	6			differentiated credit

*This is a mandatory form of current certification

INFORMATION AND INSTRUCTIONAL UNIT

LITERATURE

Basic (relevant):

1. Melnichenko, P. I. Hygiene : textbook / ed. Melnichenko P. I. – Москва : ГЭОТАР-Медиа, 2023. – 512 с.

Additional:

2. Hygiene and ecology : textbook for students of higher medical schools / ed. by V. G. Bardov. – 2nd ed., updated. – Vinnytsia : Nova Knyha, 2018. – 688 p.

3. Бортоновский В.Н. Общая гигиена = General hygiene: учеб.-метод. пособие для студентов по подготовке специалистов для зарубежных стран. с англ. яз. обучения. – Гомель: ГомГМУ, 2017. – 224с.

4. General hygiene : the educational methodical text-book for 2–3rd year English medium medical students of the Faculty of preparation of experts for foreign countries of medical higher educational institutions / V. N. Bortnovsky, A. A. Labuda. – Gomel : GomSMU, 2015. – 224 p.

5. Miklis, N. I. Laboratory classes on hygiene : Manual / N. I. Miklis, O. A. Cherkasova. – Vitebsk; VSMU, 2015. – 240 p.

METHODOLOGICAL RECOMMENDATIONS FOR THE ORGANIZATION AND PERFORMANCE OF STUDENT INDEPENDENT WORK IN THE ACADEMIC DISCIPLINE

The time allocated for independent work can be used by students for:

- preparing for lectures, practical classes;
- preparing for colloquiums, tests and credits in the academic discipline;
- studying the topics (issues) designed for independent work;
- problem solving;
- performing research and creative tasks;
- preparing thematic reports, abstracts, presentations;
- performing practical tasks;
- taking notes of educational literature;
- preparing reports;
- compiling a review of scientific literature on a given topic;
- execution of information and demonstration materials (stands, posters, graphs, tables, newspapers, etc.);
- making models, laboratory teaching aids;
- compilation of a thematic selection of literature sources, Internet sources;

METHODOLOGICAL RECOMMENDATIONS FOR THE ORGANIZATION AND PERFORMANCE OF SUPERVISED STUDENT INDEPENDENT WORK IN THE ACADEMIC DISCIPLINE

Main forms of supervised student independent work:

- preparation and presentation of abstracts;
- presentation of reports;
- studying topics and problems that have not been discussed at the lectures;

taking notes of original sources (sections of anthologies, collections of documents, monographs, textbooks);
participation in active forms of education.

LIST OF AVAILABLE DIAGNOSTIC TOOLS

The following forms are used for competence assessment:

interview;
colloquium;
situational tasks;
tests;
account of practical exercise;
electronic tests.

LIST OF AVAILABLE TEACHING METHODS

Traditional method;

Active (interactive) methods:

Problem-Based Learning (PBL);
Research-Based Learning (RBL).

LIST OF PRACTICAL SKILLS

Name of practical skills	Form of practical skills control
1. Assessment of the internal layout and sanitary and hygienic condition in health care organizations: operating rooms, delivery rooms, treatment rooms, diagnostic rooms (endoscopy, ultrasound, CT, MRI, etc.), intensive care and resuscitation wards, wards for somatic patients, wards for patients with infectious pathology, wards for newborns, laboratories, pharmacies, sanitary facilities	Situational task
2. Hygienic treatment (hygienic antiseptic) of hands before performing manipulations	Written report on class work (protocol)
3. Assessment of the sanitary and hygienic condition of the catering department and canteens (buffets) in health care organizations	Written report on class work (protocol)
4. Hygienic assessment of the degree of exposure to harmful occupational factors (physical, chemical, biological, psychophysiological) in health care organizations. Development of proposals and measures for the prevention of occupational diseases among healthcare workers from exposure to harmful occupational factors	Situational task
5. Assessing the timeliness and completeness of periodic medical examinations by healthcare workers	Situational task

6. Hygienic assessment of the actual nutrition of patients in health care organizations based on the results of the analysis of the menu layout	Situational task
7. Performing an emergency notification in the event that a patient is diagnosed with an infectious disease or food poisoning	Written report on class work (protocol)
8. Hygienic assessment of the safety of medical waste treatment conditions in healthcare organizations	Situational task
9. Performing of educational materials (lectures, presentations, booklets, etc.) on health care profiles for health education of patients and the population for the purpose of disease prevention	Written report on class work (protocol)
10. Hygienic assessment of the effectiveness of ventilation (general and local) in premises of healthcare organizations	Situational task
11. Hygienic assessment of artificial lighting (general and local) and lighting equipment in premises of healthcare organizations	Situational task
12. Hygienic assessment of the quality of drinking water supplied to healthcare organizations	Situational task

**PROTOCOL OF THE CURRICULUM APPROVAL
BY OTHER DEPARTMENTS**

Title of the discipline requiring approval	Department	Amendments to the curriculum in the academic discipline	Decision of the department, which designed the curriculum (date, protocol #)
Radiation and Ecological Medicine	Radiation Medicine and Ecology	absent	protocol # 17 of 27.05.2024)

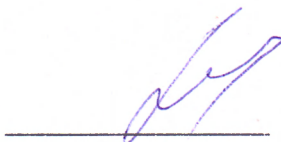
COMPILERS/AUTHORS:

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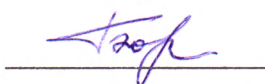
M.I. Rimzha

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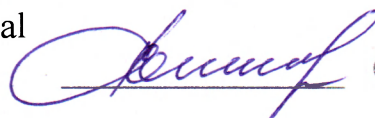
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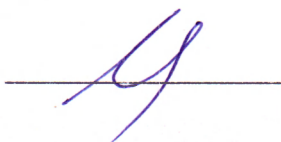
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Curriculum content, composition and the accompanying documents comply with the established requirements.

Dean of the Medical Faculty for International Students of the educational institution «Belarusian State Medical University»

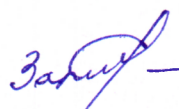
24.06.2024



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24.06.2024



S.V. Zaturanova