Federal state budgetary educational institute of the higher education

«Orenburg state medical university» of Ministry of Health of the Russian Federation

**ASSESSMENT FUND**

**FOR CURRENT PROGRESS MONITORING AND MIDTERM CERTIFICATION OF STUDENTS STUDYING ON DISCIPLINE**

PUBLIC HEALTH AND HEALTHCARE, ECONOMY OF HEALTHCARE

by specialty

*31.05.01 General Medicine*

It is part of the main professional educational program of higher education in specialty *31.05.01 General Medicine*

protocol № 8 from 25 on March 2016

Orenburg

1. **Evaluation Fund Passport**

The Discipline Evaluation Fund contains standard control and evaluation materials for the current monitoring of students' performance, including the control of students' independent work, as well as for the control of training results formed during the discipline study on intermediate certification in the form of credit.

Control and evaluation materials of performance monitoring are distributed according to discipline topics and are accompanied by indication of the used control forms and evaluation criteria. Control and evaluation materials for intermediate certification correspond to the form of intermediate certification for the discipline defined in the training plan of the OPOP and are aimed at checking the formation of knowledge, skills and skills for each competence established in the working program of the discipline.

As a result of the study of the discipline, the trainee forms the following **competencies**:

OK-1 Capacity for abstract thinking, analysis, synthesis.

OPK-3 Ability to use the foundations of economic and legal knowledge in professional activities.

OPK-5 Ability and willingness to analyze the results of own activities to prevent professional errors

OPK-6 Readiness to maintain medical records.

PK-4 Ability and readiness to apply social and hygienic methods of collecting and medical and statistical analysis of information on population health indicators.

PK-6 Ability to determine the patient's underlying pathological conditions, symptoms, disease syndromes, nosological forms according to the International Statistical Classification of Diseases and Health Problems, Revision X.

PK-17 Ability to apply basic principles of organization and management in the field of health protection of citizens, in medical organizations and their structural subdivisions.

PK-18 Willingness to participate in the assessment of the quality of care using basic medical and statistical indicators.

PK-20 Readiness for analysis and public presentation of medical information based on evidence-based medicine.

PK-21 Ability to participate in scientific research.

**2. Evaluation materials of student performance monitoring**

**Evaluation materials within the discipline module**

**Module 3.** Health care organization.

**Sample topics for electronic presentations**

1. Problems of the size and composition of the population in India. State demographic policy.
2. Fertility and mortality in India. State and dynamics of processes.
3. Morbidity of the population of India. Method of study. Status and main trends.
4. Disability of the population and organization of rehabilitation in India.
5. The basic characteristics of the health care system in India.
6. Health system management in India.
7. Financing Health in India.
8. The primary health care in India.
9. Organization of ambulatory care in India.
10. Organization of the in-patient aid in India.
11. Protection of motherhood and infancy in India.
12. The organization of the out-patient-polyclinic obstetric-gynecologic aid in India.
13. Organization of the treatment-and-prophylactic aid to children in India.
14. Medical prophylaxis in India.
15. The organization of the treatment-and-prophylactic aid to rural population in India.
16. Medical examination of disability and invalidity in India.

Medical education in India. Improving the training of medical personnel.

|  |  |
| --- | --- |
| **Abstract defense** | "FIVE POINTS" is awarded if the student fulfills all the requirements for writing and defending the abstract: the problem is identified and its relevance is justified, a brief analysis of various points of view on the problem under consideration is made and their own position is logically stated, conclusions are formulated, the topic is fully disclosed, the volume is maintained, requirements for the external design, the correct answers to additional questions are given. |
| "FOUR POINTS" is given if the students meet the basic requirements for the abstract and its defense, but at the same time there are some mistakes. In particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the volume of the abstract is not kept; there are omissions in the design; incomplete answers were given to additional questions during the defense. |
| "THREE POINTS" is given if the student allows significant deviations from the requirements for abstracting. In particular, the topic is covered only partially; factual errors were made in the content of the abstract or when answering additional questions; there is no output during protection. |
| "TWO POINTS" is given if the topic of the abstract is not disclosed to the students, a significant misunderstanding of the problem is revealed. |
| "ZERO POINTS" is given if there is no answer |
| **Presentation demonstration** | "FIVE POINTS" is awarded if there is a connection between the presentation and the program and curriculum, the corresponding section; the didactic and methodological goals and objectives of the presentation were achieved; provides reliable information about historical references and current events; all conclusions are confirmed by reliable sources; the language of the presentation is clear to the audience; the chronology is followed, the priorities are correctly set; logical transition to the conclusion; correct conclusions; the font is readable, the color (background, font, headers) is correctly selected, animation elements are present; no grammatical errors. |
| "FOUR POINTS" is given if the students meet the basic requirements for the presentation, but there are some mistakes. In particular, there are inaccuracies in the presentation of the material; a topic was chosen without taking into account the curriculum; there is no logical consistency in judgments; requirements for graphic content are not met; there are omissions in the design; incomplete answers were given to additional questions during the defense. |
| "THREE POINTS" is given if the student makes significant deviations from the requirements for presentation design. In particular, the topic is covered only partially; errors of fact were made in the content of the presentation or when answering additional questions; no output was presented during the demo. |
| "TWO POINTS" is given if the topic of the abstract is not revealed to the students, a significant misunderstanding of the problem is revealed. |
| "ZERO POINTS" is given if there is no answer. |

**Evaluation materials for each discipline topic**

**Module 2.** Foundations of the Statistical Method of Public Health and Health Research.

**Topic 1.** THE ORGANIZATION AND CARRYING OUT OF STATISTICAL RESEARCH.

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

**1.** MEDICAL STATISTICS INCLUDE THE FOLLOWING PARTS:

statistics of public health

veterinary statistics

statistics of scientific researches

statistics of public health services

crime statistics

2. STATISTICS OF PUBLIC HEALTH ARE STUDYING INDICATORS

Medico-demographic

Health services status

Morbidity of the population

Quality of care

Efficiency of care

Disability of the population

Physical health of the population

3. STATISTICS OF PUBLIC HEALTH SERVICES INCLUDE:

Medico-demographic

Health services status

Morbidity of the population

Quality of care

Efficiency of care

Disability of the population

Physical health of the population

4. HOW MANY STAGES ARE THERE IN THE STATISTICAL STUDY?

4

3

8

2

5. THE FIRST STAGE OF THE STATISTICAL STUDY IS…

The analysis of the received data, conclusions, suggestions

Preparatory (organizational) stage: scheduling and investigation programs

Collecting of statistical material

Working out and summarizing of material

6. THE PLAN OF STATISTICAL INVESTIGATION

It reflects the content of research

It reflects the organizational aspect of the study

7. THE PROGRAM OF STATISTICAL INVESTIGATION

It reflects the content of research

It reflects the organizational aspect of the study

8. THE PLAN OF STATISTICAL INVESTIGATION INCLUDE:

Object of study

Unit of observation

Time of study

Research Resource

Registration forms

9. THE PROGRAM OF STATISTICAL INVESTIGATION INCLUDE:

Object of study

Determining the unit of observation

Time of study

Definition of the registration signs

Research Resource

Definition of the registration forms

10. TYPE OF STUDY BY VOLUME MAY BE

single supervision

continuous

selective

current supervision

Recitation

1. Medical statistics as method of a research of public health and health care. Parts of medical statistics.
2. The plan of statistical research, maintenance. The statistical set. Kinds, types, peculiarities.
3. The program of statistical research. Registrational blank, types, requirements.
4. Development of statistical data on personal computers. Types of data. Data entry. Error checking and outliers.

***Case-task completion***

1. The aim of the work is to study the prevalence of hypotrophy among the children of the Orenburg region for the development of targeted preventive measures. Make a plan and a program of statistical research on this issue.

2. The purpose of the work is to study the traumatism among adolescents in Orenburg for the development of targeted preventive measures for its reduction. Make a plan and a program for statistical study of the question.

3. The aim of the work is to study the incidence of chronic diseases of digestive organs in students of the Orenburg State Medical Academy for the development of ways of targeted prevention. Make a plan and a program of statistical research on this issue.

4. The aim of the study was to study the frequency, structure and risk factors of perinatal mortality in the Orenburg region for the development of targeted preventive measures.

Make a plan and a program of statistical research on this issue.

5. The aim of the study was to study the frequency, structure and risk factors of the incidence of infectious diseases in children of the Belyaevsky District for the development of rational prevention routes.

Make a plan and a program of statistical research on this issue.

6. The aim of the work is to study the incidence of chronic respiratory diseases in the children's population of Eastern Orenburg region for the development of rational preventive measures.

Make a plan and a program of statistical research on this issue.

7. The purpose of the study is to study the incidence of rachitis in the children's population of Orenburgh for the development of targeted prevention routes.

Make a plan and a program of statistical research on this issue.

8. The purpose of the study is to study the incidence of osteochondrosis of the lumbosacral spine of drivers in the city of Orenburg for the development of targeted preventive measures.

Make a plan and a program of statistical research on this issue.

9. The purpose of the study was to study the occupational traumatism of workers of the helium plant in Orenburg to develop targeted preventive measures to reduce it.

Make a plan and a program for statistical study of the question.

10. The purpose of the study was to study the frequency and structure of risk factors for postoperative complications in surgical departments of the city hospital for the development of targeted preventive measures. Make a plan and a program of statistical research on this issue.

**Topic 2.** Basic techniques for analysing categorical data

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

1. STATISTICAL VALUES ARE

1. absolute values
2. relative values
3. all listed

2. WHAT VALUES REFLECT THE TRUE SIZE OF THE PHENOMENON BEING STUDIED?

* 1. relative values
  2. average values
  3. absolute values
  4. statistical values

3. RELATIVE VALUES ARE ALL LISTED, EXCEPT

1. Intensive values
2. extensive values
3. average values
4. ratio values
5. obvious values

4. WHICH VALUES CHARACTERIZES FREQUENCY OF THE PHENOMENON IN THE CONDITION WHERE THIS PHENOMENON IS OBSERVED?

1. Intensive values
2. extensive values
3. ratio values
4. obvious values

5. WHICH VALUES CHARACTERIZES A NUMERICAL PARITY OF THE SETS NOT CONNECTED AMONG THEMSELVES AND COMPARED ONLY UNDER THEIR MAINTENANCE?

* 1. Intensive values
  2. extensive values
  3. obvious values
  4. ratio values

6. WHICH VALUES IS CALCULATED AS THE RELATION OF A PART TO THE WHOLE?

1. Intensive values
2. extensive values
3. ratio values
4. obvious values

7. WHICH VALUES IS NEEDED TO STUDY THE TEMPORALLY CHANGES OF THE PHENOMENON AND TO COMPARE TWO OR MORE SIMILAR PHENOMENA?

1. Intensive values
2. extensive values
3. ratio values
4. obvious values

8. WHICH VALUES IS USED TO CHARACTERIZE THE STRUCTURE OF THE PHENOMENON?

1. Intensive values
2. extensive values
3. ratio values
4. obvious values

9. WHY DO YOU NEED STANDARD ERROR OF ASSESSMENT RELATIVE VALUES?

1. Using a standard error, you can generalize the results to similar objects with a certain probability.
2. To determine the error in collecting statistical data.
3. To determine the statistical significance of the differences between the two phenomena.

10.  WHAT IS THIS FORMULA USED FOR?

1. For calculation of intensive values
2. For calculation standard error
3. For calculation of extensive values
4. For determine the statistical significance of the differences between the two phenomena.

Recitation

1. Аbsolute sizes, using in public health.
2. Relative sizes, types, methodic of calculation, using.
3. Standard Error of assessment and confidence intervals of relative sizes.
4. Estimation of statistical significance of differences in relative values (single proportion, two proportions, more than two categories).
5. Visualization and graphic representation of the relative values

***Case-task completion***

Task 1

When studying the incidence of osteochondrosis of the lumbosacral spine of drivers of urban transport in Orenburg, the data presented in the table were obtained.

The number of patients with osteochondrosis of the lumbosacral spine department among drivers of urban vehicles, depending on the length of service

|  |  |  |
| --- | --- | --- |
| ***Work experience as a driver*** | ***Examined*** | ***Number of patients with osteochondrosis*** |
| 1- 9 years | 2964 | 520 |
| 10 – 19 years | 1629 | 440 |
| 20 and more years | 250 | 165 |
| ***Total*** | ***4843*** | ***1125*** |

1. Calculate the total and group (depending on the work experience as a driver) indicators of the disease rate of osteochondrosis of the lumbosacral spine of the drivers of urban transport.

2. Calculate the structure of the incidence of drivers osteochondrosis of the lumbosacral spine, depending on the length of service.

3. Calculate the minimum and maximum possible incidence of drivers of urban vehicles lumbosacral osteochondrosis.

4. Determine the reliability of differences in the incidence of drivers who have worked for 1-9 years and 20 years or more.

5. On the basis of the data obtained, issue a conclusion.

Task 2

In the study of occupational injuries at the helium plant, the data presented in the table were obtained.

The number of cases of industrial injuries among management personnel and workers in the helium plant

|  |  |  |
| --- | --- | --- |
| ***Employee category*** | ***Number of employees*** | ***Number of cases of industrial injuries*** |
| Administrative staff | 206 | 2 |
| Workers | 1602 | 17 |
| ***Total*** | ***1808*** | ***19*** |

1. Calculate the total and group (depending on the category of workers) indicators of occupational injuries at the helium plant.

2. Calculate the structure of industrial injuries, depending on the category of workers.

3. Calculate the minimum and the maximum possible level of industrial injuries in the workers of the helium plant.

4. Determine the reliability of differences in levels of occupational traumatism among workers and management personnel.

5. On the basis of the data obtained, issue a conclusion.

Task 3

In studying the hospitalized morbidity of women of reproductive age in Orenburg, the data presented in the table were obtained by gynecological diseases.

***The number of cases of hospitalization of women with gynecological diseases in different age groups***

|  |  |  |
| --- | --- | --- |
| ***Age*** | ***Number of patients*** | ***Number of hospitalized*** |
| Up to 30 years | 1210 | 47 |
| 30 - 49 years | 1740 | 110 |
| 50 years and over | 380 | 30 |
| ***Total*** | **3330** | **187** |

1. Calculate the total and group (depending on age) indicators of the level of hospitalization of women with gynecological diseases.

2. Calculate the structure of hospitalized gynecological incidence, depending on age.

3. Calculate the minimum and the maximum possible level of hospitalization of women with gynecological diseases in Orenburg.

4. Determine the reliability of the differences in the levels of hospitalization of women in the age groups "up to 30 years" and "30-49 years."

5. On the basis of the data obtained, issue a conclusion.

Task 4

In the analysis of postpartum complications, the women presented in the perinatal center of Orenburg received the data presented in the table.

***The number of cases of postpartum complications in women of different age groups***

|  |  |  |
| --- | --- | --- |
| ***Age*** | ***Number of women discharged from maternity ward*** | ***Number of cases of postpartum complications*** |
| Up to 20 years | 458 | 29 |
| 20 – 29 years | 845 | 92 |
| 30 – 39 years | 240 | 35 |
| ***Total*** | **1543** | **156** |

1. Calculate the total and group (depending on age) indicators of the frequency of postpartum complications.

2. Calculate the structure of postpartum complications depending on age.

3. Calculate the minimum and maximum possible level of postpartum complications.

4. Determine the reliability of differences in postpartum complications in the age groups "20-29 years" and "30-39" years.

5. On the basis of the data obtained, issue a conclusion.

Task 5

In the study of the frequency of complications in type II diabetes mellitus, depending on the duration of the disease, the data presented in the table were obtained.

The number of cases of complications of type II diabetes mellitus depending on the duration of the disease

|  |  |  |
| --- | --- | --- |
| ***Duration of the disease*** | ***Number of patients*** | ***Number of complications*** |
| Up to 5 years | 863 | 384 |
| 5 - 10 years | 405 | 237 |
| More than 10 years | 219 | 211 |
| ***Total*** | **1487** | **832** |

1. Calculate the total and subgroup indicators of the frequency of complications.

2. Calculate the structure of complications depending on the duration of diabetes mellitus.

3. Calculate the minimum and maximum possible levels of complications of diabetes in all patients.

4. Determine the reliability of differences in the incidence of complications in people with diabetes 5-10 years and more than 10 years.

5. Based on the findings, draw a conclusion.

Task 6

When studying the level and structure of postoperative complications in the surgical hospital, the data presented in the table were obtained.

***Number of cases of postoperative complications***

|  |  |  |
| --- | --- | --- |
| ***Bed profile*** | ***Number of operated patients*** | ***Number of cases of postoperative complications*** |
| general surgery | 1280 | 18 |
| purulent surgery | 845 | 17 |
| ***Total*** | **2125** | **35** |

1. Calculate the total and group (depending on the profile of beds) indicators of the frequency of postoperative complications.

2. Calculate the structure of postoperative complications depending on the profile of the beds.

3. Calculate the minimum and maximum possible level of postoperative complications in the surgical hospital.

4. Determine the reliability of differences in postoperative complications in the department of general and purulent surgery.

5. On the basis of the data obtained, issue a conclusion.

Task 7

When examining the satisfaction of the adult population of Orenburg with the provision of outpatient care, the following data were obtained, presented in the table.

***Distribution of patients who are satisfied with the provision of outpatient care according to age***

|  |  |  |
| --- | --- | --- |
| ***Age*** | Covered by research | The number of patients satisfied with health care |
| Working age | 188 | 148 |
| Retirement age | 48 | 28 |
| ***Total*** | **236** | **176** |

1. Calculate the general and group (depending on the age) the indicators of satisfaction of the population of Orenburg by providing outpatient care.

2. Calculate the structure of patient satisfaction, depending on age.

3. Calculate the minimum and maximum possible level of satisfaction of patients in Orenburg by providing outpatient care.

4. Determine the reliability of differences in levels of satisfaction of patients of working age and retirement age.

6. On the basis of the data obtained, issue a conclusion.

Task 8

In a selective study of the incidence of the rural population of the Sol-Iletsky district with diseases of the digestive organs, the data presented in the table were obtained.

***The number of cases of diseases of the digestive system in the adult population of the Sol-Iletsky district in terms of sex***

|  |  |  |
| --- | --- | --- |
| ***Sex*** | ***Covered by research*** | ***Number of cases of diseases of the digestive system*** |
| Male | 480 | 20 |
| Female | 679 | 70 |
| ***Total*** | **1159** | **90** |

1. Calculate the total and group (depending on sex) rates of the incidence of diseases of the digestive system.

2. Calculate the structure of the incidence of diseases of the digestive system, depending on sex.

3. Calculate the minimum and the maximum possible incidence of diseases of the digestive system among residents of the Sol-Iletsky district.

4. Determine the reliability of differences in levels of morbidity in men and women.

5. On the basis of the data obtained, issue a conclusion.

**Topic 3.** Basic techniques for analysing numerical data.

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

1. NORMAL DISTRIBUTION OR ASSIMENTIAL DISTRIBUTION DEFINITELY FOR …

1) qualitative data

2) quantitative data

3) any data 2. WHICH OF THE AVERAGE VALUES WILL BETTER CHARACTERIZE THE STATISTICAL SET WITH NORMAL DISTRIBUTION?

1) arithmetic mean

2) median

3) mode

3. WHAT IS THE AVERAGE VALUE THAT BEST CHARACTERIZES THE STATISTICAL SET IN A DISTRIBUTION DIFFERENT FROM NORMAL?

1) arithmetic mean

2) median

3) mode

4. WHAT IS THE BEST VALUE TO USE IF THERE IS A STRONG TENDENCY TO DOMINATE ANY VALUE IN THE STATISTICAL SET?

1) arithmetic mean

2) median

3) mode

5. WHAT IS THE BEST MEASURE OF THE VARIABILITY OF QUANTITATIVE DATA IN A STATISTICAL SET WITH A NORMAL DISTRIBUTION?

1) mode

2) standard deviation

3) quartiles

4) coefficient of variation

6. WHAT IS THE BEST MEASURE OF THE VARIABILITY OF QUANTITATIVE DATA IN A STATISTICAL SET IN A DISTRIBUTION DIFFERENT FROM NORMAL?

1) coefficient of variation

2) standard deviation

3) сentels (percentiles, deciles, quartiles)

4) obvious values

7. IN THE LIMIT M ± 2SD LOCATED…

1) 68,3% all observations

2) 95,5% all observations

3) 99,7% all observations

8. WHAT IS THE VALUE OF T - TEST CONFIRMS THE PRESENCE OF A STATISTICALLY SIGNIFICANT DIFFERENCE BETWEEN THE GROUPS BEING COMPARED?

1) t ≥ 1,98

2) t ≤ 1,98

3) t = 1

4) t = 0,05

9. WHAT CHARACTERIZES THE STANDARD ERROR OF THE AVERAGE VALUE?

1) variability of analyzed quantitative data

2) the reliability of the differences between two mean values

3) the number by which the value of the average value of the sample population will differ from the average value calculated in the general population.

4) material collection error

10. WHAT CHARACTERIZES THE STANDARD DEVIATION?

1) variability of analyzed quantitative data

2) the reliability of the differences between two mean values

3) the number by which the value of the average value of the sample population will differ from the average value calculated in the general population.

4) material collection error

***Recitation***

1. Theoretical distributions: the Normal and other distributions.
2. Variational line, types, construction.
3. Average sizes, types, using in health services. Arithmetic mean and median characteristics and peculiarities, methods of calculation.
4. Assessment of a variety of numerical data. Standard deviation, methods of calculation and practical implementation. Variety assessment by means of percentiles.
5. Standard Error of assessment and confidence intervals of average sizes.
6. Estimation of statistical significance of differences in average sizes. Parametrical and non-parametrical statistical methods.

***Case-task completion***

Task 1

According to the study of the physical development of 200 boys - teenagers 15 years of Orenburg, a number of growth distributions were built. It is necessary to calculate:

|  |  |
| --- | --- |
| V | P |
| 144-148 | 4 |
| 149-153 | 10 |
| 154-158 | 16 |
| 159-163 | 30 |
| 164-168 | 85 |
| 169-173 | 35 |
| 174-178 | 15 |
| 179-183 | 5 |
| n = 200 | |

1. Average arithmetic value (M1) by the method of moments.

2. Standard deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine if there are any significant differences in the mean growth in boys adolescents in Orenburg and Orsk, if it is known that the average height of boys in the city of Orsk (M2) is 159.7 cm and the average error of the arithmetic mean (m2) is equal to ± 0.5 cm.

5. Analyze the data and draw a conclusion.

Task 2

According to the study of physical development of 200 draftees in Orenburg, a number of conscripts were distributed according to body weight.

|  |  |
| --- | --- |
| V | P |
| 64-66 | 2 |
| 67-69 | 6 |
| 70-72 | 20 |
| 73-75 | 30 |
| 76-78 | 85 |
| 79-81 | 35 |
| 82-84 | 15 |
| 85-87 | 5 |
| 88-91 | 2 |
| n = 200 | |

It is necessary to calculate:

1. Average arithmetic value (M1) by the method of moments.

2. Standard deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine if there are significant differences in the mean weight of conscripts in Orenburg and Orsk, if it is known that the average weight of the recruits of Orsk (M2) is 79.5 kg. and the average error of the arithmetic mean (m2) is ± 0.5 kg.

5. Analyze the data and draw a conclusion.

Task 3

Based on the data on the duration of treatment of 45 patients with angina (in days), a number of distributions were constructed in the polyclinic. It is necessary to calculate:

|  |  |
| --- | --- |
| V | P |
| 3-5 | 5 |
| 6-8 | 8 |
| 9-11 | 15 |
| 12-14 | 9 |
| 15-17 | 5 |
| 18-20 | 3 |
| n = 45 | |

1. Average arithmetic value (M1) by the method of moments.

2. Standard deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine if there are significant differences in the mean duration of treatment for angina in a given out-patient clinic and a polyclinic from another area, if it is known that the average duration of treatment for angina in a polyclinic in another district (M2) was 12.5 days and the mean error of the arithmetic mean (m2) is equal to ± 0.5 days.

5. Analyze the data and draw a conclusion.

Task 4

Based on the data on the growth of 56 female students of the first year, a number of distributions were constructed.

|  |  |
| --- | --- |
| V | P |
| 158-160 | 4 |
| 161-163 | 6 |
| 164-166 | 21 |
| 167-169 | 11 |
| 170-172 | 9 |
| 173-175 | 4 |
| 176-178 | 1 |
| n = 56 | |

It is necessary to calculate:

1. Average arithmetic value (M1) by the method of moments.

2. Standard deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine whether there are significant differences in the mean growth in students of women and male students, if it is known that the average growth of male students (M2) is 176.6 cm and the average error of the arithmetic mean (m2) is ± 0.5 cm .

5. Analyze the data and draw a conclusion.

Task 5

Based on the data on the body weight of 120 eight-year-old girls, a series of distributions was constructed.

|  |  |
| --- | --- |
| V | P |
| 21-23 | 4 |
| 24-26 | 15 |
| 27-29 | 64 |
| 30-32 | 28 |
| 33-35 | 5 |
| 36-38 | 4 |
| n = 120 | |

It is necessary to calculate:

1. Average arithmetic value (M1) by the method of moments.

2. Standard deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine whether there are significant differences in the mean body weight for 8-year-old girls and boys, if it is known that the average body weight of boys is 31.5 kg and the mean error of the arithmetic mean (m2) is ± 0.5 kg.

5. Analyze the data and draw a conclusion.

Task 6

Based on the data on the duration of treatment (in days) in the clinic, 55 patients with chronic gastritis have a number of distributions.

|  |  |
| --- | --- |
| V | P |
| 5-7 | 3 |
| 8-10 | 8 |
| 11-13 | 10 |
| 14-16 | 23 |
| 17-19 | 7 |
| 20-22 | 3 |
| 23-25 | 1 |
| n = 55 | |

It is necessary to calculate:

1. Average arithmetic value (M1) by the method of moments.

2. The mean deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine if there are significant differences in the mean duration of treatment for gastritis and gastric ulcer if it is known that the average duration of gastric ulcer (M2) is 18 days and the mean error of the arithmetic mean (m2) is ± 0.7 days.

5. Analyze the data and draw a conclusion.

Task 7

Based on the data on the heart rate of 100 students, a distribution series was constructed.

|  |  |
| --- | --- |
| V | P |
| 60-62 | 5 |
| 63-65 | 8 |
| 66-68 | 16 |
| 69-71 | 28 |
| 72-74 | 18 |
| 75-77 | 12 |
| 78-80 | 8 |
| 81-83 | 5 |
| n = 100 | |

It is necessary to calculate:

1. Average arithmetic value (M1) by the method of moments.

2. Standard deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine whether there are significant differences in the mean heart rate for students (M1) and military personnel (M2), if it is known that the average heart rate for military personnel is 71 beats per minute and the average error of the arithmetic mean (m2) is ± 1 beat per minute.

5. Analyze the data and draw a conclusion.

Task 8

Based on the data on the frequency of breathing 200 skiers during the competition a number of distribution was constructed.

|  |  |
| --- | --- |
| V | P |
| 15-16 | 1 |
| 17-18 | 7 |
| 19-20 | 19 |
| 21-22 | 31 |
| 23-24 | 87 |
| 25-26 | 33 |
| 27-28 | 13 |
| 29-30 | 7 |
| n = 200 | |

It is necessary to calculate:

1. Average arithmetic value (M1) by the method of moments.

2. Standard deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine whether there are significant differences in the mean respiratory rate in skiers before and during the competition, if it is known that the average respiration rate of skiers before the competition (M2) is 18 and the mean error of the arithmetic mean (m2) is ± 1.

5. Analyze the data and draw a conclusion.

Task 9

Based on the data on the growth of 110 athletes weightlifters a number of distribution was built.

|  |  |
| --- | --- |
| V | Р |
| 158-160 | 7 |
| 161-163 | 11 |
| 164-166 | 20 |
| 167-169 | 37 |
| 170-172 | 16 |
| 173-175 | 11 |
| 176-178 | 6 |
| 179-181 | 2 |
| n = 110 | |

It is necessary to calculate:

1. Average arithmetic value (M1) by the method of moments.

2. Standard deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine whether there are significant differences in the growth rates of weightlifters and non-sportsmen if it is known that their average height (M2) is 176.7 cm and the average error of the arithmetic mean (m2) is ± 0.7 cm.

5. Analyze the data and draw a conclusion.

Task 10

Based on the data on the duration of treatment (in days), 100 patients with pneumonia in the hospital built a number of distributions.

|  |  |
| --- | --- |
| V | P |
| 9-11 | 4 |
| 12-14 | 6 |
| 15-17 | 19 |
| 18-20 | 48 |
| 21-23 | 14 |
| 24-26 | 7 |
| 27-29 | 2 |
| n = 100 | |

It is necessary to calculate:

1. Average arithmetic value (M1) by the method of moments.

2. Standard deviation (δ) by the method of moments.

3. The average error of the arithmetic mean (m1).

4. Determine if there are significant differences in the mean duration of treatment for pneumonia and chronic bronchitis if it is known that it (M2) is 16 days and the average error of the arithmetic mean (m2) is ± 1 day.

5. Analyze the data and draw a conclusion.

**Topic 4.** Time series and their analysis

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

1. WHAT CAN BE THE TIME SERIES?

1) complex

2) interval

3) moment

4) variational

2. DIFFERENCE OF LEVELS OF THIS YEAR AND PREVIOUS INDICATES…

1) rate of increase

2) growth rate

3) absolute increase

4) the value of 1% increase

5) level of distribution

3. RATIO OF ABSOLUTE INCREASES TO THE PREVIOUS LEVEL EXPRESSED AS A PERCENTAGE SHOWS…

1) absolute increase

2) the value of 1% increase

3) rate of increase

4) growth rate

5) level of distribution

4. WHAT IS THE RATE OF INCREASE?

1) The ratio of the next level to the previous one

2) The ratio of absolute growth to growth rate

3) The difference between the levels of a given year and the previous one

4) The ratio of absolute growth to the previous level, expressed as a percentage

5. HOW TO CALCULATE THE ABSOLUTE INCREASE?

1) The ratio of the next level to the previous one

2) The difference between the levels of a given year and the previous one

3) The ratio of absolute growth to the previous level, expressed as a percentage

4) The ratio of absolute growth to growth rate

6. WHEN IT IS NECESSARY TO APPLY THE METHODS OF CONVERTING THE TIME SERIES?

1) in cases where there is no pronounced trend

2) to confirm a pronounced trend

3) it is always desirable

4) is optional

7. BY WHAT METHODS CAN YOU CONVERT THE TIME SERIES?

1) mixed

2) mathematical

3) mechanical

4) magical

8. WHICH OF THE METHODS REFERS TO THE METHODS OF MECHANICAL TRANSFORMATION OF TIME SERIES?

1) the method of linear smoothing

2) the method of exponential smoothing

3) method of integration of the interval

4) the subtraction method

9. WHAT IS THE METHOD TO APPLY TO METHODS OF MATHEMATICAL TRANSFORMATION OF TIME SERIES?

1) method of integration of the interval

2) the subtraction method

3) logarithmic analysis method

4) the method of exponential smoothing

10. WHAT IS THE ESSENCE OF THE METHOD OF INTEGRATION OF INTERVALS?

1) Each level is replaced by an average of the same and neighboring levels

2) In calculating the average value of each aggregate period

3) In the summation of data for a number of adjacent levels

4) In obtaining the data difference for a number of adjacent levels

***Recitation***

1. Time series, types, mean for health service.

2. Indicators of dynamic series, calculation, analysis.

3. Transformation of time series.

***Case-task completion***

1. Align a time-series by a way of moving average, represent graphically the obtained data.

2. Calculate indicators of a time-series − an absolute growth, growth indicators, gain rate, obviousness indicators.

**Task 1.**

Tuberculosis prevalence per 100 thousand population in the Russian Federation

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| Disease | 57,8 | 67,5 | 73,9 | 84,2 | 81,5 | 78,3 | 65,6 | 66,7 | 66,8 | 68,0 |

**Task 2.**

Quantity dynamics of the children with complicated forms of pneumonia (atelectases, destruction), treated in pulmonological department

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
| Number of children with complicated course of pneumonia | 50 | 9 | 15 | 26 | 31 | 25 | 18 | 16 | 39 | 26 |

**Task 3.**

Dynamics of general mortality of the Stavropol Territory population

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
| The total death rate, | 13,2 | 13,1 | 12,8 | 13,4 | 13,9 | 14,0 | 14,6 | 14,9 | 14,3 | 14,4 |

**Task 4.**

Dynamics of a network of independent children's hospitals in the Russian Federation

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
| Children's hospitals, in total | 503 | 487 | 476 | 471 | 463 | 459 | 452 | 442 | 435 | 433 | 429 |

**Task 5.**

Development dynamics of day hospitals in system of the pediatric aid to children

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
| Number of children's day hospitals of all types | 160 | 165 | 206 | 224 | 264 | 300 | 401 | 423 | 457 | 489 |

**Task 6.**

Dynamics of an infantile death rate indicator in the Russian Federation

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| Infantile death rate per 1000 children, born alive | 18,1 | 17,4 | 17,2 | 16,5 | 16,9 | 15,3 | 14,6 | 13,2 | 12,4 | 11,6 |

**Task 7.**

Share of expenses for public health services in structure of expenses of the city budget

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
| Share of expenses, % | 17 | 16 | 13 | 12 | 10 | 8 | 9 | 8 | 7 | 6 |

**Problem 8.**

Dynamics of the newborns general morbidity in Stavropol Territory

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
| Morbidity, ‰ | 419 | 445 | 462 | 421 | 399 | 409 | 381 | 368 | 360 | 383 |

**Task 9.**

Dynamics of maternal mortality index in the Russian Federation per 100 thousand born alive

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| Level of maternal death rate | 54,9 | 68,1 | 32,2 | 44,0 | 44,2 | 39,7 | 36,5 | 33,6 | 31,9 | 23,4 |

**Task 10.**

Dynamics of primary disablement (per 100 thousand population of able-bodied age) in Stavropol Territory

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
| disablement level | 681 | 632 | 612 | 589 | 546 | 680 | 685 | 672 | 678 | 725 |

**Topic 4.** Correlation and regression analysis

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

1. WHAT IS A CORRELATION RELATIONSHIP?

1) describes the strong dependence of phenomena on the strictly defined amount.

2) The relationship in which changing one value can lead to a change in the other by different values.

2. ON THE DIRECTION CORRELATION RELATIONSHIP MAY BE

1) direct and reverse

2) strong and weak

3) parallel

4) only the inverse

5) positive and negative

3. STRENGTH CORRELATION RELATIONSHIP MAY BE

1) direct and reverse

2) strong, medium and weak

3) parallel

4) only the inverse

5) positive and negative

4. DIRECT CORRELATION RELATIONSHIP UNDERSTAND

SUCH CONTACT WHEN

1) increase (decrease) of one value corresponds to an increase

(decrease) associated with it another

2) an increase (decrease) in one value corresponds to a decrease

(increase) associated with it another

3) there is an increase in the value of the characteristic by some amount

4) the value of the characteristic decreases by some amount

5. AT THE VALUES OF THE CORRELATION COEFFICIENT 0 - 0.29 SAY OF

1) strong relationship

2) connections of medium strength

3) weak relationship

4) about its absence

5) its presence

6. AT THE CORRELATION FACTOR VALUES 0.3 - 0.69 SAY ABOUT

1) strong relationship

2) relationship of medium strength

3) weak relationship

4) about its absence

5) its presence

7. AT THE CORRELATION FACTOR VALUES 0.7 - 1.0 SAY ABOUT

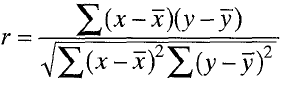
1) strong relationship

2) connections of medium strength

3) weak relationship

4) about its absence

5) its presence

8. WHAT COEFFICIENT IS CALCULATED BY THIS FORMULA? 

1) Kendall rank correlation coefficient

2) Spearman’s rank correlation coefficient

3) Pearson correlation coefficient

4) Coefficient of gamma

9. WHAT COEFFICIENT IS CALCULATED BY THIS FORMULA? 

1) Kendall rank correlation coefficient

2) Spearman’s rank correlation coefficient

3) Pearson correlation coefficient

4) Coefficient of gamma

10. WHY IS REGRESSION ANALYSIS NECESSARY?

1) it is determined by physical, mathematical and chemical phenomena. It can be represented in formulas.

2) It is necessary to identify the presence, strength and degree of influence of one or several factor quantitative characteristics on the resultant one.

***Recitation***

1. Relationship between factors. Types of statistical relationship: functional, correlation.
2. Coefficients of correlation (Pearson, Spearmen), calculation and assessment.
3. Linear and non-linear regression analysis.

***Case-task completion***

**Task 1.**

Is there a relation between the work experience at the machine-building enterprise and morbidity indicators of workers?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| The work experience | Up to 1 year | 1-3 years | 4-5 years | 6-10 years | 11-15 years | 16-20 years | 21-25 years | 26 and more |
| Number of cases of diseases per 100 workers | 59,6 | 41,9 | 40,8 | 64,7 | 64,7 | 77,5 | 83,6 | 112,8 |

**Task 2.**

Is there a relation between the age of flu patients and a death rate from this disease?

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age of the diseased in years | Under 1 year | 1-4 | 5-9 | 10-14 | 15-17 | 18-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61 and older |
| Death rate per 100000 persons | 68,3 | 57,7 | 55,9 | 24,7 | 55,9 | 42,1 | 67,9 | 86,6 | 89,4 | 106,7 | 158,2 |

**Task 3.**

Is there a relation between the age of men and a death rate

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age in years | 0-4 | 5-9 | 10-14 | 15-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65 and older |
| Death rate per 100000 persons | 801,0 | 272,0 | 194,7 | 296,8 | 624,1 | 922,8 | 2624,4 | 4324,5 | 9275,1 |

**Task 4.**

Is there a relation between a part of a contingent being often ill (OI) and age of children?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age in years | Under 1 year | 1-2 | 3-4 | 5-6 | 7-8 | 9-10 | 11-12 | 13-14 |
| Part of OI | 28,5 | 48,2 | 44,9 | 38,7 | 38,7 | 27,9 | 24,2 | 20,1 |

**Task 5.**

Is there a relation between age and frequency of sight infringement at children?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age in years | 0-3 | 4-5 | 6-7 | 8-9 | 10-11 | 12-13 | 14-15 | 16-17 |
| Infringements of sight, ‰ | 18,9 | 20,7 | 31,4 | 42,7 | 42,1 | 54,6 | 54,6 | 92,0 |

**Task 6.**

Is there a correlation between a serial number of a month of the year and frequency of the appeal for first and urgent medical aid concerning cardiovascular diseases by the population

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Month | January | February | March | April | May | June | July | August | September | October | November | December |
| Frequency of appeal for FUMA ‰ | 114,3 | 108,3 | 109,7 | 103,2 | 104,5 | 95,2 | 98,4 | 97,8 | 87,6 | 92,7 | 92,7 | 96,4 |

**Task 7.**

Is there a relation between the distance from a residence to the enterprise and the workers’ morbidity?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Distance in metres | To 500 m. | 600-1000 | 1100-3000 | 3100-4000 | 4100-5000 | 5100-7000 | 7100-9000 | 9100 and more |
| Workers’ morbidity % | 920,1 | 887,9 | 920,1 | 954,0 | 1286,3 | 1107,8 | 1510,8 | 1832,7 |

**Task 8.**

Is there a relation between the time passed from the onset of cholecystitis acute attack prior to the beginning of operation and frequency of postoperative complications?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time in hours | up to 3 hours | 3-5 | 6-8 | 9-11 | 12-14 | 15-17 | 18-20 | 21-23 | 24 and more |
| Frequency of complications in % | 8 | 8 | 12 | 19 | 20 | 24 | 21 | 35 | 46 |

**Task 9.**

Is there a relation between age group and frequency of suicides at men?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Age group of died, years | Under 20 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70 and older |
| Frequency of suicides per 100 thousand people | 4,1 | 28,5 | 43,8 | 54,8 | 54,8 | 48,2 | 75,5 |

**Task 10**.

Is there a relation between age group of men and prevalence of mental diseases?

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Age group, years | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70 and older |
| Morbidity of % | 16,2 | 35,4 | 31,2 | 8,1 | 10,2 | 35,0 | 31,4 | 53,1 | 58,8 | 30,5 | 19,2 |

**Evaluation criteria used in the current performance control, including in the control of independent work of students**

|  |  |
| --- | --- |
| **Monitoring form** | **Assessment criteria** |
| **Recitation** | On "FIVE POINTS" the answer is assessed, which shows solid knowledge of the main questions of the studied material, is distinguished by the depth and completeness of the disclosure of the topic; knowledge of the terminological apparatus; the ability to explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; fluency in monologue speech, consistency and consistency of the answer. |
| On "FOUR POINTS" the answer is assessed, which reveals a solid knowledge of the basic questions of the studied material, differs in the depth and completeness of the disclosure of the topic; knowledge of the terminological apparatus; the ability to explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; fluency in monologue speech, consistency and consistency of the answer. However, one or two inaccuracies in the answer are allowed. |
| On "THREE POINTS" the answer is assessed, which testifies mainly to the knowledge of the studied material, which is characterized by insufficient depth and completeness of the disclosure of the topic; knowledge of the basic issues of theory; poorly formed skills in analyzing phenomena, processes, insufficient ability to give reasoned answers and give examples; lack of fluency in monologue speech, logic and consistency of the answer. Several mistakes are allowed in the content of the answer. |
| On "TWO POINTS" the answer is assessed, revealing ignorance of the studied material, characterized by a shallow disclosure of the topic; ignorance of the main issues of theory, unformed skills in the analysis of phenomena, processes; inability to give reasoned answers, weak command of monologue speech, lack of consistency and consistency. Serious errors in the content of the answer are allowed. |
| ZERO POINTS" is given if there is no answer |
| **Testing** | "FIVE POINTS" is given on condition of 90-100% correct answers |
| "FOUR POINTS" is given on condition of 75-89% correct answers |
| "THREE POINTS" is given on condition of 60-74% correct answers |
| "TWO POINTS" is given on condition of 59% or less correct answers. |
| "ZERO POINTS" is given if there is no answer |
| **Practical skills** | "FIVE POINTS". The student has shown full knowledge of the program material, the workplace is equipped with all the requirements for preparation for performing manipulations; practical actions are performed sequentially in accordance with the algorithm for performing manipulations; all requirements for the safety of the patient and medical staff are observed; the time limit is observed; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological supervision; all actions are justified. |
| "FOUR POINTS". The student has shown complete knowledge of the program material, the workplace is not fully independently equipped to perform practical manipulations; practical actions are performed consistently, but not confidently; all requirements for the safety of the patient and medical staff are observed; time regulations are violated; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological regime; all actions are justified with clarifying questions of the teacher, made small mistakes or inaccuracies. |
| "THREE POINTS". The student showed knowledge of the basic program material in the amount necessary for the upcoming professional activity, but made no more than one fundamental mistake, the workplace is not fully equipped to perform practical manipulations; the sequence of their implementation is broken; unsure actions, leading and additional questions and comments of the teacher are needed to justify actions; all requirements for the safety of the patient and medical staff are observed; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological regime. |
| "TWO POINTS". The student discovered significant gaps in the knowledge of the practical skill algorithm, made more than one fundamental mistake, difficulties in preparing the workplace, the inability to independently perform practical manipulations; actions are taken that violate the safety of the patient and the medical staff, the requirements of the sanitary and epidemiological regime, safety measures when working with the equipment and materials used are violated. |
| "ZERO POINTS" is given if there is no answer |

**Module 3.** Public health

**Topic 1.** A technique of demographic processes studying

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

1. What are the main sections of the demography?

1) Natural and mechanical dynamics of the population

2) Statics and dynamics of the population.

3) Statics and migration of the population

4) Population structure by age and sex

5) Structure and migration of the population

**2.** The study of the region n. Showed the increase in the proportion of people of retirement age for last 15 years. What about prognosis of health care economists about changes of share of funding for health care in this region?

1) Reduction

2) Without changes

3) Considerable rise

4) Increase

5) Insignificant downcome

3. Dynamics is the section of demography to study:

1) Number and type of population

2) Mechanical and natural movement of the population

3) Reproduction of the population

4) Migration and birth rate

5) Natural movement of population and birth rate

4. Statics is the section of demography to study:

1) General and age-specific fertility

2) Geographical features of birth rate and structure of the population

3) Migration in different regions of the country

4) Number, composition and density of the population

5) Birth rate, mortality rate and reproduction of the population

5. Statistics of natural dynamics of population includes:

1) Natural increase, life expectancy at birth, morbidity rate, death rate

2) Birth rate, marriages, divorces, infant mortality rate, incidence rate

3) Birth rate, mortality rate, incidence rate, prevalence rate

4) Fertility, crude death rate, birth rate, pathological affection

5) Birth rate, mortality rate, population growth, life expectancy at birth

6. Determine the type of age structure of the population if the proportion of population from 0 to 14 is 30%, from 15 to 49 - 50% and 50 and older - 20%?

1) Intermediate

2) Progressive

3) Stationary

4) Regressive

5) Depopulation

7. To calculate crude birth rate need the following data:

1) Number of birth alive this year / Mid-year population.

2) Number of birth alive this year / Number of birth alive last year

3) Number of stillborn and birth alive this year / Number of birth alive this year

4) Number of stillborn and birth alive this year / Mid-year population

5) Mid-year population this year / Mid-year population last year

8. To calculate crude mortality rate need the following data:

1) Mid-year population this year / Mid-year population last year

2) Number of died people this year / Mid-year population.

3) Number of dead this year / Number of births this year

4) 2/3 dead this year + 1/3 dead previous year / Number of population

5) Number of dead this year + number of stillborn this year / Number of population

9. To calculate infant mortality rate need to use the following data:

1) No. of died before 1 week this year / No. of born alive this year

2) No. of died before 1 year this year / No. of born alive this year

3) No. of died before 1 month this year / No. of born alive this year

4) No. of born alive this year + number of born alive and died before 1 week / Mid-year population.

5) No. of died before 1 year this year / Mid-year population.

10. To calculate maternal mortality rate we need to use the following data:

1) No. of maternal deaths / Total number of pregnant women.

2) No. of maternal deaths / Total number of births.

3) No. of maternal deaths /Total number of live births

4) No. of maternal deaths / Total number of stillborn

5) No. of maternal deaths / Total number of fertile age women

***Recitation***

1. Medical demography, subject and its maintenance.
2. Statics of population, definition, significance for health service.
3. Population dynamics, definition, significance for health service.
4. Reproduction of population, types, indexes.
5. Mortality of population, indexes, methodic of calculation.
6. Infant mortality rate, age peculiarities, reasons.
7. Perinatal mortality rate. Fetal mortality rate, early neonatal rate, methodic of calculation.
8. Average life expectancy.

**Case-task completion**

**Calculate indicators of population natural dynamics:**

1.An indicator of birth rate, the general death rate, population natural increase.

2.An indicator of infant mortality, death rate of newborns, perinatal death rates, early neonatal death rates and mortinatality.

3.Define structure of the reasons of infant mortality.

4.Estimate demographic indicators on the basis of the accepted average levels.

5.Define the type of reproduction of the population, developed in settlement.

6.Compare the calculated demographic indicators for a year of account to corresponding indicators of a previous year.

7.Represent graphically the level of birth rate, the general death rate, population natural increase, structure of the reasons of infant mortality.

**Problem 1.**

In the city of V in a year of account the population consisted of 75100 persons, including 18500 children from 0 till 14 years old inclusive, and 38320 persons of able-bodied age. 900 children were born, 1200 persons have died, including 18 infants under 1 year of age (of them: aged under 1 month – 14, and at the first week of life – 11 persons). 8 children were born dead.

The number of died aged under 1 year was distributed by causes of death as follows: due to separate conditions of the perinatal period 11 children have died, with congenital anomalies – 4, with respiratory diseases – 2, by the other reasons –1.

*Demographic indicators of the previous year in the city of V.*

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Level | Indicator | Level |
| Number of the born | 850 people | Perinatal death rate | 16 ‰ |
| Birth rate | 11 ‰ | Early neonatal mortality | 10 ‰ |
| Death rate | 13 ‰ | Neonatal mortality | 12,3 ‰ |
| Natural increase | -2 ‰ | Mortinatality | 6,6 ‰ |
| Infant mortality | 17 ‰ |  |  |

**Problem 2.**

In the city of S the population numbered 35900 persons in accounting year, including 17900 persons of able-bodied age, and people older than able-bodied age – 9500 persons. 420 children were born, 510 persons have died, including 7 under 1 year old (of them: aged under 1 month – 6 infants, and at the first week of life – 5). Three children were born dead.

The number of died aged under 1 year was distributed by causes of death as follows: due to separate conditions of the perinatal period 5 children have died, with congenital anomalies − 1, with respiratory diseases - 1 have died.

*Demographic indicators of the previous year in the city of S.*

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Level | Indicator | Level |
| Number of the born | 450 people | Perinatal death rate | 16 ‰ |
| Birth rate | 11 ‰ | Early neonatal mortality | 10 ‰ |
| Death rate | 13,5 ‰ | Neonatal death rate | 13,3 ‰ |
| Natural increase | -2,5 ‰ | Mortinatality | 6,6 ‰ |
| Infant death rate | 17 ‰ |  |  |

**Problem 3.**

In the city of Nevinnomyssk in accounting year the population numbered 112000 persons, including 28900children from 0 till 14 years inclusive, and 55450 persons of able-bodied age 1030 children were born, 1500 persons have died, including 14 under 1 year (of them: aged under 1 month – 10, and at the first week of life - 9). 7 children were born dead.

The number died aged under 1 year was distributed by causes of death as follows: due to separate conditions of the perinatal period 10 children have died, with congenital anomalies – 2, with respiratory diseases − 1 have died, by the other reasons − 1 have died.

Demographic indicators of the previous year in the city of N.

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Level | Indicator | Level |
| Number of the born | 950 people | Perinatal death rate | 16 ‰ |
| Birth rate | 9,6 ‰ | Early neonatal mortality | 9 ‰ |
| Death rate | 13 ‰ | Neonatal death rate | 9,9 ‰ |
| Natural increase | -4,4 ‰ | Mortinatality | 6,9 ‰ |
| Infant death rate | 14 ‰ |  |  |

**Problem 4.**

In the city of Stavropol in accounting year the population numbered 420000 persons, including 96450 children from 0 till 14 years old inclusive, and 218400 persons of able-bodied age. 3700 children were born, 5900 persons have died, including 49 under 1 year old (of them: 38 aged under 1 month, and 33 ones at the first week of life. 17 children were born dead.

The number of died aged under 1 year was distributed by causes of death as follows: due to separate conditions of the perinatal period 27 children have died, with congenital anomalies − 9, with respiratory diseases − 7, by the other reasons − 6 have died.

*Demographic indicators of the previous year in the city of S.*

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Level | Indicator | Level |
| Number of the born | 3450 people | Perinatal death rate | 12,5 ‰ |
| Birth rate | 9,2 ‰ | Early neonatal mortality | 6,3 ‰ |
| Death rate | 15 ‰ | Neonatal death rate | 8,5 ‰ |
| Natural increase | -6,8 ‰ | Mortinatality | 6,2 ‰ |
| Infant death rate | 11,7 ‰ |  |  |

**Problem 5.**

In the city of I. in accounting year the population numbered 97100 persons, including 25500children from 0 till 14 years old inclusive, and 49120 persons of able-bodied age. 870 children were born, 1490 persons have died, including 15 under 1 year old (of them: 12 aged under 1 month, and at the first week of life − 11). 3 children were born dead.

The number of died aged under 1 year was distributed by causes of death as follows: due to separate conditions of the perinatal period 10 children have died, with congenital anomalies − 3, with respiratory diseases − 2 have died.

*Demographic indicators of the previous year in the city of I.*

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Level | Indicator | Level |
| Number of the born | 810 people | Perinatal death rate | 11,9 ‰ |
| Birth rate | 8,1 ‰ | Early neonatal mortality | 5,9 ‰ |
| Death rate | 16 ‰ | Neonatal death rate | 7,8 ‰ |
| Natural increase | -7,9 ‰ | Mortinatality | 3,3 ‰ |
| Infant death rate | 12,6 ‰ |  |  |

**Problem 6.**

In the city of Lermontov in accounting year the population numbered 25200 persons, including 6200 children from 0 till 14 years inclusive, and 12750 persons of able-bodied age. 262 children were born, 418 persons have died, including 6 under 1 year old (of them: 2 aged under 1 month, and 1 at the first week of a life). 2 children were born dead.

The number of died aged under 1 year was distributed by causes of death as follows: due to separate conditions of the perinatal period 3 children have died, with congenital anomalies − 2, with respiratory diseases - 1 have died.

*Demographic indicators of the previous year in the city of L.*

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Level | Indicator | Level |
| Number of the born | 258 people | Perinatal death rate | 18,4 ‰ |
| Birth rate | 10,1 ‰ | Early neonatal mortality | 10,6 ‰ |
| Death rate | 15,4 ‰ | Neonatal death rate | 12,1 ‰ |
| Natural increase | -5,3 ‰ | Mortinatality | 8,3 ‰ |
| Infant mortality | 18,6 ‰ |  |  |

**Problem 7.**

In the city of E. in accounting year the population has made 59100 persons, including 28900 persons of able-bodied age, and 15500 persons older than able-bodied age. 712 children were born, 850 persons have died, including 12 under 1 year old (of them: 7 aged under 1 month, and 6 at the first week of life). 6 children were born dead.

The number of died aged under 1 year was distributed by causes of death as follows: due to separate conditions of the perinatal period 6 children have died, with congenital anomalies − 3, with respiratory diseases − 2, by the other reasons − 1 have died.

*Demographic indicators of the previous year in the city of E.*

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Level | Indicator | Level |
| Number of the born | 697 people | Perinatal death rate | 16,6 ‰ |
| Birth rate | 11 ‰ | Early neonatal mortality | 12,4 ‰ |
| Death rate | 15,5 ‰ | Neonatal death rate | 13,3 ‰ |
| Natural increase | -4,5 ‰ | Mortinatality | 7,6 ‰ |
| Infant death rate | 17 ‰ |  |  |

**Problem 8.**

In the city of Kislovodsk in accounting year the population numbered 134720 persons, including 67800 persons of able-bodied age, and 34900 persons of older than able-bodied age. 1077 children were born, 1750 persons have died, including 10 infants under 1 year old (of them: 8 aged under 1 month, and 5 infants at the first week of life). 7 children were born dead.

The number of died aged under 1 year was distributed by causes of death as follows: due to separate conditions of the perinatal period 6 children have died, with congenital anomalies − 2, with respiratory diseases − 1 have died, by the other reasons − 1 have died.

*Demographic indicators of the previous year in the city of K.*

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Level | Indicator | Level |
| Number of the born | 1056 people | Perinatal death rate | 10,6 ‰ |
| Birth rate | 7,4 ‰ | Early neonatal mortality | 6,4 ‰ |
| Death rate | 13,5 ‰ | Neonatal death rate | 7,3 ‰ |
| Natural increase | -6,1 ‰ | Mortinatality | 4,6 ‰ |
| Infant death rate | 13 ‰ |  |  |

**Topic 2.** Method of study and estimation of indexes of general morbidity

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

**1. WHAT MEANS PREVALENCE RATE?**

**1) The total number of cases of a disease in a given population at a specific time**

2) The share of diseases among the population

3) The changes of incidence rate over time

4) The number of new cases of a disease within a time period

5) The presence of socially important diseases**2. TO CALCULATE INCIDENCE RATE THE FOLLOWING DATA ARE USED:**

1) The number of diseases for the previous year / the number of diseases this year.

2) Diseases detected during medical examinations / Mid-year population.

3) The number of new cases of a disease within a time period / The total number of cases of a disease in a given population at a specific time

4) The total number of cases of a disease in a given population at a specific time/ Mid-year population

5) The number of new cases of a disease within a time period / Mid-year population

**3. TO CALCULATE POINT PREVALENCE RATE THE FOLLOWING DATA ARE USED:**

1) The total number of cases of a disease in a given population at a specific time/ Mid-year population

2) Diseases and premorbid conditions detected during medical examinations / number of examined people

3) The number of new cases of a disease within a time period / Mid-year population

4) The number of diseases for the previous year / the number of diseases this year.

5) The number of new cases of a disease within a time period / the total number of cases of a disease in a given population at a specific time

**4.** **TO CALCULATE MORBIDITY STRUCTURE THE FOLLOWING DATA ARE USED:**

1) Total number of diseases / mid-year population

2) Total number of diseases this year / mid-year population

3) The cases of the particular disease / total number of diseases

4) Total number of all diseases this year / total number of diseases for previous year

5) Diseases detected during medical examinations this year / the number of complaints about the disease this year

**5. WHAT INDEX WE CAN CALCULATE IF THE TOTAL NUMBER OF DISEASES IN POPULATION IS DIVIDED INTO MID-YEAR POPULATION AND MULTIPLY BY 1000?**

1) Point prevalence rate

2) Incidence rate

3) Prevalence rate

4) Structure of morbidity

5) Standardized index

**6. WHICH SOURCE OF INFORMATION TO STUDY MORBIDITY WILL ALLOW PRIMARY CARE PHYSICIAN TO TAKE GREATER ACCOUNT OF THE INCIDENCE OF ACUTE DISEASES?**

1) Data of patient visits to a doctor in medical institutions

2) Data of special selective studies

3) Data about causes of death

4) Survey of the population

5) Data of medical examinations

**7. WHAT ARE THE MAIN SOURCES TO STUDY MORBIDITY?**

1) Appealability in medical facilities, data of medical examinations, and data of death causes

2) Data of death causes, data of medical records, data of survey

3) Data of medical examinations, data of survey, data of outpatient cards

4) Data of the census, data of polyclinic visits, data of medical records

5) Admission data, data of census, data of press reports

**8. WHICH OF THE FOLLOWING INDICES DOES NOT APPLY TO MORBIDITY?**

1) Incidence rate

2) Prevalence rate

3) Point prevalence rate

4) Crude mortality rate

5) The structure of morbidity

**9. WHAT IS THE BEST SOURCE TO STUDY MORBIDITY WITH AIM OF MAXIMAL REGISTRATION OF "ACUTE" DISEASES?**

1) Data of visits to medical establishments

2) Epidemiological study

3) Medical examinations

4) Population surveys

5) Data of death causes

**10. WHAT IS THE BEST SOURCE TO STUDY MORBIDITY WITH AIM OF MAXIMAL REGISTRATION OF "CHRONIC" DISEASES?**

1) Data of visits to medical establishments

2) Epidemiological study

3) Medical examinations

4) Population surveys

5) Data of death causes

***Recitation***

1. Basic terminology of morbidity. A role and place of morbidity in the system of indexes of health of population.
2. Methods of study and types of morbidity.
3. Registration and current documents, that are used at the study of morbidity from data of official statistics, rule of their filling and account.
4. Basic data, necessary for the calculation of indexes of morbidity.
5. International classification of illnesses of traumas and reasons of death of tenth revision (ICI-10): principles of construction and value for the study of morbidity.

***Case-task completion***

**Task 1.**

The number of children in the Adamovsky district of the Orenburg region in 2017 was 6081 people. The table presents data on the number of diseases in the class "Diseases of the eye and its adnexa" among the children population. Calculate the incidence and prevalence of eye diseases in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| diseases of the eye and its adnexa | H00-H59 | 544 | 243 |
| of them:  conjunctivitis | Н10 | 48 | 48 |
| myopia | H52.1 | 122 | 47 |
| astigmatism | H52.2 | 47 | 2 |
| diseases of the eye muscles, disturbance of the friendly movement of the eyes, accommodation and refraction | H49-H52 | 59 | 59 |

**Task 2.**

The number of children in the Adamovsky district of the Orenburg region in 2017 was 6081 people. The table presents data on the number of diseases in the class "Diseases of the digestive system" among the children population. Calculate the incidence and prevalence of digestive system diseases in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| diseases of the digestive system | K00-K92 | 503 | 412 |
| of them:  gastritis and duodenitis | K29 | 38 | 14 |
| non-infectious enteritis and colitis | K50-K52 | 124 | 124 |
| liver disease | K70-K76 | 27 | 25 |

**Task 3.**

The number of children in the Adamovsky district of the Orenburg region in 2017 was 6081 people. The table presents data on the number of diseases in the class "Endocrine, nutritional and metabolic diseases" among the children population. Calculate the incidence and prevalence in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| Endocrine, nutritional and metabolic diseases | Е00-Е89 | 128 | 16 |
| of them:  thyroid disease | Е00-Е07 | 108 | 13 |
| diabetes | Е10-Е14 | 5 | 1 |
| obesity | E66 | 8 | 2 |

**Task 4.**

The number of adults in the Abdulinsky district of the Orenburg region in 2017 was 20628 people. The table presents data on the number of diseases in the class "Circulatory system diseases" among the adult population. Calculate the incidence and prevalence in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| Circulatory system diseases | I00-I99 | 5049 | 631 |
| of them:  diseases characterized by high blood pressure | I10-I13 | 2639 | 56 |
| ischemic heart disease | I20- I25 | 918 | 201 |
| cerebrovascular diseases | I60-I69 | 728 | 238 |

**Task 5.**

The number of adults in the Abdulinsky district of the Orenburg region in 2017 was 20628 people. The table presents data on the number of diseases in the class "Respiratory diseases " among the adult population. Calculate the incidence and prevalence in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| Respiratory diseases | J00-J98 | 3146 | 2013 |
| of them:  acute respiratory infections of the upper respiratory tract | J00-J06 | 1585 | 1585 |
| pneumonia | J12-J18 | 102 | 102 |
| chronic diseases of the tonsils and adenoids, peritonsillar  abscess | J35- J36 | 137 | 12 |
| chronic and unspecified bronchitis, emphysema | J40-J43 | 191 | 5 |

**Task 6.**

The number of adults in the Abdulinsky district of the Orenburg region in 2017 was 20628 people. The table presents data on the number of diseases in the class "Diseases of the genitourinary system " among the adult population. Calculate the incidence and prevalence in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| diseases of the genitourinary system | N00-N99 | 3310 | 1773 |
| of them:  glomerular, tubulointerstitial diseases of the kidneys, other diseases of the kidney and ureter | N00-N15, N25-N28 | 587 | 22 |
| urolithiasis disease | N20- N21, N23 | 136 | 28 |
| prostate disease | N40-N42 | 45 | 17 |
| Female pelvic inflammatory disease | N70-N77 | 1061 | 769 |

**Task 7.**

The number of adults in the Abdulinsky district of the Orenburg region in 2017 was 20628 people. The table presents data on the number of diseases in the class "Diseases of the musculoskeletal system and connective tissue" among the adult population. Calculate the incidence and prevalence in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| diseases of the musculoskeletal system and connective tissue | M00-M99 | 2435 | 326 |
| of them:  arthropathy | М00-М25 | 1059 | 131 |
| deforming dorsopathies | M40-M43 | 790 | 25 |
| lesions of the synovial membranes and tendons | М65-М68 | 43 | 29 |
| osteopathy and chondropathy | M80-M94 | 29 | 7 |

**Task 8.**

The number of adults in the Buzuluk district of the Orenburg region in 2017 was 23020 people. The table presents data on the number of diseases in the class "Diseases of the musculoskeletal system and connective tissue" among the adult population. Calculate the incidence and prevalence in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| diseases of the musculoskeletal system and connective tissue | M00-M99 | 2928 | 774 |
| of them:  arthropathy | М00-М25 | 613 | 97 |
| deforming dorsopathies | M40-M43 | 654 | 121 |
| lesions of the synovial membranes and tendons | М65-М68 | 41 | 8 |
| osteopathy and chondropathy | M80-M94 | 42 | 8 |

**Task 9.**

The number of adults in the Buzuluk district of the Orenburg region in 2017 was 23020 people. The table presents data on the number of diseases in the class "Respiratory diseases " among the adult population. Calculate the incidence and prevalence in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| Respiratory diseases | J00-J98 | 5647 | 4156 |
| of them:  acute respiratory infections of the upper respiratory tract | J00-J06 | 3188 | 3188 |
| pneumonia | J12-J18 | 273 | 273 |
| chronic diseases of the tonsils and adenoids, peritonsillar  abscess | J35- J36 | 25 | 12 |
| chronic and unspecified bronchitis, emphysema | J40-J43 | 567 | 20 |

**Task 10.**

The number of adults in the Buzuluk district of the Orenburg region in 2017 was 23020 people. The table presents data on the number of diseases in the class "Diseases of the genitourinary system " among the adult population. Calculate the incidence and prevalence in general and for individual nosological forms. Calculate the proportion of individual diseases in the structure of incidence and prevalence. Make and write conclusion.

| Name of classes and individual diseases | ICD-10 code | Registered patients with this disease | |
| --- | --- | --- | --- |
| TOTAL | including the diagnosis established for the first time in life |
| 1 | 2 | 3 | 4 |
| diseases of the genitourinary system | N00-N99 | 4350 | 1179 |
| of them:  glomerular, tubulointerstitial diseases of the kidneys, other diseases of the kidney and ureter | N00-N15, N25-N28 | 618 | 179 |
| urolithiasis disease | N20- N21, N23 | 272 | 126 |
| prostate disease | N40-N42 | 285 | 46 |
| Female pelvic inflammatory disease | N70-N77 | 247 | 73 |

**Evaluation criteria used in the current performance control, including in the control of independent work of students**

|  |  |
| --- | --- |
| **Monitoring form** | **Assessment criteria** |
| **Recitation** | On "FIVE POINTS" the answer is assessed, which shows solid knowledge of the main questions of the studied material, is distinguished by the depth and completeness of the disclosure of the topic; knowledge of the terminological apparatus; the ability to explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; fluency in monologue speech, consistency and consistency of the answer. |
| On "FOUR POINTS" the answer is assessed, which reveals a solid knowledge of the basic questions of the studied material, differs in the depth and completeness of the disclosure of the topic; knowledge of the terminological apparatus; the ability to explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; fluency in monologue speech, consistency and consistency of the answer. However, one or two inaccuracies in the answer are allowed. |
| On "THREE POINTS" the answer is assessed, which testifies mainly to the knowledge of the studied material, which is characterized by insufficient depth and completeness of the disclosure of the topic; knowledge of the basic issues of theory; poorly formed skills in analyzing phenomena, processes, insufficient ability to give reasoned answers and give examples; lack of fluency in monologue speech, logic and consistency of the answer. Several mistakes are allowed in the content of the answer. |
| On "TWO POINTS" the answer is assessed, revealing ignorance of the studied material, characterized by a shallow disclosure of the topic; ignorance of the main issues of theory, unformed skills in the analysis of phenomena, processes; inability to give reasoned answers, weak command of monologue speech, lack of consistency and consistency. Serious errors in the content of the answer are allowed. |
| ZERO POINTS" is given if there is no answer |
| **Testing** | "FIVE POINTS" is given on condition of 90-100% correct answers |
| "FOUR POINTS" is given on condition of 75-89% correct answers |
| "THREE POINTS" is given on condition of 60-74% correct answers |
| "TWO POINTS" is given on condition of 59% or less correct answers. |
| "ZERO POINTS" is given if there is no answer |
| **Practical skills** | "FIVE POINTS". The student has shown full knowledge of the program material, the workplace is equipped with all the requirements for preparation for performing manipulations; practical actions are performed sequentially in accordance with the algorithm for performing manipulations; all requirements for the safety of the patient and medical staff are observed; the time limit is observed; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological supervision; all actions are justified. |
| "FOUR POINTS". The student has shown complete knowledge of the program material, the workplace is not fully independently equipped to perform practical manipulations; practical actions are performed consistently, but not confidently; all requirements for the safety of the patient and medical staff are observed; time regulations are violated; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological regime; all actions are justified with clarifying questions of the teacher, made small mistakes or inaccuracies. |
| "THREE POINTS". The student showed knowledge of the basic program material in the amount necessary for the upcoming professional activity, but made no more than one fundamental mistake, the workplace is not fully equipped to perform practical manipulations; the sequence of their implementation is broken; unsure actions, leading and additional questions and comments of the teacher are needed to justify actions; all requirements for the safety of the patient and medical staff are observed; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological regime. |
| "TWO POINTS". The student discovered significant gaps in the knowledge of the practical skill algorithm, made more than one fundamental mistake, difficulties in preparing the workplace, the inability to independently perform practical manipulations; actions are taken that violate the safety of the patient and the medical staff, the requirements of the sanitary and epidemiological regime, safety measures when working with the equipment and materials used are violated. |
| "ZERO POINTS" is given if there is no answer |

Module 4. Health Care Organization.

Topic 1. Primary health care. Organization of outpatient care

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

**1. PRIMARY HEALTH CARE (PHC) MAY BE GRANTED IN THE FOLLOWING CONDITIONS:**

1) Outpatiently and in day hospital

2) Outpatiently, in day hospital and at home

3) In medical establishments, outpatiently and in a hospital

4) Outpatiently and in a hospital

**2. WHICH SPECIALISTS PROVIDE PRIMARY HEALTH CARE?**

1) Only doctors who conduct ambulatory appointments

2) Doctors and nurses working in a hospital.

3) General practitioners, nurses and other doctors providing medical care to the population on an outpatient basis and at home

4) Doctors and nurses working out-patient and in the emergency medical service

**3. WHAT TYPES OF MEDICAL CARE ARE PROVIDED TO THE POPULATION IN A CITY POLYCLINIC?**

1) Primary health care and specialized care

2) Primary care, specialized care including high technological medical care

3) Emergency care and palliative medical care

4) Primary health care and emergency care

5) Primary health care including primary pre-medical, primary care and primary specialized care

**4.** **DESCRIBE THE MAIN PRINCIPLES OF OUTPATIENT CARE IN RUSSIAN FEDERATION:**

1) District principle of service, continuity and stages, prevention priority, availability

2) Preventive focus, professionalism, compassion, accessibility

3) Сontinuity and stages, preventive orientation, professionalism

4) Preventive orientation, compassion, accessibility

5) Professionalism, preventive orientation, availability, compassion

**5. WHAT DEPARTMENTS ARE INCLUDED IN THE POLYCLINIC?**

1) Registration, doctors' offices, an ambulance station, auxiliary medical diagnostic units.

2) Registration, outpatient clinics, inpatient.

3) Registration, doctors' offices, auxiliary diagnostic units, auxiliary medical units

**6. GIVE A DEFINITION OF THE CONCEPT OF "PRIMARY HEALTH CARE"**

1) PHC is the first level of contact of individuals, families and communities with the national health system

2) PHC is the first medical aid provided at the pre-medical level

3) PHC is a complex of measures to provide emergency (emergency and urgent) care

**7. OBJECTIVES OF AMBULATORY-POLYCLINIC ASSISTANCE ARE ALL, EXCEPT**

1) assisting the attached population

2) servicing of industrial workers

3) preventive and dispensary work

4) the examination of persistent disability

**8. THE SECTIONS OF THE WORK OF THE DISTRICT DOCTOR ARE ALL LISTED EXCEPT**

1) prevention

2) treatment

3) coordination of work between the structural units of the polyclinic

4) rehabilitation

5) palliative care

**9. THE MAIN SECTIONS OF THE DOCTOR'S WORK, WHICH PROVIDES SPECIALIZED ASSISTANCE IN THE POLYCLINIC, ARE ALL LISTED EXCEPT**

1) medical-diagnostic work

2) advisory work

3) carrying out preventive measures according to their profile

4) control over the activities of a district doctor

**10. WHICH OF THE INDICATORS IS NOT USED IN THE ANALYSIS OF THE POLYCLINIC?**

1) Staffing of medical posts in a polyclinic

2) Indicators of morbidity of the population living in area of service of out-patient-polyclinic establishment

3) Share of preventive visits in a polyclinic

4) Share of visits in-home

5) Hospitalization level

**Recitation:**

1. Definition of a concept primary health care. Basic elements and principles of primary health care.
2. System of organization of ambulatory-polyclinic help. Structure and functions of city hospital – polyclinic.
3. Maintenance of work of district doctor.
4. General practitioner; main tasks, organization of activity.
5. Main kinds of report documentation of city hospital. Basic indexes of activity of polyclinic.

***Case-task completion***

Topic: primary health care. Organization of outpatient care

**Exercise 1**

The number of adults in the Bezuluksky district of the Orenburg region in 2017 was 23020 people. The number of children in the Buzuluk district of the Orenburg region in 2017 was 19413 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 58.75 | 55.75 | 47 |
| Therapists | 13 | 13 | 12 |
| Pediatricians | 7 | 7 | 6 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 38973 | 2027 | 26969 | 12004 |
| Pediatricians | 26330 | 4036 | 17851 | 8479 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).
5. Make and write a conclusion about the work of the doctors of the polyclinic.

**Exercise 2**

The number of adults in the Abdulinsky district of the Orenburg region in 2017 was 20628 people. The number of children in the Abdulinsky district of the Orenburg region in 2017 was 5535 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 57 | 52 | 39 |
| Therapists | 9 | 7,5 | 7 |
| Pediatricians | 8,5 | 7 | 6 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 26131 | 4327 | 21080 | 5051 |
| Pediatricians | 28258 | 3171 | 16644 | 11614 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).
5. Make and write a conclusion about the work of the doctors of the polyclinic.

**Exercise 3**

The number of adults in the Adamovsky district of the Orenburg region in 2017 was 17007 people. The number of children in the Adamovsky district of the Orenburg region in 2017 was 6081 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 59 | 38,5 | 29 |
| Therapists | 5 | 4 | 4 |
| Pediatricians | 6 | 3 | 3 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 20863 | 870 | 14990 | 5873 |
| Pediatricians | 17249 | 1223 | 9411 | 7838 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).
5. Make and write a conclusion about the work of the doctors of the polyclinic.

**Exercise 4**

The number of adults in the Akbulak district of the Orenburg region in 2017 was 18196 people. The number of children in the Akbulak district of the Orenburg region in 2017 was 6594 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 52.75 | 47 | 42 |
| Therapists | 11 | 10,5 | 10 |
| Pediatricians | 7 | 7 | 7 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 57789 | 3315 | 24339 | 33450 |
| Pediatricians | 59449 | 127 | 19283 | 40166 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).
5. Make and write a conclusion about the work of the doctors of the polyclinic.

**Exercise 5**

The number of adults in the Alexandrovsky district of the Orenburg region in 2017 was 10753 people. The number of children in the Alexandrovsky district of the Orenburg region in 2017 was 3275 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 43,5 | 35,5 | 34 |
| Therapists | 6 | 6 | 6 |
| Pediatricians | 5 | 5 | 5 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 25248 | 457 | 10104 | 15144 |
| Pediatricians | 25620 | 2535 | 12482 | 13138 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).
5. Make and write a conclusion about the work of the doctors of the polyclinic.

**Exercise 6**

The number of adults in the Asekeevsky district of the Orenburg region in 2017 was 14301 people. The number of children in the Asekeevsky district of the Orenburg region in 2017 was 3585 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 39 | 35 | 24 |
| Therapists | 6 | 6 | 4 |
| Pediatricians | 4 | 4 | 4 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 16196 | 365 | 11540 | 4656 |
| Pediatricians | 20530 | 750 | 10652 | 9878 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).

Make and write a conclusion about the work of the doctors of the polyclinic.

**Exercise 7**

The number of adults in the Belyaevsky district of the Orenburg region in 2017 was 11939 people. The number of children in the Belyaevsky district of the Orenburg region in 2017 was 3767 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 31,5 | 30 | 25 |
| Therapists | 5 | 4,5 | 4 |
| Pediatricians | 5 | 5 | 5 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 28711 | 1057 | 22577 | 6134 |
| Pediatricians | 29115 | 778 | 21275 | 7840 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).
5. Make and write a conclusion about the work of the doctors of the polyclinic.

**Exercise 8**

The number of adults in the Buguruslansky district of the Orenburg region in 2017 was 13743 people. The number of children in the Buguruslansky district of the Orenburg region in 2017 was 3963 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 50,25 | 47,75 | 37 |
| Therapists | 8 | 8 | 8 |
| Pediatricians | 6 | 5 | 5 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 31968 | 858 | 25530 | 6438 |
| Pediatricians | 21808 | 926 | 15756 | 6052 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).
5. Make and write a conclusion about the work of the doctors of the polyclinic.

**Exercise 9**

The number of adults in the Buzuluksky district of the Orenburg region in 2017 was 23020 people. The number of children in the Buzuluksky district of the Orenburg region in 2017 was 7115 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 58.75 | 55.75 | 47 |
| Therapists | 11 | 11 | 11 |
| Pediatricians | 7 | 7 | 6 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 38973 | 2027 | 26969 | 12004 |
| Pediatricians | 26330 | 4036 | 17851 | 8479 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).
5. Make and write a conclusion about the work of the doctors of the polyclinic.

**Exercise 10**

The number of adults in the Gaysky district of the Orenburg region in 2017 was 34017 people. The number of children in the Gaysky district of the Orenburg region in 2017 was 10094 people. Table 1 presents data on the medical staff of the clinic.

Table 1.

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the post | Established staff | Employed staff | Physical persons doctors |
| Doctors of all | 122.75 | 122.25 | 71 |
| Therapists | 20 | 20 | 10 |
| Pediatricians | 10 | 10 | 7 |

1. Calculate the provision of the population of the district with doctors in general, as well as therapists and pediatricians (standard of provision for doctors of all specialties is 9.6 per 10,000 of the total population; for therapists - 5.9 per 10,000 adult population; for pediatricians - 12.5 per 10,000 children).
2. Calculate the average number of adults and children per 1 district doctor (standard for therapists - 1700 adults; for pediatricians – 800 children).
3. Calculate the indicators of staffing with medical personnel.
4. Calculate indicators of part-time job.
5. Make and write a conclusion about the state of the medical staff in the district clinic.

Table 2 shows data on the work of the clinics' doctors.

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of the post | Total number of doctor visits | Number of home patient visits | Number of doctor visits for illnesses | The number of visits with the preventive purpose |
| Therapists | 61496 | 6102 | 48430 | 13066 |
| Pediatricians | 71839 | 10786 | 30054 | 41785 |

1. Calculate attendance rates (average number of visits per resident per year) of therapists and pediatricians.
2. Calculate the proportion of patient visits at home.
3. Calculate the proportion of visits related to diseases and prophylactic purposes.
4. Calculate the load per doctor (In norm the planned loading makes: the local therapist (pediatrician) - 5500-6000).
5. Make and write a conclusion about the work of the doctors of the polyclinic.

Topic 2. Organization of the in-patient aid to the population. Indicators of hospital activity

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

**1. The tasks of the city hospital are all listed except:**

1) diagnosis and treatment of diseases, care, rehabilitation and emergency care

2) medical and recreational activities, prevention of complications, chronic and infectious diseases, disability, etc.

3) examination of a permanent loss of work incapable of work and recognition of a patient with a disability

4) training of medical personnel and his postgraduate specialization

5) research activities

**2. The structure of the city hospital does not include:**

1) admission office

2) research department

3) profiled medical departments

4) operational unit.

5) department of morbid anatomy

**3. The patient may be hospitalized in a hospital**

1) at self-referral to the admissions office

2) if there is a referral for hospitalization

3) when delivered by a brigade of ambulance services

4) all of the above is true

**4. Hospital report includes data about number of operated patients and number of deaths after surgery. Which efficiency index of inpatient care can be calculated on the basis of these** **data?**

1) Admission rate

2) Standardized lethality rate

3) General lethality rate

4) Postoperative mortality rate

5) Postoperative lethality rate

**5. Lethality rate is used to analyze:**

1) Efficiency of inpatient care

2) Morbidity

3) Bed fund

4) Efficiency of outpatient care

5) Natural dynamics of population

**6. What indicators can be defined when we have: population number, total amount of hospitalized patients and on separate nosologies?**

1) General morbidity and its structure on specific nosologies

2) Incidence rate in hospitals

3) Admission rate in the whole and on specific nosologies

4) Incidence rate structure on disease classes

**7. Lethality rate is indicator which characterizes:**

1) Morbidity rate

2) Work of the polyclinic

3) Natural dynamics of population

4) Hospital activities

**8. Which indicators are used to analyze satisfaction of population in inpatient care?**

1) Bed population ratio; structure of bed fund

2) Admission rate; inpatient care sufficiency

3) Inpatient lethality rate

4) frequency of refusals in hospitalization

5) Timeliness of hospitalization; bed use

**9. Indicate basic functions of inpatient facilities according to WHO:**

1) Medical and rehabilitative, preventive and anti-epidemic, educative and research

2) Preventive, emergency care, research, educative

3) Therapeutic, anti-epidemic, informational, educative

4) Dispensarization, medical, preventive, emergency care

5) Medical, statistical, educative, research

**10. Specify basic forms of inpatient primary medical records:**

1) "Inpatient medical card"; "Outpatient medical card"

2) "Medical death certificate"; "Vaccination card"

3) "Statistical coupon"; "Extract from inpatient medical card"

4) "Inpatient medical card"; "Statistical card of the patient discharged hospital"

5) "Control card of dispensary observation"; "Inpatient medical card

**Recitation:**

1. The organization of in-patient (hospital) aid to urban population. Classification, the main organization-methodical principles of work and tasks of a hospital.
2. The structure and tasks of a city hospital inpatient department.
3. Organization of activity of reception of hospital
4. Functional duties of the doctor of a hospital.
5. Name the basic indicators of inpatient activity.

**Case-task completion**

Calculate the use of hospital bed capacity. Give them an assessment.

**Problem 1**

DATA OF THE ANNUAL REPORT OF THE MEDICAL ORGANIZATION

***Abdulinsky district***

Number of served population

|  |  |
| --- | --- |
| **Total (people)** | **25599** |
| Children (aged 0-17) | 5351 |
| Adults | 20248 |

Data on the use of hospital beds

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Bed profile | Number of beds | hospitalized patients - total | patients discharged | died | spent by patients days |
| **Total** | **134** | **4211** | **4137** | **100** | **41009** |

**Problem 2**

DATA OF THE ANNUAL REPORT OF THE MEDICAL ORGANIZATION

***Adamovsky district***

Number of served population

|  |  |
| --- | --- |
| **Total (people)** | **23237** |
| Children (aged 0-17) | 5582 |
| Adults | 17655 |

Data on the use of hospital beds

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Bed profile | Number of beds | hospitalized patients - total | patients discharged | died | spent by patients days |
| **Total** | **117** | **3669** | **3613** | **43** | **31876** |

**Problem 3**

DATA OF THE ANNUAL REPORT OF THE MEDICAL ORGANIZATION

***Akbulaksky district***

Number of served population

|  |  |
| --- | --- |
| **Total (people)** | **25473** |
| Children (aged 0-17) | 6316 |
| Adults | 19157 |

Data on the use of hospital beds

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Bed profile | Number of beds | hospitalized patients - total | patients discharged | died | spent by patients days |
| **Total** | **115** | **3891** | **3867** | **49** | **30145** |

**Problem 4**

DATA OF THE ANNUAL REPORT OF THE MEDICAL ORGANIZATION

***Belyaevsky district***

Number of served population

|  |  |
| --- | --- |
| **Total (people)** | **16152** |
| Children (aged 0-17) | 3405 |
| Adults | 12747 |

Data on the use of hospital beds

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Bed profile | Number of beds | hospitalized patients - total | patients discharged | died | spent by patients days |
| **Total** | **72** | **2406** | **2423** | **20** | **22270** |

**Problem 5**

DATA OF THE ANNUAL REPORT OF THE MEDICAL ORGANIZATION

***Gay district***

Number of served population

|  |  |
| --- | --- |
| **Total (people)** | **47391** |
| Children (aged 0-17) | **10103** |
| Adults | **37288** |

Data on the use of hospital beds

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Bed profile | Number of beds | hospitalized patients - total | patients discharged | died | spent by patients days |
| **Total** | **240** | **8684** | **8554** | **170** | **85018** |

Topic 3. **PUBLIC HEALTH PROBLEMS IN INDIA**

Practical сlass are conducted in the form of a conference. The student should prepare a presentation and a text of the report on one of the proposed topics.

**Sample topics for the report:**

1. Problems of the size and composition of the population in India. State demographic policy.
2. Fertility and mortality in India. State and dynamics of processes.
3. Morbidity of the population of India. Method of study. Status and main trends.
4. Disability of the population and organization of rehabilitation in India.
5. The basic characteristics of the health care system in India.
6. Health system management in India.
7. Financing Health in India.
8. The primary health care in India.
9. Organization of ambulatory care in India.
10. Organization of the in-patient aid in India.
11. Protection of motherhood and infancy in India.
12. The organization of the out-patient-polyclinic obstetric-gynecologic aid in India.
13. Organization of the treatment-and-prophylactic aid to children in India.
14. Medical prophylaxis in India.
15. The organization of the treatment-and-prophylactic aid to rural population in India.
16. Medical examination of disability and invalidity in India.

***Reports can also be devoted to other topics of public health and care. May provide for a detailed discussion of individual parts of the proposed topics. The topics are pre-approved by the teacher.***

Evaluation criteria used in the current performance control, including in the control of independent work of students

|  |  |
| --- | --- |
| **Monitoring form** | **Assessment criteria** |
| **Recitation** | On "FIVE POINTS" the answer is assessed, which shows solid knowledge of the main questions of the studied material, is distinguished by the depth and completeness of the disclosure of the topic; knowledge of the terminological apparatus; the ability to explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; fluency in monologue speech, consistency and consistency of the answer. |
| On "FOUR POINTS" the answer is assessed, which reveals a solid knowledge of the basic questions of the studied material, differs in the depth and completeness of the disclosure of the topic; knowledge of the terminological apparatus; the ability to explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; fluency in monologue speech, consistency and consistency of the answer. However, one or two inaccuracies in the answer are allowed. |
| On "THREE POINTS" the answer is assessed, which testifies mainly to the knowledge of the studied material, which is characterized by insufficient depth and completeness of the disclosure of the topic; knowledge of the basic issues of theory; poorly formed skills in analyzing phenomena, processes, insufficient ability to give reasoned answers and give examples; lack of fluency in monologue speech, logic and consistency of the answer. Several mistakes are allowed in the content of the answer. |
| On "TWO POINTS" the answer is assessed, revealing ignorance of the studied material, characterized by a shallow disclosure of the topic; ignorance of the main issues of theory, unformed skills in the analysis of phenomena, processes; inability to give reasoned answers, weak command of monologue speech, lack of consistency and consistency. Serious errors in the content of the answer are allowed. |
| ZERO POINTS" is given if there is no answer |
| **Testing** | "FIVE POINTS" is given on condition of 90-100% correct answers |
| "FOUR POINTS" is given on condition of 75-89% correct answers |
| "THREE POINTS" is given on condition of 60-74% correct answers |
| "TWO POINTS" is given on condition of 59% or less correct answers. |
| "ZERO POINTS" is given if there is no answer |
| **Practical skills** | "FIVE POINTS". The student has shown full knowledge of the program material, the workplace is equipped with all the requirements for preparation for performing manipulations; practical actions are performed sequentially in accordance with the algorithm for performing manipulations; all requirements for the safety of the patient and medical staff are observed; the time limit is observed; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological supervision; all actions are justified. |
| "FOUR POINTS". The student has shown complete knowledge of the program material, the workplace is not fully independently equipped to perform practical manipulations; practical actions are performed consistently, but not confidently; all requirements for the safety of the patient and medical staff are observed; time regulations are violated; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological regime; all actions are justified with clarifying questions of the teacher, made small mistakes or inaccuracies. |
| "THREE POINTS". The student showed knowledge of the basic program material in the amount necessary for the upcoming professional activity, but made no more than one fundamental mistake, the workplace is not fully equipped to perform practical manipulations; the sequence of their implementation is broken; unsure actions, leading and additional questions and comments of the teacher are needed to justify actions; all requirements for the safety of the patient and medical staff are observed; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological regime. |
| "TWO POINTS". The student discovered significant gaps in the knowledge of the practical skill algorithm, made more than one fundamental mistake, difficulties in preparing the workplace, the inability to independently perform practical manipulations; actions are taken that violate the safety of the patient and the medical staff, the requirements of the sanitary and epidemiological regime, safety measures when working with the equipment and materials used are violated. |
| "ZERO POINTS" is given if there is no answer |

Module 5. Economics, Health Management..

Topic 1. Public health economy. Methodology for calculating economic efficiency

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

**1. The economics of public health is -**

1) the study of the use of objective economic laws and relations in public health

services, as one of the branches of state economy

2) a branch of medicine that deals with public health and risk-factor evaluation

3) a branch of medicine that deals with disease prevention and health promotion

4) a complex economic knowledge of forms, methods, results of the activity in the

field of medicine

**2. What is the main purpose of the economics of public health?**

1) rational use of the available resources

2) maximal satisfaction of the population health care requirements

3) introduction of the new organizational forms and methods of medical care

4) introduction of economic efficiency of public health services

**3. Which type of available medical institution′s resources do you know?**

1) financial and worker resources

2) material, financial and manpower resources

3) manpower, material and technical resources

**4. With reference to public health services we distinguish:**

1) social and economic efficiency

2) medical and economic efficiency

3) social, medical and economic efficiency

4) social and medical efficiency

**5. Which type of efficiency is most important for public health?**

1) social efficiency

2) medical efficiency

3) economic efficiency

4) social and medical efficiency

**6. What is health economic efficiency?**

1) a change of the level and character of disease and its tendencie

2) a positive contribution that public health system brings by improving the population’s health in relation to with the national income growth

3) optimization of levels of birth rate, reduction of death rate and increase of life expectancy

**7. What is public health social efficiency?**

1) a change of the level and character of disease and its tendencie

2) a positive contribution that public health system brings by improving the population’s health in relation to with the national income growth

3) optimization of levels of birth rate, reduction of death rate and increase of life expectancy

**8. What is health medical efficiency?**

1) a change of the level and character of disease and its tendencie

2) a positive contribution that public health system brings by improving the population’s health in relation to with the national income growth

3) optimization of levels of birth rate, reduction of death rate and increase of life expectancy

**9. Public health and health is –**

1) a branch of non-productive sphere of the state economy

2) a branch of productive sphere of the state economy

**10. The economic efficiency of health care can be calculated as**

1) Number of patients satisfied with medical care × 100 / Number of estimated cases

2) Number of positive medical outcomes × 100 / Number of estimated cases

3) Economic effect / cost

**Recitation:**

1. Economics of Public Health: its subject, tasks.
2. Place and role of health care in the country's economy.
3. Types of health care effectiveness. Medical, social and economic efficiency; basic indicators.
4. Methodology for calculating economic efficiency.

**Case-task completion**

**Exercise 1**

Task 1.

Determine the total cost of medical care for 100 patients with diabetes, consisting under dispensary supervision for 3 years, if you know the amount of medical care provided to them in 1 year of dispensary supervision.

**Patient-polyclinic:**

a) is made public:

endocrinologist - 900

neurologist - 150

ophthalmologist - 300

therapist - 50

surgeon - 50

Total visits - \_\_\_\_\_.

b) conducted research:

blood sugar - 900

urine sugar - 920

acetone in the urine - 100

glucosuric profile – 30

total blood count - 80

Aminotransferases - 100

Total research \_\_\_\_\_\_\_.

**Stationary:** Patients of the study group spent 620 bed-days in the hospital.

The obtained data on the cost of each type of medical and preventive care provided should be entered in table 1 and the structure indicators should be calculated.

Table 1

**The cost of medical care for patients with diabetes, consisting under dispensary supervision**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| The cost of outpatient care | | The cost of inpatient treatment | | The total cost of medical care | |
| Abs. | % to the end | Abs. | % to the end | Abs. | % to the end |
|  |  |  |  |  |  |

Write the output.

Task 2.

Determine the total economic damage due to the incidence of the same group of patients, if it is known that in the first year of dispensary observation the number of days of temporary disability was 1500 days, 2 people out of 100 were first recognized as disabled group II.

The obtained data should be entered in table 2 and the indicators of the structure of the total economic damage by types of costs and losses should be calculated.

Table 2

**General economic damage due to the incidence of diabetes**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Total cost of medical care | | Economic damage due to | | | | | | | | | |
| With temporary disability | | | | With disabilities | | | | Total | |
| Including the payment of benefits | Loss of value of undelivered products | Total | | Including the payment of benefits | Loss of value of undelivered products | Total | |
| abs. | % to the end | abs. | % to the end | abs. | % to the end | abs. | % to the end | abs. | % to the end | abs. | % to the end |
|  |  |  |  |  |  |  |  |  |  |  |  |

Make a written conclusion.

Task 3.

Determine the amount of prevented economic damage for all 3 years of dispensary observation of this group of patients, if it is known that the total economic damage was:

* in the first year of dispensary observation - (*data of task 2*);
* in the second year – 784 321 rubles.
* in the third year – 805 400 rubles.

Make a written conclusion.

Task 4.

To determine the criterion of economic efficiency of dispensary monitoring of this group of patients, if the following data are known, presented in table 3.

Table 3

|  |  |  |  |
| --- | --- | --- | --- |
| Years of observation | Total cost of medical care (costs) | Prevented economic damage (received effect) | criterion of economic efficiency (ratio of costs and received effect) |
| 1 year | *data of task 1* |  |  |
| 2 year | 284310 rubl. |  |
| 3 year | 300820 rubl. |  |
| Total |  |  |

Make a written conclusion.

**Application.**

1. The cost of 1 medical visit to any doctor is on average 93 rubl. 39 kop. This price includes the costs associated with visiting patients at home.
2. The cost of 1 clinical diagnostic study, including physiotherapy, is 66 rubl. 42 kop.
3. The cost of staying for 1 day in a hospital is 314 rubl. 99 kop.
4. The amount of temporary disability benefit is 65 rubl. 84 kop.
5. The value of national income produced by one employee per year is 96 000 rubl.
6. The value of national income produced by one employee per day is 320 rubl.
7. The amount of pension for persons with disabilities is: for the second group – 19 800 rubl., for the third group – 14 600 rubl.

Topic 2. Health management. Health planning

Form of performance monitoring

Testing

Recitation

Case-task completion

**Evaluation materials for performance monitoring**

**Testing**

**1. SPECIFY THE CORRECT DEFINITION OF MANAGEMENT**

1) Management is the science of meeting the needs of the population through exchange (Marketing)

2) Management is a science and a kind of practical activity, consisting in the formation of an integrated planning, organization, motivation and control over organizational resources to achieve the organization's goals

3) Management the study of the use of objective economic laws and relations in public health services, as one of the branches of state economy

**2. WHAT ARE MANAGEMENT OBJECTS?**

1) Personnel, organization, financial and material resources, quality of activities

2) Material, financial and manpower resources

3) Senior managers (top managers), mid-level managers (deputies), the managers of the grass-roots level

**3. WHAT ARE MANAGEMENT SUBJECTS?**

1) Personnel, organization, financial and material resources, quality of activities

2) Material, financial and manpower resources

3) Senior managers (top managers), mid-level managers (deputies), the managers of the grass-roots level

**4. MANAGEMENT FUNCTIONS ARE:**

1) Licensing, accreditation, certification

2) Control, searching for defects, punishing those responsible

3) Forecasting, marketing, standardization, licensing, calculation of economic efficiency

4) Planning, organization, motivation, control

**5. UNDER WHAT MANAGEMENT STYLE CAN WE EXPECT A TIMELY AND DISCIPLINED APPROACH TO THE SOLUTION OF THE TASKS?**

1) Authoritarian

2) Democratic

3) Liberal

4) Dynamic

**6. WHAT STYLE OF MANAGEMENT IS BEST FOR REVEALING THE CREATIVE POTENTIAL OF THE TEAM?**

1) Authoritarian

2) Democratic

3) Liberal

4) Dynamic

**7. UNDER WHAT MANAGEMENT STYLE CAN YOU EXPECT TO SEE INCREASED PERSONAL COMMITMENT TO WORK?**

1) Authoritarian

2) Democratic

3) Liberal

4) Dynamic

**8. WHAT IS THE MOST OPTIMAL MANAGEMENT STYLE?**

1) Authoritarian

2) Democratic

3) Liberal

4) Dynamic

**9. CHOOSE CHARACTER FEATURES OF ECONOMIC MANAGEMENT METHODS**

1) make it possible to compensate for miscalculations in planning, to react quickly to a changing situation, to bring the object of management to new paths by means of directives, orders, instructions, orders, resolutions, regulations.

2) include economic analysis of health organizations, methods of planning and forecasting, statistical analysis

3) a set of means of influencing the collective, the ability to motivate the employee to work efficiently, partner relations, creating a favorable psychological climate in the team

4) implies the democratization of management, increasing the participation of employees in the performance of management functions

**10. APPROVAL OF STANDARDS OF MAINTENANCE OF POPULATION OF MEDICAL ASSISTANCE THIS IS THE OBJECTIVE OF …**

1) program-targeted health planning

2) functional-sectoral health care planning

Recitation:

1. Management. Definition, core principles of management.
2. Management functions and their characteristics.
3. Levels, styles and methods of management.
4. Planning in health care: definition, principles and tasks.
5. Types of plans in health care. The basic methods of planning, their brief characteristics

***Case-task completion***

**Exercise 1**

The table shows the data for planning outpatient and inpatient care for residents of the Bezuluksky district Orenburg region.

|  |  |
| --- | --- |
| Planning Index | Value |
| Number of adults | 23020 |
| Number of children | 19413 |
| Number of visits per 1 adult per year to therapist | 2,3 visits |
| Number of visits per 1 child per year to pediatrician | 6,0 visits |
| Function of a medical staff of therapist | 6517 visits per year |
| Function of a medical staff of pediatrician | 6173 visits per year |
| Frequency of admission to the hospital’s therapeutic department | 30,5 cases per 1000 adults |
| Frequency of admission to the pediatric hospital department | 61,2 cases per 1000 children |
| The average annual duration of hospitalization in therapeutic department | 14,7 days |
| The average annual duration of hospitalization pediatric hospital department | 8,8 days |
| The average annual occupancy of a bed in the therapeutic department | 332 days |
| The average annual occupancy of a bed in the pediatric hospital department | 326 days |
| Standard number of beds per 1 staff of therapist | 25 beds |
| Standard number of beds per 1 staff of pediatrician | 20 beds |

1. Calculate how many therapists’ posts are needed to provide outpatient care.
2. Calculate how many pediatricians’ posts are needed to provide outpatient care.
3. Calculate how many beds of a therapeutic profile are needed to provide inpatient care.
4. Calculate how many beds of a pediatric profile are needed to provide inpatient care.
5. Calculate how many therapists’ posts are needed to provide inpatient care.
6. Calculate how many pediatricians’ posts are needed to provide inpatient care.
7. Make a conclusion on the results.

**Evaluation criteria used in the current performance control, including in the control of independent work of students**

|  |  |
| --- | --- |
| **Monitoring form** | **Assessment criteria** |
| **Recitation** | On "FIVE POINTS" the answer is assessed, which shows solid knowledge of the main questions of the studied material, is distinguished by the depth and completeness of the disclosure of the topic; knowledge of the terminological apparatus; the ability to explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; fluency in monologue speech, consistency and consistency of the answer. |
| On "FOUR POINTS" the answer is assessed, which reveals a solid knowledge of the basic questions of the studied material, differs in the depth and completeness of the disclosure of the topic; knowledge of the terminological apparatus; the ability to explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; fluency in monologue speech, consistency and consistency of the answer. However, one or two inaccuracies in the answer are allowed. |
| On "THREE POINTS" the answer is assessed, which testifies mainly to the knowledge of the studied material, which is characterized by insufficient depth and completeness of the disclosure of the topic; knowledge of the basic issues of theory; poorly formed skills in analyzing phenomena, processes, insufficient ability to give reasoned answers and give examples; lack of fluency in monologue speech, logic and consistency of the answer. Several mistakes are allowed in the content of the answer. |
| On "TWO POINTS" the answer is assessed, revealing ignorance of the studied material, characterized by a shallow disclosure of the topic; ignorance of the main issues of theory, unformed skills in the analysis of phenomena, processes; inability to give reasoned answers, weak command of monologue speech, lack of consistency and consistency. Serious errors in the content of the answer are allowed. |
| ZERO POINTS" is given if there is no answer |
| **Testing** | "FIVE POINTS" is given on condition of 90-100% correct answers |
| "FOUR POINTS" is given on condition of 75-89% correct answers |
| "THREE POINTS" is given on condition of 60-74% correct answers |
| "TWO POINTS" is given on condition of 59% or less correct answers. |
| "ZERO POINTS" is given if there is no answer |
| **Practical skills** | "FIVE POINTS". The student has shown full knowledge of the program material, the workplace is equipped with all the requirements for preparation for performing manipulations; practical actions are performed sequentially in accordance with the algorithm for performing manipulations; all requirements for the safety of the patient and medical staff are observed; the time limit is observed; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological supervision; all actions are justified. |
| "FOUR POINTS". The student has shown complete knowledge of the program material, the workplace is not fully independently equipped to perform practical manipulations; practical actions are performed consistently, but not confidently; all requirements for the safety of the patient and medical staff are observed; time regulations are violated; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological regime; all actions are justified with clarifying questions of the teacher, made small mistakes or inaccuracies. |
| "THREE POINTS". The student showed knowledge of the basic program material in the amount necessary for the upcoming professional activity, but made no more than one fundamental mistake, the workplace is not fully equipped to perform practical manipulations; the sequence of their implementation is broken; unsure actions, leading and additional questions and comments of the teacher are needed to justify actions; all requirements for the safety of the patient and medical staff are observed; the workplace is cleaned in accordance with the requirements of the sanitary and epidemiological regime. |
| "TWO POINTS". The student discovered significant gaps in the knowledge of the practical skill algorithm, made more than one fundamental mistake, difficulties in preparing the workplace, the inability to independently perform practical manipulations; actions are taken that violate the safety of the patient and the medical staff, the requirements of the sanitary and epidemiological regime, safety measures when working with the equipment and materials used are violated. |
| "ZERO POINTS" is given if there is no answer |

1. **Оценочные материалы промежуточной аттестации обучающихся**

Intermediate qualification by discipline in the form of set-off is carried out in the form of testing.

The calculation of the disciplinary rating is carried out as follows: Rd = Rt + Rb + Rz, where

Rb - bonus rating;

Rd - disciplinary rating;

Рз - test rating;

Rt - current rating.

Criteria used to evaluate students on intermediate certification to determine credit rating

|  |  |
| --- | --- |
| **Testing** | "FIVE POINTS" is given on condition of 90-100% correct answers |
| "FOUR POINTS" is given on condition of 75-89% correct answers |
| "THREE POINTS" is given on condition of 60-74% correct answers |
| "TWO POINTS" is given on condition of 59% or less correct answers. |

**Tests for intermediate certification and their compliance with the formed competencies and descriptors of discipline development.**

|  |  |  |
| --- | --- | --- |
| **competence** | **descriptor** | **Tests** |
| **OK-1 capacity for abstract thinking, analysis, synthesis** | **Know** the forms and methods of scientific knowledge; Human Health and Population Conservation Methods | \* Medical statistics include the following parts:  +statistics of public health  veterinary statistics  +statistics of scientific researches  +statistics of public health services  crime statistics  \* Statistics of public health are studying indicators  +Medico-demographic  Health services status  +Morbidity of the population  Quality of care  Efficiency of care  +Disability of the population  +Physical health of the population  \* Statistics of public health services include:  Medico-demographic  +Health services status  Morbidity of the population  +Quality of care  +Efficiency of care  Disability of the population  Physical health of the population  # How many stages are there in the statistical study:  +4  3  8  2  # The first stage of the statistical study is…:  The analysis of the received data, conclusions, suggestions  +Preparatory (organizational) stage: scheduling and investigation programs  Collecting of statistical material  Working out and summarizing of material  # The plan of statistical investigation:  It reflects the content of research  +It reflects the organizational aspect of the study  It reflects the received data  It reflects the conclusions  # The program of statistical investigation:  +It reflects the content of research  It reflects the organizational aspect of the study  It reflects the received data  It reflects the conclusions  \* The plan of statistical investigation include:  +Object of study  Unit of observation  +Time of study  +Research Resource  Registration forms  \* The program of statistical investigation include:  Object of study  +Determining the unit of observation  Time of study  +Definition of the registration signs  Research Resource  +Definition of the registration forms  \* Type of study by volume may be:  single supervision  +continuous  +selective  current supervision  \* Type of study by time may be:  +single supervision  continuous  selective  +current supervision |
| Be able to use educational, scientific, popular science literature, the Internet for professional activities. Collect, develop and analyse data on public health and the activities of medical organizations  To master the skills of presenting an independent point of view, analysis and logical thinking, public speech, moral and ethical reasoning for conducting discussions and round tables; basic terms in the field of public health and health | # A selective observation is…:  +observation, covering a part of the units of the population for the characterization of the whole  observation, confined to one or another moment  monitoring in the order of the current registration  examination of all units of the studied population  # A continuous observation is…:  observation, covering a part of the units of the population for the characterization of the whole  observation, confined to one or another moment  monitoring in the order of the current registration  +examination of all units of the studied population  # A single supervision is…:  observation, covering a part of the units of the population for the characterization of the whole  +observation, confined to one or another moment  monitoring in the order of the current registration  examination of all units of the studied population  # A current supervision observation is…:  observation, covering a part of the units of the population for the characterization of the whole  observation, confined to one or another moment  +monitoring in the order of the current registration  examination of all units of the studied population |
| **OPK-3 ability to use the foundations of economic and legal knowledge in professional activities** | **To know the concept of "Health" as an economic category. The place and role of health care in the economy of public production. Subject, purpose and objectives of healthcare economics as a science** | # The economics of public health is -:  +the study of the use of objective economic laws and relations in public health services, as one of the branches of state economy  a branch of medicine that deals with public health and risk-factor evaluation  a branch of medicine that deals with disease prevention and health promotion  a complex economic knowledge of forms, methods, results of the activity in the field of medicine  # What is the main purpose of the economics of public health:  rational use of the available resources  +maximal satisfaction of the population health care requirements  introduction of the new organizational forms and methods of medical care  introduction of economic efficiency of public health services  # Which type of available medical institution′s resources do you know:  financial and worker resources  +material, financial and manpower resources  manpower, material and technical resources  information, material and technical resources  # With reference to public health services we distinguish:  social and economic efficiency  medical and economic efficiency  +social, medical and economic efficiency  social and medical efficiency  # Which type of efficiency is most important for public health:  social efficiency  medical efficiency  economic efficiency  +social and medical efficiency  # What is health economic efficiency:  a change of the level and character of disease and its tendencie  +a positive contribution that public health system brings by improving the population’s health in relation to with the national income growth  optimization of levels of birth rate, reduction of death rate and increase of life expectancy  receiving profit on medical activity  # What is public health social efficiency:  a change of the level and character of disease and its tendencies  a positive contribution that public health system brings by improving the population’s health in relation to with the national income growth  +optimization of levels of birth rate, reduction of death rate and increase of life expectancy  receiving profit on medical activity  # What is health medical efficiency:  +a change of the level and character of disease and its tendencies  a positive contribution that public health system brings by improving the population’s health in relation to with the national income growth  optimization of levels of birth rate, reduction of death rate and increase of life expectancy  receiving profit on medical activity  # Public health is –:  +a branch of non-productive sphere of the state economy  a branch of productive sphere of the state economy  separate direction of economy  part of the scientific sphere  # The economic efficiency of health care can be calculated as:  Number of patients satisfied with medical care × 100 / Number of estimated cases  Number of positive medical outcomes × 100 / Number of estimated cases  +Economic effect / cost  Number of patients / expense |
|  | Be able to calculate and evaluate the medical, social and economic effectiveness of a doctor, a medical organization. Assess the medical, social and economic effectiveness of the health system using population-based evaluation criteria  Possess Basic Terms of Health Economic Analysis | \* Statistical values are:  +Absolute values  +Relative values  +Average values  Ratio values  # What values reflect the true size of the phenomenon being studied:  Relative values  Average values  +Absolute values  Statistical values  # Relative values are all listed, except:  Intensive values  Extensive values  +Average values  Ratio values  Obvious values  # Which values characterizes frequency of the phenomenon in the condition where this phenomenon is observed:  +Intensive values  Extensive values  Ratio values  Obvious values  # Which values is calculated as the relation of a part to the whole:  Intensive values  +Extensive values  Ratio values  Obvious values |
| **OPK-5 ability and willingness to analyze the results of their own activities to prevent professional errors** | **Know how to analyze the activities of a medical organization, the main indicators of the state, quality and effectiveness of medical care** | # Primary health care (phc) may be granted in the following conditions:  Outpatiently and in day hospital  +Outpatiently, in day hospital and at home  In medical establishments, outpatiently and in a hospital  Outpatiently and in a hospital  # Which specialists provide primary health care:  Only doctors who conduct ambulatory appointments  Doctors and nurses working in a hospital  +General practitioners, nurses and other doctors providing medical care to the population on an outpatient basis and at home  Doctors and nurses working out-patient and in the emergency medical service  # What types of medical care are provided to the population in a city polyclinic:  Primary health care and specialized care  Primary care, specialized care including high technological medical care  Emergency care and palliative medical care  Primary health care and emergency care  +Primary health care including primary pre-medical, primary care and primary specialized care  # Describe the main principles of outpatient care in russian federation:  +District principle of service, continuity and stages, prevention priority, availability  Preventive focus, professionalism, compassion, accessibility  Сontinuity and stages, preventive orientation, professionalism  Preventive orientation, compassion, accessibility  Professionalism, preventive orientation, availability, compassion  # What departments are included in the polyclinic:  Registration, doctors' offices, an ambulance station, auxiliary medical diagnostic units  Registration, outpatient clinics, inpatient  +Registration, doctors' offices, auxiliary diagnostic units, auxiliary medical units  # Give a definition of the concept of «primary health care»:  +Phc is the first level of contact of individuals, families and communities with the national health system  Phc is the first medical aid provided at the pre-medical level  Phc is a complex of measures to provide emergency (emergency and urgent) care  Phc is a complex of actions for granting the qualified and specialized medical care  # Objectives of ambulatory-polyclinic assistance are all, except:  Assisting the attached population  Servicing of industrial workers  Preventive and dispensary work  +The examination of persistent disability  # The sections of the work of the district doctor are all listed except:  Prevention  Treatment  +Coordination of work between the structural units of the polyclinic  Rehabilitation  Palliative care  # The main sections of the doctor's work, which provides specialized assistance in the polyclinic, are all listed except:  Medical-diagnostic work  Advisory work  Carrying out preventive measures according to their profile  +Control over the activities of a district doctor  # Which of the indicators is not used in the analysis of the polyclinic:  Staffing of medical posts in a polyclinic  Indicators of morbidity of the population living in area of service of out-patient-polyclinic establishment  Share of preventive visits in a polyclinic  Share of visits in-home  +Hospitalization level  # The tasks of the city hospital are all listed except:  Training of medical personnel and his postgraduate specialization  Diagnosis and treatment of diseases, care, rehabilitation and emergency care  Medical and recreational activities, prevention of complications, chronic and infectious diseases, disability, etc  +Examination of a permanent loss of work incapable of work and recognition of a patient with a disability  Research activities  # The structure of the city hospital does not include:  Admission office  Profiled medical departments  Operational unit  +Research department  Department of morbid anatomy  # The patient may be hospitalized in a hospital:  At self-referral to the admissions office  If there is a referral for hospitalization  When delivered by a brigade of ambulance services  +All of the above is true |
|  | **Be able to calculate indicators of the state, quality and effectiveness of the medical organization**  **Possess terminology for analyzing the activities of a medical organization** | # Hospital report includes data about number of operated patients and number of deaths after surgery. Which efficiency index of inpatient care can be calculated on the basis of these data:  Admission rate  Postoperative mortality rate  General lethality rate  Standardized lethality rate  +Postoperative lethality rate  # Lethality rate is used to analyze:  Morbidity  Bed fund  Efficiency of outpatient care  Natural dynamics of population  +Efficiency of inpatient care  # What indicators can be defined when we have: population number, total amount of hospitalized patients and on separate nosologies:  General morbidity and its structure on specific nosologies  Incidence rate in hospitals  Incidence rate structure on disease classes  +Admission rate in the whole and on specific nosologies  # Lethality rate is indicator which characterizes:  +Hospital activities  Work of the polyclinic  Natural dynamics of population  Morbidity rate  # Which indicators are used to analyze satisfaction of population in inpatient care:  +Admission rate; inpatient care sufficiency  Inpatient lethality rate  Frequency of refusals in hospitalization  Timeliness of hospitalization; bed use  Bed population ratio; structure of bed fund  # Indicate basic functions of inpatient facilities according to WHO:  +Preventive, emergency care, research, educative  Therapeutic, anti-epidemic, informational, educative  Dispensarization, medical, preventive, emergency care  Medical, statistical, educative, research  Medical and rehabilitative, preventive and anti-epidemic, educative and research  # Specify basic forms of inpatient primary medical records:  «inpatient medical card»; «outpatient medical card»  «medical death certificate»; «vaccination card»  «statistical coupon»; «extract from inpatient medical card»  +»inpatient medical card»; «statistical card of the patient discharged hospital»  «control card of dispensary observation»; «inpatient medical card |
| **OPK-6 readiness to maintain medical records** | **Know the main medical documentation of the medical organization. Recommendations and rules for the creation of informal medical records.** | # The unit of observation is…:  +The primary element of the statistical population, which is the bearer of the characteristics subject to registration  The array of units that carry the feature being studied  Observing timed to any point  Determining the volume of observation  # When studying the incidence of myocardial infarction in the adult population, the unit of observation is…:  Adult  Patients with myocardial infarction  +Each patient with myocardial infarction  Adult patients  \* Statistical tables may be…:  +Simple tables  Graphic tables  +Group tables  +Combinational tables  Mixed tables  # Of these kinds of statistical tables, the best representation of the target population gives:  Simple tables  Group tables  +Combinational tables  Mixed tables  \* When conducting a selective observation, the types of statistical material collecting…:  +Random  +Mechanical  Main array  +Typological  +Serial  Continuous  # Which source of information to study morbidity will allow primary care physician to take greater account of the incidence of acute diseases:  +Data of patient visits to a doctor in medical institutions  Data of special selective studies  Data about causes of death  Survey of the population  Data of medical examinations  # What are the main sources to study morbidity:  +Appealability in medical facilities, data of medical examinations, and data of death causes  Data of death causes, data of medical records, data of survey  Data of medical examinations, data of survey, data of outpatient cards  Data of the census, data of polyclinic visits, data of medical records  Admission data, data of census, data of press reports  # Which of the following indices does not apply to morbidity:  Incidence rate  Prevalence rate  Point prevalence rate  +Crude mortality rate  The structure of morbidity  # What is the best source to study morbidity with aim of maximal registration of «acute» diseases:  +Data of visits to medical establishments  Epidemiological study  Medical examinations  Population surveys  Data of death causes  # What is the best source to study morbidity with aim of maximal registration of «chronic» diseases:  Data of visits to medical establishments  Epidemiological study  +Medical examinations  Population surveys  Data of death causes |
|  | **Be able to complete the main official documentation of the medical organization. Establish an informal statistical accounting document** | # Specify basic forms of inpatient primary medical records:  «Inpatient medical card»; «Outpatient medical card»  «Medical death certificate»; «Vaccination card»  «Statistical coupon»; «Extract from inpatient medical card»  +«Inpatient medical card»; «Statistical card of the patient discharged hospital»  «Control card of dispensary observation»; «Inpatient medical card  # Specify basic forms of dispensary observation:  «Inpatient medical card»; «Outpatient medical card»  «Medical death certificate»; «Vaccination card»  «Statistical coupon»; «Extract from inpatient medical card»  «Inpatient medical card»; «Statistical card of the patient discharged hospital»  +«Outpatient medical card»; «Control card of dispensary observation»  # Specify basic forms of outpatient primary medical records:  «Inpatient medical card»; «Outpatient medical card»  «Medical death certificate»; «Vaccination card»  «Extract from inpatient medical card»  «Inpatient medical card»; «Statistical card of the patient discharged hospital»  +«Outpatient medical card»; «Statistical coupon»; «Control card of dispensary observation»  # Records about the issued document, certifying temporary disability, have to be made in all documents except:  «Inpatient medical card»;  «Outpatient medical card»  +«Vaccination card»  «Statistical card of the patient discharged hospital»  # What doctor cannot issue the document certifying temporary disability:  Therapist  Pediatrician  Gynecologist  +Doctor ultrasonic diagnostics |
| **PK-17 ability to apply the basic principles of organization and management in the field of public health, in medical organizations and their structural units** | Know the basic principles of public health protection. Levels, types and conditions of medical care for the population. Types of medical organizations, their management, tasks, typical organizational structure, functions. Principles, levels, management methods in healthcare. Management functions. Control styles, their weaknesses, and strengths. Principles of planning in healthcare. Methods of planning medical care for the population | # Specify the correct definition of management:  Management is the science of meeting the needs of the population through exchange (marketing)  +Management is a science and a kind of practical activity, consisting in the formation of an integrated planning, organization, motivation and control over organizational resources to achieve the organization's goals  Management the study of the use of objective economic laws and relations in public health services, as one of the branches of state economy  Management is a science about formation of administrative structures  # What are management objects:  +Personnel, organization, financial and material resources, quality of activities  Material, financial and manpower resources  Senior managers (top managers), mid-level managers (deputies), the managers of the grass-roots level  The ideas about increase in management efficiency  # What are management subjects:  Personnel, organization, financial and material resources, quality of activities  Material, financial and manpower resources  +Senior managers (top managers), mid-level managers (deputies), the managers of the grass-roots level  The ideas about increase in management efficiency  # Management functions are:  Licensing, accreditation, certification  Control, searching for defects, punishing those responsible Forecasting, marketing, standardization, licensing, calculation of economic efficiency  +Planning, organization, motivation, control  # Under what management style can we expect a timely and disciplined approach to the solution of the tasks:  +Authoritarian  Democratic  Liberal  Dynamic  # What style of management is best for revealing the creative potential of the team:  Authoritarian  Democratic  +Liberal  Dynamic  # Under what management style can you expect to see increased personal commitment to work:  Authoritarian  +Democratic  Liberal  Dynamic  # What is the most optimal management style:  Authoritarian  Democratic  Liberal  +Dynamic  # Choose character features of economic management methods:  Make it possible to compensate for miscalculations in planning, to react quickly to a changing situation, to bring the object of management to new paths by means of directives, orders, instructions, orders, resolutions, regulations  +Include economic analysis of health organizations, methods of planning and forecasting, statistical analysis  A set of means of influencing the collective, the ability to motivate the employee to work efficiently, partner relations, creating a favorable psychological climate in the team  Implies the democratization of management, increasing the participation of employees in the performance of management functions  # Approval of standards of maintenance of population of medical assistance this is the objective of …:  Program-targeted health planning  +Functional-sectoral health care planning  Strategic planning  Comprehensive planning  #The style of the management is:  +system of methods of impact of the head on subordinates  development strategy of the organization  control of implementation of plans of work  introduction of economic incentives  #The style of leadership does not reflect:  +education level of the head  a habitual manner of behavior of the head in relation to subordinates  the used type of the power  extent of delegation by the head of powers by the subordinate  # The management decision is the choice of an alternative in conditions:  definiteness  probable definiteness  uncertainty  +concrete administrative situation  # Can be a non-material incentive of formation of motivation:  remuneration for participation in innovative processes  +change of content of work  the services of social character provided by establishment  settlement of problems of compensation taking into account its quality  # Promotes improvement of quality of medical care:  emphasis on short-term objectives  +effective management  tough planning  accounting only of quantitative indices |
|  | Be able to put into practice the principles of organization and management in healthcare. Apply normative and analytical methods of planning medical care for the population  Master the basic terminology of health organization and management | # With reference to public health services we distinguish:  social and economic efficiency  medical and economic efficiency  +social, medical and economic efficiency  social and medical efficiency  # Which type of efficiency is most important for public health:  social efficiency  medical efficiency  economic efficiency  +social and medical efficiency  # What is health economic efficiency:  a change of the level and character of disease and its tendencie  +a positive contribution that public health system brings by improving the population’s health in relation to with the national income growth  optimization of levels of birth rate, reduction of death rate and increase of life expectancy  receiving profit on medical activity  # What is public health social efficiency:  a change of the level and character of disease and its tendencie  a positive contribution that public health system brings by improving the population’s health in relation to with the national income growth  +optimization of levels of birth rate, reduction of death rate and increase of life expectancy  receiving profit on medical activity  # What is health medical efficiency:  +a change of the level and character of disease and its tendencie  a positive contribution that public health system brings by improving the population’s health in relation to with the national income growth  optimization of levels of birth rate, reduction of death rate and increase of life expectancy  receiving profit on medical activity |
| **PK-18 Willingness to participate in quality assessment of care using basic medical and statistical indicators** | **Know the definition of "Quality of medical care," its components and components. Methods for assessing the quality of medical care. Procedure for calculation of state, quality and efficiency indicators medical care** | # The main components of quality medical according to WHO are all but:  qualifications of personnel  +free of charge medical care  optimality of use of resources  safety  satisfactions of patients  \* The main components of quality of medical care are:  +quality of structure  +quality of technology (process)  quality of compensation  quality of monitoring procedure  +quality of result  \* The quality of structure includes:  +skill level of medical personnel  results of medical activity  +level of material equipment  +financing level  observance of standards of medical and diagnostic procedures  \* The quality of process (technology) includes:  + directly, quality of performance of work  results of medical activity  + correctness of the choice of medical technology  financing level  +observance of standards of medical and diagnostic procedures at their performance  \* The quality of result of medical care includes:  +share of positive result (recovery, improvement) of medical activity  +cost efficiency of medical activity  observance of standards of medical and diagnostic procedures at their performance  + satisfaction of patients with quality of medical care |
| \* Participants of internal quality control are:  +chief physician  +deputy chief physicians  +managers of structural divisions  doctors of the medical organization  average medical personnel  all above-mentioned  \* The most difficult questions and problems of rendering high-quality medical care can jointly be solved:  +within work of the medical commissions and subcommittees of the medical organization  +at meetings of labor collective  at trade-union meetings  +medical council of the medical organization  \* The main methods of quality control of medical care are:  + statistical method  + method of standards  clinical laboratory method  + method of expert evaluations  # To the cases which are subject to obligatory consideration within internal quality control of medical care is all but:  cases of lethal outcomes  cases of intrahospital infection and complications  +cases of delivery of health care not at the place of residence of the patient  cases of a divergence of diagnoses  cases of diseases with the extended or shortened treatment terms (or temporary disability)  # Standardization of medical activity is directed on all but:  economy of human and material resources  the choice of an optimal solution when maintaining patients  +identifications of defects and punishment of responsible at negative medical results of activity  protection of interests of the patient on the basis of stable ensuring the required level of quality  # Medical standards on level happen:  international  federal  regional  territorial  local (internal)  +everything listed truly |
|  | **Be able to calculate and evaluate key health, quality and performance indicators medical care** | # The main advantage of a statistical method of assessment of quality of medical care is:  +the reliable generalized characteristic of a condition of quality and efficiency of medical care  identification of the individual reasons of unsatisfactory results  high capacity of a method  cheap method of assessment  # The main lack of a statistical method of assessment of quality of medical care is:  subjectivity of a method  +it is inapplicable for assessment of the individual reasons of unsatisfactory results  low capacity of a method  cheap method of assessment  # The main advantage of a method of standards as method of assessment of quality of medical care is:  + objectivity of estimates  identification of the individual reasons of unsatisfactory results  the reliable generalized characteristic of a condition of quality and efficiency of medical care  cheap method of assessment  # The main lack of a method of standards as method of assessment of quality of medical care is:  subjectivity of a method  +it is inapplicable for assessment of the individual reasons of unsatisfactory results  low capacity of a method  simplicity of application  # The main advantage of method of expert evaluations as method of quality control of medical care is:  objectivity of estimates  +identification of the individual reasons of unsatisfactory results  the reliable generalized characteristic of a condition of quality and efficiency of medical care  simplicity of application  # The main lack of method of expert evaluations as method of quality control of medical care is:  +subjectivity of a method  it is inapplicable for assessment of the individual reasons of unsatisfactory results  high cost of a method  simplicity of application |
| **PK-20 Readiness for analysis and public presentation of medical** | **Know the basic** parametric and non-parametric methods for evaluating the validity of medical data. Statistical visualization methods | \* Statistical values are:  +absolute values  +relative values  +average values  ratio values  # What values reflect the true size of the phenomenon being studied:  relative values  average values  +absolute values  statistical values  # Relative values are all listed, except:  Intensive values  extensive values  +average values  ratio values  obvious values  # Which values characterizes frequency of the phenomenon in the condition where this phenomenon is observed:  +Intensive values  extensive values  ratio values  obvious values  # Which values characterizes a numerical parity of the sets not connected among themselves and compared only under their maintenance:  Intensive values  extensive values  obvious values  +ratio values  # Which values is calculated as the relation of a part to the whole:  Intensive values  +extensive values  ratio values  obvious values  # Which values is needed to study the temporally changes of the phenomenon and to compare two or more similar phenomena:  intensive values  extensive values  ratio values  +obvious values  # Which values is used to characterize the structure of the phenomenon:  intensive values  +extensive values  ratio values  obvious values  # Why do you need standard error of assessment relative values:  +Using a standard error, you can generalize the results to similar objects with a certain probability  To determine the error in collecting statistical data  To determine the statistical significance of the differences between the two phenomena  #  what is this formula used for:  For calculation of intensive values  +For calculation standard error  For calculation of extensive values  For determine the statistical significance of the differences between the two phenomena  # Normal distribution or assimential distribution definitely for …:  qualitative data  +quantitative data  any data  democratic data  # Which of the average values will better characterize the statistical set with normal distribution:  +arithmetic mean  median  mode  geometrical mean  # What is the average value that best characterizes the statistical set in a distribution different from normal:  arithmetic mean  +median  mode  geometrical mean  # What is the best value to use if there is a strong tendency to dominate any value in the statistical set:  arithmetic mean  median  +mode  geometrical mean  # What is the best measure of the variability of quantitative data in a statistical set with a normal distribution:  mode  +standard deviation  quartiles  coefficient of variation  # What is the best measure of the variability of quantitative data in a statistical set in a distribution different from normal:  coefficient of variation  standard deviation  +сentels (percentiles, deciles, quartiles)  obvious values  # In the limit m ± 2sd located:  68,3% all observations  +95,5% all observations  99,7% all observations  100% all observations  # What is the value of t - test confirms the presence of a statistically significant difference between the groups being compared:  +t ≥ 1,98  t ≤ 1,98  t = 1  t = 0,05  # What characterizes the standard error of the average value:  variability of analyzed quantitative data  the reliability of the differences between two mean values  +the number by which the value of the average value of the sample population will differ from the average value calculated in the general population  material collection error  # What characterizes the standard deviation:  +variability of analyzed quantitative data  the reliability of the differences between two mean values  the number by which the value of the average value of the sample population will differ from the average value calculated in the general population  material collection error  \* What can be the time series:  +interval  complex  +moment  variational # Difference of levels of this year and previous indicates…:  +absolute increase  growth rate  rate of increase  the value of 1% increase  level of distribution  # Ratio of absolute increases to the previous level expressed as a percentage shows…:  absolute increase  +growth rate  rate of increase  the value of 1% increase  level of distribution  # What is the rate of increase:  The ratio of the next level to the previous one  +The ratio of absolute growth to the previous level, expressed as a percentage  The difference between the levels of a given year and the previous one  The ratio of absolute growth to growth rate  # How to calculate the absolute increase:  The ratio of the next level to the previous one  The ratio of absolute growth to the previous level, expressed as a percentage  +The difference between the levels of a given year and the previous one  The ratio of absolute growth to growth rate  # When it is necessary to apply the methods of converting the time series:  it is always desirable  to confirm a pronounced trend  +in cases where there is no pronounced trend  is optional  \* By what methods can you convert the time series:  +mechanical  +mathematical  mixed  magical  # Which of the methods refers to the methods of mechanical transformation of time series:  +method of integration of the interval  the method of exponential smoothing  the method of linear smoothing  the subtraction method  # What is the method to apply to methods of mathematical transformation of time series:  method of integration of the interval  +the method of exponential smoothing  logarithmic analysis method  the subtraction method  # What is the essence of the method of integration of intervals:  +In the summation of data for a number of adjacent levels  In calculating the average value of each aggregate period  Each level is replaced by an average of the same and neighboring levels  In obtaining the data difference for a number of adjacent levels  # What is a correlation relationship:  describes the strong dependence of phenomena on the strictly defined amount.  +The relationship in which changing one value can lead to a change in the other by different values.  # On the direction correlation relationship may be:  +direct and reverse  strong and weak  parallel  only the inverse  positive and negative  # Strength correlation relationship may be:  direct and reverse  +strong, medium and weak  parallel  only the inverse  positive and negative  # Direct correlation relationship understand such contact when:  +increase (decrease) of one value corresponds to an increase (decrease) associated with it another  an increase (decrease) in one value corresponds to a decrease (increase) associated with it another  there is an increase in the value of the characteristic by some amount  the value of the characteristic decreases by some amount  # At the values of the correlation coefficient 0 – 0,29 say of:  strong relationship  connections of medium strength  +weak relationship  about its absence  its presence  # At the correlation factor values 0.3 - 0.69 say about:  strong relationship  +relationship of medium strength  weak relationship  about its absence  its presence# At the correlation factor values 0,7 – 1,0 say about:  +strong relationship  connections of medium strength  weak relationship  about its absence  its presence  # What coefficient is calculated by this formula :  Kendall rank correlation coefficient  Spearman’s rank correlation coefficient  +Pearson correlation coefficient  Coefficient of gamma  # What coefficient is calculated by this formula :  Kendall rank correlation coefficient  +Spearman’s rank correlation coefficient  Pearson correlation coefficient  Coefficient of gamma  # Why is regression analysis necessary:  It is determined by physical, mathematical and chemical phenomena  It can be represented in formulas  +It is necessary to identify the presence, strength and degree of influence of one or several factor quantitative characteristics on the resultant one  It is necessary for determination of dependence between qualitative and quantitative data  It is necessary for determination of reliability of differences between the bound data |
|  | Be able to conduct descriptive statistics of medical data. Assess the validity of medical data in one, two or more statistical sets. Perform correlation analysis. Assess the dynamics of phenomena.  Represent data as simple, group and combination tables, graphics | # Mean + 1,96 SD include following % of values in a distribution:  68%  99,5%  88,7%  +95%  # The frequently occurring value in a distribution of data is:  Median  +Mode  Standard deviation  Mean  # Standard deviation is defined as:  Value of middle observation when data is arranged in ascending order  Arithmetic mean  +Dispersion of values about the mean  Most frequently occurring value  # Significant value of «p» is:  0,01  0,02  0,04  +0,05  # All of the following are measures of dispersion Except:  Mean Deviation  +Mode  Range  Standard deviation  # Percentage of a data can be depicted on a:  +Pie chart  Bar diagram  Histogram  Graph  # A continuous quantitative data can be depicted with the help of:  Bar diagram  Pie chart  +Histogram  Pictogram  # In a normal distribution curve, the true statement is:  Mean = standard deviation  Median = standard deviation  Mean = 2 median  +Mean = mode |
| **PK-21 Ability to participate in research** | Know Fundamentals of Statistical Research Method in Medicine and Health Care | \* Medical statistics include the following parts:  +statistics of public health  veterinary statistics  +statistics of scientific researches  +statistics of public health services  crime statistics  \* Statistics of public health are studying indicators:  +Medico-demographic  Health services status  +Morbidity of the population  Quality of care  Efficiency of care  +Disability of the population  +Physical health of the population  \* Statistics of public health services include:  Medico-demographic  +Health services status  Morbidity of the population  +Quality of care  +Efficiency of care  Disability of the population  Physical health of the population  # How many stages are there in the statistical study:  +4  3  8  2  # The first stage of the statistical study is…:  The analysis of the received data, conclusions, suggestions  +Preparatory (organizational) stage: scheduling and investigation programs  Collecting of statistical material  Working out and summarizing of material  # The plan of statistical investigation:  It reflects the content of research  +It reflects the organizational aspect of the study  It reflects the received data  It reflects the conclusions  # The program of statistical investigation:  +It reflects the content of research  It reflects the organizational aspect of the study  It reflects the received data  It reflects the conclusions  \* The plan of statistical investigation include:  +Object of study  Unit of observation  +Time of study  +Research Resource  Registration forms  \* The program of statistical investigation include:  Object of study  +Determining the unit of observation  Time of study  +Definition of the registration signs  Research Resource  +Definition of the registration forms  \* Type of study by volume may be:  single supervision  +continuous  +selective  +current supervision  \* Type of study by time may be:  +single supervision  continuous  selective  +current supervision  \* A selective observation is…:  +observation, covering a part of the units of the population for the characterization of the whole  observation, confined to one or another moment  monitoring in the order of the current registration  examination of all units of the studied population  # A continuous observation is…:  observation, covering a part of the units of the population for the characterization of the whole  observation, confined to one or another moment  monitoring in the order of the current registration  +examination of all units of the studied population  # A single supervision is…:  observation, covering a part of the units of the population for the characterization of the whole  +observation, confined to one or another moment  monitoring in the order of the current registration  examination of all units of the studied population |
|  | Be able to participate in the collection, development and analysis of medical data in scientific research | # The unit of observation is…:  +the primary element of the statistical population, which is the bearer of the characteristics subject to registration  the array of units that carry the feature being studied  observing timed to any point  determining the volume of observation  # When studying the incidence of myocardial infarction in the adult population, the unit of observation is…:  adult  patients with myocardial infarction  +each patient with myocardial infarction  adult patients  \* Statistical tables may be…:  +simple tables  graphic tables  +group tables  +combinational tables  mixed tables  # Of these kinds of statistical tables, the best representation of the target population gives:  simple tables  group tables  +combinational tables  mixed tables  \* When conducting a selective observation, the types of statistical material collecting…:  +Random  +Mechanical  Main array  +Typological  +Serial  Continuous |
| **PK-4 Ability and readiness to apply social and hygienic methods of collecting and medical and statistical analysis of information on population health indicators** | Know the criteria for assessing the health of the population. Methodology for Statistical Study of Population Health | \* Medical statistics include the following parts:  +statistics of public health  veterinary statistics  +statistics of scientific researches  +statistics of public health services  crime statistics  \* Statistics of public health are studying indicators:  +Medico-demographic  Health services status  +Morbidity of the population  Quality of care  Efficiency of care  +Disability of the population  +Physical health of the population  \* Statistics of public health services include:  Medico-demographic  +Health services status  Morbidity of the population  +Quality of care  +Efficiency of care  Disability of the population  Physical health of the population  # How many stages are there in the statistical study:  +4  3  8  2  # The first stage of the statistical study is…:  The analysis of the received data, conclusions, suggestions  +Preparatory (organizational) stage: scheduling and investigation programs  Collecting of statistical material  Working out and summarizing of material  # The plan of statistical investigation:  It reflects the content of research  +It reflects the organizational aspect of the study  It reflects the received data  It reflects the conclusions  # The program of statistical investigation:  +It reflects the content of research  It reflects the organizational aspect of the study  It reflects the received data  It reflects the conclusions  \* The plan of statistical investigation include:  +Object of study  Unit of observation  +Time of study  +Research Resource  Registration forms  \* The program of statistical investigation include:  Object of study  +Determining the unit of observation  Time of study  +Definition of the registration signs  Research Resource  +Definition of the registration forms  \* Type of study by volume may be:  single supervision  +continuous  +selective  +current supervision  \* Type of study by time may be:  +single supervision  continuous  selective  +current supervision  # A selective observation is…:  +observation, covering a part of the units of the population for the characterization of the whole  observation, confined to one or another moment  monitoring in the order of the current registration  examination of all units of the studied population  # A continuous observation is…:  observation, covering a part of the units of the population for the characterization of the whole  observation, confined to one or another moment  monitoring in the order of the current registration  +examination of all units of the studied population  # A single supervision is…:  observation, covering a part of the units of the population for the characterization of the whole  +observation, confined to one or another moment  monitoring in the order of the current registration  examination of all units of the studied population |
|  | Be able to draw up a plan and program for statistical research. Organize and conduct the collection, development and analysis of health information. Apply basic parametric and non-parametric methods of statistical data estimation  Master the basic terminology of the statistical method of public health research | # The unit of observation is…:  +the primary element of the statistical population, which is the bearer of the characteristics subject to registration  the array of units that carry the feature being studied  observing timed to any point  determining the volume of observation  # When studying the incidence of myocardial infarction in the adult population, the unit of observation is…:  adult  patients with myocardial infarction  +each patient with myocardial infarction  adult patients  \* Statistical tables may be…:  +simple tables  graphic tables  +group tables  +combinational tables  mixed tables  # Of these kinds of statistical tables, the best representation of the target population gives:  simple tables  group tables  +combinational tables  mixed tables |

1. **Methodological recommendations for the application of the rating system.**

Within the framework of the implementation of the point-rating system for evaluating the educational achievements of students by discipline (module) in accordance with the provision «On the point-rating system for evaluating the educational achievements of students» the following rules for forming the current actual rating of the student are determined.

The current actual rating by discipline (module) (maximum 70 points) consists of the sum of points scored as a result:

• monitoring of student performance at each practical lesson;

• Milestone control of students "performance in each discipline module (if any);

• independent (out-of-audience) work of students.

In practical lessons, the student's work is evaluated according to a 5-point system. In one practical lesson, a student can receive several grades (up to 3) depending on the types of work performed.

At the end of each discipline module, milestone control is carried out (if any) in the form of a test test and the number of milestone control points is determined to be maximum 5 points.

For each task of independent (out-of-audit) work, the student receives the number of points in accordance with the evaluation criteria specified in the WCF.

The current actual rating is defined as the average of all estimates obtained for each of the above directions in terms of 70 points**.**