



# MEDICO-SOCIAL HEALTH PROBLEMS OF POPULATION AND METHODS FOR THEIR STUDY

*Guidelines to the practical lesson  
for students in the specialties 222 “Medicine”  
and 228 “Pediatrics” on the course “**Social Medicine,  
Public Health (Public Health)**”*

МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
Харківський національний медичний університет

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# МЕДИКО-СОЦІАЛЬНІ ПРОБЛЕМИ ЗДОРОВ'Я НАСЕЛЕННЯ ТА МЕТОДИКИ ЙОГО ВИВЧЕННЯ

*Методичні вказівки  
до практичного заняття студентів  
спеціальностей 222 «Медицина» та 228 «Педіатрія»  
з дисципліни «Соціальна медицина,  
громадське здоров'я» (Громадське здоров'я)*

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## GUIDELINES FOR TOPIC TRAINING

**The aim of the class:** students mastering of integrated methods for assessing the population health.

**Students need to know:**

➤ **Programme Issues:**

– targeted approaches to the study of “health” concept: general philosophical, individual, theoretical, practical, population; public health as a conditional statistical concept; health indicators of the population: demographic (birth rate, death rate, average life expectancy), physical development, morbidity, disability; dependence of the population’s health on the standard of living: gross domestic product (GDP), human development index (HDI); features of health in different gender-age, professional population groups; concept of the relationship among the population health and the quality of life, which allows to achieve physical, mental, social well-being and self-realization.

**Main international and national documents on the topic:**

– The Constitution of Ukraine (adopted by Verkhovna Rada of Ukraine, 28 June 1996);

– Fundamentals of Ukrainian legislation on health (adopted by the Verkhovna Rada of Ukraine, 19 November 1992, No 2801-XII);

– Fundamentals of the legislation of Ukraine on compulsory state social insurance (No 16/98 - VR from 14 January 1998);

– The Law of Ukraine “On Protection of Childhood” No 2402-III April 26, 2001;

– The Law of Ukraine “On Ensuring of Sanitary and Epidemiological Welfare of the Population” (February 24, 1994);

– Intersectoral comprehensive programme “Health of the Nation for 2002-2011”.

**Accounting and report medical documentation:**

– medical birth certificate (*f. 103/o*);

– medical certificate of death (*f. 106/o*);

– medical certificate of perinatal death (*p. 106-2/o-95*);

– paramedical certificate of death (*f. 106-1/o*);

– history of child growth and development (*f. 112/o*);

– journal of the reception of pregnant women, women in childbirth and women recently confined (*f. 002/o*);

– medical card for abortion (*f. 003-1/o*);

– birth record in hospital (*f. 010/o*);

**Need to be able:**

– to define and analyze indicators of a comprehensive health assessment of the population.

## **Recommended literature**

### **Basic literature**

1. Aday Lu Ann (ed.) Reinventing Public Health: Policies and Practices for a Healthy Nation / ed. Jossey-Bass. – San Francisco, 2005. – 402 p.
2. Community and Public Health 9<sup>th</sup> ed. / J. McKenzie, R. Pinger, D. Seabert URL: <http://pinterest.com/pin/715941367129/>
3. Fran Baum The New Public Health 4<sup>th</sup> edition. – Oxford: Oxford University Press, 2016. – 720 p. URL: <https://global.oup.com/academic/product/the-new-public-health-9780195588088?cc=ua&lang=en&#>
4. Talbot Lyn and Verrinder Glenda Promoting health: the primary health care approach 6<sup>th</sup> edition / L. Talbot, G. Verrinder. – Australia: Elseiver Australia, 2018. – 460 p. URL: <https://doi.org/10.1002/hpja.194>
5. Turnock Bernard J. Essentials of Public Health 3<sup>rd</sup> edition / B. Turnock. – USA: Jones & Bartlett Learning, 2015. – 294 p.
6. Methodical materials on the subject “Public Health” developed by teachers of Public Health and Healthcare Management Department (KhNMU)
7. Summary of lectures in Public Health / Kharkiv National Medical University, Department of Public Health and Healthcare Management

### **Additional literature**

1. Crofton J., Simpson D. Tobacco: A Global Threat / J. Crofton, D. Simpson. – Hong Kong: Macmillan Education, 2002. – 147 p.
2. Foege William H. House on Fire: The Fight to Eradicate Smallpox / W. Foege. – USA: University of California Press, 2011. – 240 p.
3. Offit Paul A. Bad Faith: When Religious Belief Undermines Modern Medicine / P. Offit. – USA: Basic Books, 2015. ISBN 978-0465082964
4. Pendergrast Mark Inside the Outbreaks: The Elite Medical Detectives of the Epidemic Intelligence Service / M. Pedengrast. – USA, NY: Houghton Mifflin Harcourt Press, 2010. – 432 p.
5. Rose Geoffrey Rose’s Strategy of Preventive Medicine / G. Rose. – USA: Oxford University Press, 2008. – 190 p.

### **Information Resources**

1. U.S. National Library of Medicine – <http://www.nlm.nih.gov/>
2. University of West Florida – University libraries. LibGuides. Public Health. Statistics and Data <https://libguides.uwf.edu/c.php?g=435443&p=2968919>
3. Scientific Library of Kharkiv National Medical University – <http://libr.knmu.edu.ua/index.php/biblioteki>
4. Vernadsky National Library of Ukraine – <http://www.nbuv.gov.ua/>
5. National Scientific Medical Library of Ukraine – <http://www.library.gov.ua/>
6. [http://members.chello.nl/j.nzonjee/bijlagen/MRL\\_23CD.pdf](http://members.chello.nl/j.nzonjee/bijlagen/MRL_23CD.pdf)
7. [http://www.jbpub.com/essentialpublichealth/101\\_approach.cfm](http://www.jbpub.com/essentialpublichealth/101_approach.cfm)

## THEORETICAL MATERIAL FOR CLASS TRAINING

### 1. Population Health Concept

Social medicine and organization of public health study health laws and a system of its protection. Until now there is not any criterion for determining the health status of population in a city, region, and etc. In international practice a comprehensive approach to defining the concept of “Public Health” is used.

The complexity of defining the concept of public health causes a big variety of definitions, but in international practice individual health is characterized in three perspectives: general philosophical, theoretical and practical ones.

**A general philosophical approach or norm for living organism** *is an interval within which quantitative fluctuations of biological processes are able to keep a living system at the level of a functional optimum.* This definition corresponds to the concept of health standard and is widely used in medical practice.

**Theoretical approach or an ideal of a healthy person (WHO)** *is a state of complete social, biological and mental well-being, when the functions of all organs and systems are balanced with the environment; there are no diseases, disease states and physical defects.* This definition was formulated by the World Health Organization (WHO Statute, 1948).

From the point of view of **the practical approach** *health is characterized as a state of the organism when it is able to fully fulfill its social and biological functions.*

#### **There are 4 levels of public health:**

1. **Individual** health is the health of an individual;
2. **Group** health is the health of social and ethnic groups;
3. **Regional** health is the health of the population at the definite administrative territory;
4. **Public** health is the health of a society as a whole unity.

In determining of individual health, all above-mentioned definitions are acceptable, but other approaches should be used for the health characteristic of the population as a whole or its separate groups.

There is not common criterion for assessment of population health as a whole or in separate groups of people residing in a certain territory, therefore integrated estimation of public health is used.

**Public health** is a conditional statistical concept influenced by the complex of social and biological environmental factors estimated by demographic indicators, as well as indicators of physical development, incidence, disability and the spread of pre-morbid conditions.

Health of the population can be considered in various aspects, and can be sub-divided into categories:

- socio-biological;
- socio-political;
- economic;
- moral and aesthetic;
- psychophysiological;
- medico-social.

## 2. Methods of Public Health Study

Various methods are used for the assessment of public health. On the territory of Ukraine, the most common one is a comprehensive assessment of health. In the second half of the 20<sup>th</sup> century developed countries started to use international integrated indicators of public health, such as:

- integrated assessment;
- vitality coefficient;
- human development index (HDI);
- poverty index;
- indicator of survival of the population to a certain age (up to 1, 5, 15, 45 and 65 years);
- the “DALY” method;
- methodology based on assessing the quality of life of the population;
- infant mortality;
- average life expectancy, and etc.

The criteria for an integrated assessment of population public health include:

- *demographic indicators* (mortality, birth rate, natural population growth, average life expectancy, infant mortality, etc.);
- *morbidity indicators* (general morbidity, infectious morbidity, incidence of major non-epidemic diseases, hospitalized morbidity with temporary disability);
- *indicators of physical development of the population* (anthropometric – growth of standing, body weight, chest size, functional, physiometric-vital capacity of the lungs (spirometry), muscle strength of the hand (dynamometry), etc., somatoscopic – body structure, muscle development, chest shape, legs, expression of secondary sexual characteristics, pulse, blood pressure, etc.);
- *indicators of disability* (the indicator of general disability and disability (primary disability));
- *incidence of premorbid conditions* (pre-sick health status of the population).

**The viability coefficient** was proposed by WHO experts and has been widely used from the mid-1960s up to the present time. It is determined on the basis of such indicators as:

- average life expectancy;
- infant mortality;
- quality of food;
- budgetary expenses for social, medical and environmental programmes.

The interval of estimation of the viability coefficient is in the range from 1 to 5 points. The critical value of this coefficient is at the level of 1 point, and the maximum value is 5 ones. For today there is not any country in the world that would have the maximum viability coefficient, 4 points have some countries, such as: Sweden, Belgium, the Netherlands, and Luxembourg, 3 points got the USA and Japan, 1.4 points has Ukraine.

**The Human Development Index (HDI), a special indicator, was proposed by the UN Study Group in 1990.** It combines three indicators: gross domestic product per capita (in dollars), literacy (adult literacy rate of the

country is 2/3 of the index and the total share of those who study is 1/3 of the index) and average life expectancy (in years), which gives an integral assessment of human progress.

The HDI has been modified into two of its components: education and income (GDP per capita). The indicator of education is defined as the literacy of the population, taking into account the average number of the years of study. In the income policy, the average world GDP per capita is used as a threshold.

Depending on the HDI value, countries are classified according to the level of development: very high (over 0.900), high (0.800 ... 0.899), medium (0.500 ... 0.799) and low (less than 0.500) ones.

*The highest level of the human development index* is in such countries as Iceland, Norway, Canada, Australia, Ireland, Sweden, the Netherlands, Japan, Luxembourg, France, Finland, Denmark, Austria, and the USA (0.950–0.968).

According to the UN data *30 out of 32 low-HDI countries are in Africa*, there is one state in North America (Haiti), and one is in Asia (Yemen). Among them the least countries are Sierra Leone, Central African Republic, DR Congo, Liberia, Mozambique, and Niger (0.29–0.37).

The European countries with the lowest indicators of this index are Moldova (0.719), Georgia (0.780), and Ukraine (0.786).

**The alternative index of human development is the poverty index** (developed by the United Nations to assess the quality of life of the population). It is published annually by the UN and calculated by three main indicators: **life expectancy at birth, the level of education, and the level of real income of the population.**

On the territory of Ukraine the methodology for determining the human development index is widely used and it is adapted to national conditions, primarily to the national statistical base. This methodic was developed by Derzhkomstat (the State Committee for Statistics) together with the Council for Productive Forces Study of the National Academy of Sciences of Ukraine. According to this methodic, the human development index is determined on the basis of 9 groups of indicators: demographic development, labour market development, material well-being, living conditions, health status and health, educational level, social environment, human development financing and environmental situation.

According to the State Statistics Committee of Ukraine, the highest human development index has the following territorial entities: Kyiv (0.683), the City of Sevastopol (0,592), Poltava region (0,565), Crimea (0,558), Kharkiv region (0,543). The smallest ones are Luhansk (0,384), Donetsk (0,423), Mykolaiv (0,448), and Kherson (0,462) regions.

In recent years, **the survival rate has been used in international practice** for the age ranges proposed by WHO: up to 1 year, up to 15 years, up to 45 years, up to 65 years, which is calculated on the basis of mortality rates in age groups and reveals the reasons for its formation.



**The “DALY” method** links deaths because of individual causes to potential loss of life or quality of life. The indicator of potentially lost life years for the period of 0–65 years among men is almost 3 times higher than for women, who die at a much older age.

**The mortality of children under the age of one year (infant mortality)** is one of the most sensitive indicators of the level of socio-economic development of society, which accumulates the level of education and culture, the state of the environment, the effectiveness of preventive measures, the level of accessibility and quality of care, the distribution of social and material goods in society.

Among the demographic indicators, there is another indicator that is used for an integrated assessment of the health status of the population – **the average life expectancy**. This indicator is particularly affected by the increase in mortality among children, youth and people of working age. Therefore, it has more practical significance than the overall mortality rate, which is significantly affected by the high frequency and relative importance of mortality of the population of disabled age.

#### **WHO criteria for assessing of public health.**

For the assessment of public health WHO recommends to use such indicators:

- allocation of the gross national product for health care;
- availability of primary medical and social service;
- providing the population with medical aid;
- the level of immunization of the population;
- the degree of examination of pregnant women by qualified personnel;
- nutritional status, including nutrition of children;
- the level of child death, including infant mortality;
- average life expectancy;
- hygienic literacy of the population.

### **3. Health groups**

Clinical examination is important for providing the health control of the population, which has to be realized in different health groups.

**Screening** is a system of work of medical and preventive institutions, which consists of active dynamic monitoring of the health of certain population groups, studying the conditions of their work and life, ensuring their correct physical development and maintaining health, as well as preventing diseases by conducting appropriate preventive, hygiene and social activities.

**Screening** is based on the dispensary method, which consists of constant medical supervision of registered patients, implementation of individual and public preventive measures against them, as well as the improvement of working and living conditions. With the help of the dispensary method, the synthesis of therapeutic and preventive principles in medicine is carried out.

The successful conduct of the medical examination mostly depends on the participation of the major part of population. Just due to the assistance of public assets, dispensaries and polyclinics can expand and improve the forms of medical examination.

In health care there are two basic principles for the formation of health groups: **social and medical ones**. Health groups are currently being formed in treatment and prevention institutions. Health groups are developed separately with their own criteria for newborns, children, adults, women's health, pregnant women, etc.

An integrated assessment of the health status of *children under 3 years* occurs according to the Ministry of Public Health Order taking into consideration:

- features of ontogeny (data of genealogical, biological, social anamnesis);
- physical development;
- neuropsychic development;
- level of resistance;
- functional state of the organism;
- presence or absence of chronic diseases or congenital malformations.

Groups of children (over 3 years):

**1<sup>st</sup> group of health** covers healthy children with normal physical and mental development, without anatomical defects, functional and morpho-functional abnormalities.

**2<sup>nd</sup> group of health** covers children who do not have chronic diseases, but there are some functional and morpho-functional disorders, convalescents, especially children suffering from serious and moderate infectious diseases; children with a general delay in physical development without endocrine pathology (low growth, lag in the level of biological development), children with a body mass deficit (less than  $M - 1\sigma$ ) or overweight (more than  $M + 2\sigma$ ). Children who are often and / or permanently ill with acute respiratory diseases, children with physical disabilities, the consequences of injuries or surgeries with safely appropriate functions are also included into this group.

**3<sup>rd</sup> group of health** involves children suffering from chronic diseases in the stage of clinical remission, with rare exacerbations, preserved or compensated functionality, with the absence of complications of the underlying disease. So this group includes children with physical disabilities, the consequences of injuries and operations, in the condition that the corresponding functions are compensated, and the degree of compensation should not restrict the child's and adolescent's study or work.

**4<sup>th</sup> group of health** is dedicated to children suffering from chronic diseases in active stage and stage of unstable clinical remission with frequent exacerbations, with preserved or compensated functional capabilities or incomplete compensation of functional capabilities, with chronic diseases in remission, but limited functionality, complications of the main disease, the underlying disease requires maintenance therapy. Children with physical disabilities, the consequences of injuries, operations, with incomplete compensation of the corresponding functions (which to a certain extent limits the possibility of child's study and work) are also included into this group.

**5<sup>th</sup> group of health** covers children suffering from severe chronic diseases, with rare clinical remissions, frequent exacerbations, continuously recurrent course, with progressive decompensation of the body's functional capabilities, the presence

of complications of the underlying disease requiring constant therapy; disabled children; children with physical disabilities, the consequences of injuries and operations with a progressive disorder of compensation of the respective functions and a significant restriction of the possibility of study or work.

### **Adult Health Groups**

**1. Healthy adults** are in the first group that includes people who do not have any chronic diseases. Their health is quite good, and colds are rare (0–1 cases of acute respiratory infections per year). Blood pressure is normal or has small deviations, insignificant for normal social life and fulfillment of work and family responsibilities.

**2. Practically healthy adults** belong to the second group that includes people who are fully able to work, but have different risk factors, pre-morbid conditions; not more than 2–3 cases of acute respiratory infections per year. People of this group of health maintain a moderate level of physical activity.

**3. Patients with compensated condition** are people with chronic illnesses without exacerbations; 4 and more cases of acute respiratory infections per year.

**4. Patients with a sub-compensated condition** are people with aggravations of chronic diseases throughout the year.

**5. Patients with decompensated condition** are chronic patients in the stage of decompensation.

**After determining the health group** for each examined patient, health practitioners must develop an individual plan for preventive, therapeutic and recreational activities, including medical recommendations on the mode of work, rest, nutrition, and prescriptions including medical treatment, massage, exercise therapy, employment, etc. Healthy and practically healthy people are transferred for registration and observation to the polyclinic prevention department, and patients are subject to obligatory dynamic examination by medical specialists of relevant profiles.

**For example, people belonged to D-I group** are the subjects for examination at least once a year in order to identify the initial signs of the disease. Individual monitoring consists of conducting tests, functional tests of minimum diagnostic studies, final examination and a doctor's interview.

**People of the second group (D-II)** are subjects for examination at least 2 times a year with the conducting of recreational activities. Individual activities should be aimed at elimination of risk factors, such as drinking, smoking, overweight, etc. Systemic activities should be recommended and conducted, PE classes in health groups, exercise therapy, correction of working and living conditions, etc.

**People of the third, fourth and fifth groups (D-III, D-IV, and D-V)** are subjects for wider implementation of therapeutic, prophylactic, diagnostic, health and other activities.

#### 4. Sources of Health Information and Health Trends in Ukraine

The study of the potential health of the population is based on several **sources**:

- official reports of health facilities and health, social insurance, registry office and statistical agencies;
- specially organized record of cases of morbidity and mortality in health facilities allocated to observation zones (prospective studies);
- retrospective information of health facilities' records for the past period of time;
- population questionnaire data;
- medical examination data;
- laboratory and instrumental studies data;
- results of mathematical modeling.

At present the **following trends**, according to a comprehensive assessment of public health of Ukraine, can be identified:

- **demographic situation**: urbanization, population aging, changes in the structure of mortality and a decrease in the average life expectancy;
- **incidence of the population**: the non-epidemic type of pathology has developed, the level of certain diseases has increased, in particular, the non-epidemic (endocrine, allergic, etc.); the tendency of a combination of pathology has increased, the frequency of certain infectious diseases has also increased (tuberculosis, diphtheria, hepatitis, HIV infection and other);
- **physical development of the population**: the number of children with disharmonious development is increasing, the number of healthy children is decreasing;
- **disability**: the rate of primary disability is increasing.

The World Health Organization in the General Strategy for National Health Services “Health for All in the 21<sup>st</sup> Century” defined the **criteria**, which all countries have to achieve. For Ukraine they can be the following:

1. Full availability of primary free health care.
2. Percentage of the gross national product spent on health care (it can be 7–8 %, but in fact it practically not more than 5%).
3. Positive natural population growth in all areas (now in majority of areas the natural increase is negative).
4. Percentage of children who are born with a body weight of 2 500 grammes or less (may be not more than 3.5 %).
5. Mortality rate of infants (it does not necessarily exceed 9 per 1,000 live births, in fact, in the corresponding recent years, it fluctuates within the range of 9–10 ‰).
6. The average life expectancy from the moment of birth (it has to be not less than 75 years, but in fact it is 67–68 years).

## TEST TASKS

1. At present there is not a single definition for the concept of “public health”. In the world practice it is common to characterize individual health using different approaches. Which of the following is give a definition of individual health according to the theoretical approach?

- A. *Interval within which quantitative fluctuations of biological processes are able to keep the living system at the level of the functional optimum.*
- B. *State of the human body when all its functions are balanced with the natural environment*
- C. *State of the human body, in which allows to be able to fully perform biological and social functions.*
- D. *State of complete social, biological and psychological well-being of a person, when the functions of all organs and systems are balanced with the natural environment, there are no diseases, disease states and physical defects.\**
- E. *Conditional statistical concept due to the complex influence of social and biological factors, environmental factors and assessed by demographic indicators, indicators of physical development, morbidity, disability and incidence of pre-morbid conditions.*

2. In relation to the concept of “health of the population” two areas are considered. They are individual health and population health. Define which of the following individual health according to a practical approach.

- A. *Interval within which quantitative fluctuations of biological processes are able to keep the living system at the level of the functional optimum.*
- B. *State of the human body, when all its functions are balanced with the natural environment.*
- C. *State of the human body, in which it is able to fully perform biological and social functions.\**
- D. *State of complete social, biological and psychological well-being of a person, when the functions of all organs and systems are balanced with the natural environment, there are no diseases, disease states and physical defects.*
- E. *Conditional statistical concept due to the complex influence of social and biological factors, environmental factors and assessed by demographic indicators, indicators of physical development, morbidity, disability and incidence of pre-morbid conditions.*

3. In the formation of public health an important place is taken by society and all its institutions. The definition of health is ambiguous and requires different approaches. Give the definition of individual health according to the general philosophical approach. It's ...

- A. *Interval within which quantitative fluctuations of biological processes are able to keep the living system at the level of the functional optimum.\**
- B. *State of the human body, when all its functions are balanced with the natural environment.*

- C. *State of the human body, in which it is able to fully perform biological and social functions.*
  - D. *State of complete social, biological and psychological well-being of a person, when the functions of all organs and systems are balanced with the natural environment, there are no diseases, disease states and physical defects.*
  - E. *Conditional statistical concept due to the complex influence of social and biological factors, environmental factors and assessed by demographic indicators, indicators of physical development, morbidity, disability and incidence of pre-morbid conditions.*
4. Public health depends on biological, natural, socio-economic factors, the state of health services, etc. Give a definition of public (population) health. It's ...
- A. *An interval within which quantitative fluctuations of biological processes are able to keep the living system at the level of the functional optimum.*
  - B. *State of the human body, when all its functions are balanced with the natural environment.*
  - C. *State of the human body, in which it is able to fully perform biological and social functions.*
  - D. *State of complete social, biological and psychological well-being of a person, when the functions of all organs and systems are balanced with the natural environment, there are no diseases, disease states and physical defects.*
  - E. *Conditional statistical concept due to the complex influence of social and biological factors, environmental factors and assessed by demographic indicators, indicators of physical development, morbidity, disability and incidence of pre-morbid conditions.\**
5. Indicate which of the following listed options is integrated to assess the health of the population and the health system according to WHO's criteria:
- A. *Morbidity, infant mortality.*
  - B. *Morbidity and injuries, physical development.*
  - C. *Disability, mortality of people at a working age.*
  - D. *Fertility, average life expectancy.*
  - E. *Average life expectancy, infant mortality, food quality, budget expenditure on social, medical and environmental programmes.\**
6. The study of the health status of the population provides an opportunity to obtain a variety of information including the division of the population into health groups. Determine who of the following belongs to the group of practically healthy:
- A. *People who have three or more acute illnesses in the anamnesis throughout the year and do not have any chronic diseases.*
  - B. *People who have chronic diseases in the anamnesis at the stage of decompensation and long-term disability.*
  - C. *People who have chronic diseases in the anamnesis at the stage of compensation and temporary disability.*
  - D. *People who do not have chronic diseases in the anamnesis or disorders of the functions of organs and systems. The examination did not revealed any deviations from the norm.*

- E. People with risk factors, pre-morbid conditions and those ones with a history of not more than two-three cases of acute respiratory infections per year.\**
- 7.** The study of the health of the population provides an opportunity to obtain a variety of information, including the division of the population into groups of health. Determine who of the following is among the healthy group:
- A. People who have three or more acute illnesses in the anamnesis throughout the year and do not have any chronic diseases.*
  - B. People who have a history of chronic diseases in the compensation stage and not long-term disability.*
  - C. People who absolutely do not have any acute respiratory illnesses in the anamnesis, or have not one case of it per year.\**
  - D. People who do not have chronic diseases in the anamnesis or disorders of the functions of organs and systems. The examination did not revealed any deviations from the norm.*
  - E. People with risk factors, pre-morbid conditions and those ones with a history of not more than two-three cases of acute respiratory infections per year.*
- 8.** According to the definition of the World Health Organization, viability coefficient is an integrated indicator that characterizes the state of public health. Indicate which of the following ones is used to calculate this indicator.
- A. Budget expenditures for social, medical and environmental programmes.\**
  - B. Incidence.*
  - C. Morbidity and injuries, physical development.*
  - D. Disability, death rate of people at a working age.*
  - E. Birth rate.*
- 9.** The boy is 13 years old. He has a bronchiectatic disease, which is aggravated every year. To which of the following group of health can this boy be referred?
- A. The first group of health.*
  - B. The second group of health.*
  - C. The third group of health.*
  - D. The fourth group of health.\**
  - E. The fifth group of health.*
- 10.\*\*** There were three cured of a chronic illness children (of the 3<sup>rd</sup> group) and they were removed from clinic records. Evaluate the “correctness” of the actions of the local pediatrician:
- A. Doctor’s actions are correct – children are not allowed to be registered.*
  - B. Actions are incorrect – children should be supervised by specialists in the pathology profile*
  - C. Actions are incorrect – moving to group I of health is necessary.*
  - D. Actions are incorrect it is necessary to move them to II health group.\**
  - E. Actions are incorrect – moving to group III of health is necessary.*
- 11.** To assess the health status of children, different indicators are important, for example, the “health index”. Determine what kind of data is needed to calculate this indicator.
- A. The number of children of health groups I, II is the total number of children who are under medical supervision.*

- B. *The number of children who were ill no more than three times during the year, the total number of the examined.*
- C. *The number of children who have not been sick during the year, the total number of children who are under medical supervision.\**
- D. *The number of children who have no health abnormalities, the total number of children who are under medical supervision.*
- E. *The number of children who do not have chronic illnesses, the number of children who are under medical supervision.*
- 12.** Determine which of the following group of health a ten-year boy will be referred if it is known that he has had acute respiratory infections 3 times per year:
- A. *The second group of health.\**                      D. *The third group of health.*
- B. *The first group of health.*                      E. *The fourth group of health.*
- C. *The fifth group of health.*
- 13.\*\*** A 14-year-old girl has a chronic disease (bronchial asthma at the sub-compensation stage). Over the past year there were 3 exacerbations of the disease. Determine what kind of health this girl has.
- A. *The second group of health.*                      D. *The third group of health.*
- B. *The first group of health.*                      E. *The fourth group of health.\**
- C. *The fifth group of health.*
- 14.\*\*** Assessing the health status of the pupils of the eighth form of the secondary school, the doctor diagnosed the presence in one of the pupils' tonsils a third degree hypertrophy, chronic rhinitis and vegetative-vascular dystonia. The functional capabilities of the body are reduced. For health reasons this student refers to:
- A. *The second group of health.*                      D. *The third group of health.*
- B. *The first group of health.*                      E. *The fourth group of health.\**
- C. *The fifth group of health.*
- 15.** The local doctor should prepare a report on the state of health of the population of their service area for the meeting. Determine which of the following ones he should use to describe the health status of the population.
- A. *Morbidity, disability, demographic indicators, physical development.\**
- B. *Lifestyle, pollution, genetic.*
- C. *Social welfare, satisfaction with quality of life.*
- D. *Average life expectancy.*
- E. *Average duration of treatment of the patient, the proportion of complications.*
- 16.** Periodic medical examinations involve the distribution of children to health groups. Determine which of the following group of health should be referred a schoolboy, who suffers from rheumatic heart disease at the stage of sub-compensation.
- A. *The second group of health.*                      D. *The third group of health.*
- B. *The first group of health.*                      E. *The fourth group of health.\**
- C. *The fifth group of health.*
- 17.** The chief medical officer of the joint children's hospital at the end of this year conducted a study of the health status of children in the area of his hospital. According to which of the following group of indicators did he assess their health?



*A Morbidity and mortality by gender, age groups, pre-morbid forms.\**

*B. Morbidity, disability.*

*C. Morbidity, infant mortality, disability.*

*D. Morbidity, physical development, infant mortality.*

*E. Mortality by gender, age group.*

**18.** Health of the population is characterized by a complex of demographic indicators, morbidity, disability, physical development and incidence of pre-morbid conditions. Determine which of the following indicators refers to the demographic ones:

*A. Mortality.*

*D. Traumatism.*

*B. Total mortality.\**

*E. Physical condition of parents.*

*C. Primary morbidity.*

**19.** For an effective clinic examination for the health of the population, an important role belongs to the timely formation of health groups. Indicate how many of the following groups of people's health are allocated:

*A. Two health groups.*

*D. Five health groups.\**

*B. Three health groups.*

*E. Six health groups.*

*C. Four health groups.*

**20.\*\*** An eleven-year boy had five acute respiratory illnesses last year. Determine to which group of health this boy belongs

*A. The second group of health.*

*D. The third group of health.\**

*B. The first group of health.*

*E. The fourth group of health.*

*C. The fifth group of health.*

**21.** In the current year 10 % of the employees of the institution were not ill, 30 % were sick once, 15 % – two times, 5 % – four times, all others – 5 or more times were ill. Determine which of the following proportion of employees is assigned to the first health group.

*A. 10 %.*

*B. 20 %.*

*C. 40 %.\**

*D. 55 %.*

*E. 60 %.*

**22.** Determine which of the following group of health of a schoolboy who suffers from rheumatic heart disease at the stage of sub-compensation.

*A. The second group of health.*

*D. The third group of health.*

*B. The first group of health.*

*E. The fourth group of health.\**

*C. The fifth group of health.*

**23.\*\*** The disharmonious physical development was revealed in the pupil's organism of the fourth form during the preventive examination by medical workers. The boy suffers from chronic bronchitis at the stage of compensation. Throughout the year he did not suffer from acute illnesses. Which group of health does the boy belong to?

*A. The second group of health.*

*D. The third group of health.\**

*B. The first group of health.*

*E. The fourth group of health.*

*C. The fifth group of health.*

**24.** The examination of the patient showed a high level of morpho-functional state of all organs and systems of his/her body. The ability of the body to adapt to external influences was diagnosed. A conclusion was made about the low

probability of the disease developing. Determine to what extent the pre-morbid state of health should be assigned to this patient.

A. 1<sup>st</sup> degree.\* B. 2<sup>nd</sup> degree. C. 3<sup>rd</sup> degree. D. 4<sup>th</sup> degree. E. 5<sup>th</sup> degree.

**25.** In the functional examination of the patient, the state of stress of the adaptation mechanisms in his organism was diagnosed. Determine which of the following degree of pre-morbid state and the probability of the disease this patient has.

- A. 1<sup>st</sup> degree and low probability of illness.
- B. 2<sup>nd</sup> degree and increased probability of illness.\*
- C. 3<sup>rd</sup> degree and high probability of illness.
- D. 4<sup>th</sup> degree and very high probability of illness.
- E. 5<sup>th</sup> degree and the presence of early symptoms of the disease.

**26.** During the functional examination of the patient, the state of unsatisfactory adaptation of the organism to natural influences was diagnosed. Determine which of the following degree of pre-morbid state and the probability of the disease this patient has.

- A. 1<sup>st</sup> degree and low probability of illness.
- B. 2<sup>nd</sup> degree and increased probability of illness.
- C. 3<sup>rd</sup> degree and high probability of illness.\*
- D. 4<sup>th</sup> degree and very high probability of illness.
- E. 5<sup>th</sup> degree and the presence of early symptoms of the disease.

**27.** During the functional examination of the patient, the state of failure of the adaptation mechanism of his organism was diagnosed. Determine which of the following degree of the pre-morbid state of health and the probability of the disease this patient has.

- A. 1<sup>st</sup> degree and low probability of illness.
- B. 2<sup>nd</sup> degree and increased probability of illness.
- C. 3<sup>rd</sup> degree and high probability of illness.
- D. 4<sup>th</sup> degree and very high probability of illness.\*
- E. 5<sup>th</sup> degree and the presence of early symptoms of the disease.

**28.** With the increase of the person's age, the biological capabilities of the organism decrease and the probability of the disease increases. Age periods differ in the quality of biological capabilities of the organism and have the following gradation: up to 15 years, 15–25 years, 25–40 years, 40–50 years, 50 and more years. Determine which of the following age period in which a person's biological abilities are related to the stage of compensatory reactions.

- A. At the age of 15–25 years.
- B. At the age of 25–40.\*
- C. At the age of 40–50.
- D. 50+.
- E. Under 15 years.

**29.** Age periods differ in the quality of biological capabilities of the organism and have the following gradation: up to 15 years, 15–25 years, 25–40 years, 40–50 years, 50 and more years. Determine which of the following age period in which a person is in the biological capabilities of the body to the stage of reversible changes.

- A. 15–25 years.\*      C. Between 40 and 50.      E. Under 15 years.  
B. At the age of 25–40.      D. 50+.

**30.** Age periods differ in the quality of biological capabilities of the organism and have the following gradation: up to 15 years, 15–25 years, 25–40 years, 40–50 years, 50 and more years. Determine which of the following age period the lower limit of which is the biological threshold of disease.

- A. 15–25 years.      C. From the age of 40–50.\*      E. Under 15 years.  
B. At the age of 25–40.      D. 50+.

**31.** Human health is assessed by the absence of illnesses and injuries (traumas), as well as by the level of physical, mental and social well-being. Which of the following criteria are the basic ones for determining the individual's health stated by the WHO?

- A. All 5 criteria.\*  
B. Only the absence of disease.  
C. Only the absence of disease and damage.  
D. Only the absence of disease and social well-being.  
E. Only the absence of disease, physical and mental well-being.

**32.** The estimation of population health of the urban population was conducted according to the following indicators: ECG change, birth rate, mortality, morbidity, pathological affection, primary morbidity, incidence with temporary disability, physical development and disability of the population. Determine which of the following indicators belong to the group of demographic indicators of population health:

- A. Morbidity and pathological affection.  
B. ECG change.  
C. Primary morbidity and morbidity with VUT.  
D. Fertility and mortality.\*  
E. Physical development and disability of the population.

**33.** The assessment of the children's population health was conducted according to the following indicators: the body's response to physical exertion, excess weight of the body above the norm, the state of the ECG, physical working capability. Determine which of the following indicators allow you to assess the pre-morbid pediatric health status:

- A. Only the excess weight of the body above the norm.  
B. Only the body's response to physical activity.  
C. ECG state only.  
D. Physical performance only.  
E. All mentioned indicators.\*

**34.** To assess the population health of the urban female population, the following groups of indicators were used: demographic ones, morbidity, physical development, disability. Determine which of the following indicators should be used in the integrated assessment of population health of the entire urban population:

- A. Demographic ones only.      D. Physical development only.  
B. Morbidity only.      E. All four groups of indicators.\*  
C. Disability only.

35. For the study of the rural population health, the following groups of indicators were used: demographic ones, morbidity, psychological and physical development, disability. Which of the following indicators are not used in the integrated assessment of population health of the entire urban population?

- A. *Demographic.*                      C. *Disability.*                      E. *Physical development.*  
B. *Morbidity.*                              D. *Psychological.\**

36. For the study of the urban population health, the following groups of indicators were used: demographic ones, morbidity, physical development, pre-morbid indicator. Which of the following group of indicators should be used for an integrated assessment of population health?

- A. *Disability.\**                              C. *Fertility.*                      E. *Average life expectancy.*  
B. *Pathological affection.*              D. *Mortality.*

37. In the studying of the population health, individuals who were not ill during the year were identified, who were ill one time, two times, three times, four times, five times, six times and seven times, and also had chronic diseases at the compensated stage. Determine who of the following individuals should be assigned to the 1<sup>st</sup> group of health.

- A. *Who are not ill, have been ill 1–7 times and had chronic diseases in the compensatory stage.*  
B. *Who are not ill and have been ill 1–3 times.*  
C. *Who are not ill and have been ill 1–7 times.*  
D. *Only those who are not ill.*  
E. *Only those who are not ill and have been ill just 1 time.\**

38. The local doctor should prepare a report on the state of health of the population of their service area for the meeting. Determine which of the following medical indicators of the health status of the population should he/she use in this case:

- A. *Morbidity, disability, demographic, physical development.\**  
B. *Lifestyle, pollution of the environment.*  
C. *Social well-being, satisfaction with quality of life.*  
D. *Average life expectancy.*  
E. *Average duration of treatment of the patient, specific relative importance of complications.*

*\*\*test tasks are required in preparation for the KROK exam*

### CONTROL QUESTIONS

1. Define the concept of individual, group, regional and population health.
2. What are the main methods of studying the health of the population?
3. What is a comprehensive method of studying the concept of “health of the population”?
4. What do you know of integral methods of studying the concept of “health of the population”? List the main integral methods.
5. Name the sources for population health studies.

6. Which regional features of the health status of the population of Ukraine do you know?
7. Can you estimate the population on the basis of viability coefficient?
8. What is Human Development Index (HDI), its indicators, evaluation?
9. What is the indicator of survival of the population to a certain age (up to 1, 5, 15, 45 and 65 years)?
10. What is the essence of the assessment of population health based on the “DALY” index?
11. What are the main points of the methodology for assessing the quality of life of the population?
12. What are the health groups for the adult population, the importance of identifying health groups to practical health care?
13. What are the health groups for the child population, the importance of identifying health groups for practical health care?
14. What are general trends in the basic indicators of the health of the population of Ukraine?
15. What are the criteria for achieving a certain level of health for the population of Ukraine determined by WHO experts?

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*Навчальне видання*

# **МЕДИКО-СОЦІАЛЬНІ ПРОБЛЕМИ ЗДОРОВ'Я НАСЕЛЕННЯ ТА МЕТОДИКИ ЙОГО ВИВЧЕННЯ**

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