


ОҢТҮСТІК-ҚАЗАҚСТАН <b>MEDISINA</b> <b>AKADEMIASY</b> «Оңтүстік Қазақстан медицина академиясы» АҚ		SOUTH KAZAKHSTAN <b>MEDICAL</b> <b>ACADEMY</b> АО «Южно-Казахстанская медицинская академия»
Department of Social Health Insurance and Public Health		044-58/16 ( )
Department" fundamentals of evidence-based medicine"		

## Training case

**Title of the discipline:** "Fundamentals of evidence-based medicine"


**Discipline Code:** ODM 4301

**OP Name:** General Medicine

**Amount of study hours/credits:** 90 hours / 3 credits

**Course and semester of study:** 4th year, VIII semester


**Шымкент, 2022г.**

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## 1. Topic No. 1: Definition of evidence-based medicine. The history of the development of evidence-based medicine. World development experience.

### Questions, tests:

1. What is the history of the emergence of DM?
2. What is the main experience of the development of DM?
3. What is the world experience of the development of DM?
1. The definition of the subject "Evidence-based medicine" is:
  - A Conscious, clear and reasonable use of the best, currently proven information to make a decision on each specific patient
  - B - An approach to the provision of medical care using expert opinions in decision-making
  - C An approach to the provision of medical care using the principle of cost minimization in decision-making
  - d Approach to providing medical care using your own intuition in decision-making
  - E An approach to the provision of medical care using monographs of well-known scientists in decision-making
2. The modern definition of the concept of DM appeared in:
  - A 1992
  - B 1960
  - Since 2005
  - D 1991
  - E 2002
3. The most preferred form of evidence is:
  - A Controlled clinical trials
  - B Expert opinions
  - C Uncontrolled clinical trials
  - D Written confirmations
  - Notes of a laboratory assistant
- 4 An unfair criticism of the DM is:
  - A Lack of consideration of individual characteristics of patients in most CI
  - B devaluation of clinical reasoning
  - C Progress towards therapeutic nihilism
  - D Search for existing clinical guidelines
  - E Incompetence of medical professionals
- 5 The need for DM arose in connection with:
  - An increase in the volume of scientific information in all areas of medicine, and primarily in clinical pharmacology
  - B the need to justify the appointment of a doctor
  - C the need to promote medicines in the pharmaceutical market
  - D An exaggeration of the number of medical institutions
  - E An increase in the number of sick and wounded
- 6 Sources of evidence are:
  - A materials of individual studies, systematic reviews, short reviews, system sources of information
  - B monographs, textbooks, articles in medical periodicals, methodological developments of clinical departments

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C materials of congresses, congresses, scientific and practical conferences in various areas of medicine

D materials of medical journals, textbooks, system sources of information

Articles in medical periodicals, monographs, textbooks

7 The description of a series of cases suggests the presence of:

Ado 10 cases from clinical practice

B Up to 50 cases from clinical practice

Sdo 100 cases from clinical practice

Ddo 200 cases from clinical practice

Edo 250 cases from clinical practice

8 The term "Evidence-based Medicine" (EVM) or "Evidence-Based Medicine" (NDM) was proposed in:

A 1990.

B 1992.

C 1993.

D 1995.

E 1996.

9 The term "Evidence-based Medicine" or "Evidence-based Medicine" was proposed by:

A - Canadian scientists

B - American scientists

C - Japanese scientists

D - Russian scientists

E - By the World Health Organization

10 Prove the right prerequisites of evidence-based medicine (DM):

A more than 40,000 articles per year

B A large amount of information

C Periodic exchange of information

D Outdated medical knowledge

E more than 1000 articles

Terminology and tools of evidence-based medicine.

questions:

1. What is a double-blind multicenter study?

2. How are clinical trials conducted?

3. By what principle are clinical trials classified?

1. Topic No. 2: Clinical epidemiology: definition, history of development, basic principles and methods of research.

Tests:

1. Clinical epidemiology studies ... .


A. making predictions for each individual patient based on the study of the clinical course of the disease in analogical cases using strict scientific methods

B. medical history of patients in medical institutions


C. the number of patients registered at the dispensary

D. morbidity of patients in family outpatient clinics

E. healthy lifestyle

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2. Types of meta-analysis
  - A. cumulative, prospective
  - B. prospective, retrospective
  - C. cumulative, retrospective
  - D. cumulative, precumulative
  - E. prospective, precumulative
3. Evidence-based medicine should be engaged in ... .
  - A. every doctor using clinical analysis, conducting practical and scientific interpretation
  - B. nurses in sanatoriums
  - C. laboratory assistant analyzing research
  - D. dispensary doctor
  - E. doctor engaged in preventive treatment
4. Clinical medicine is interconnected with ... .
  - A. epidemiology
  - B. socioligy
  - C. political science
  - D. with the state language
  - E. jurisprudence
5. A random error is:
  - A. Deviation of the observation result in the sample from the true value in the population
  - B. Systematic deviation of the results of the study
  - C. Gradual change included by a person
  - D. Timely changed data
  - E. Method of observation in the sample
6. General practitioners in the UK accept ... % of clinical decisions in accordance with the principles of evidence-based medicine.
  - A. 80
  - B. 60
  - C. 50
  - D. 90
  - E. 40
7. Cochrane cooperation is based on ... principles.
  - A. 8
  - B. 9
  - C. 10
  - D. 7
  - E. 6
8. The variants of the research structure include ... studies.
  - A. transverse, longitudinal
  - B. oblique, straight
  - C. straight, horizontal
  - D. horizontal, double
  - E. single, vertical
9. Evidence-based medicine includes aspects ... .
  - A. medical and ethical
  - B. economic and ethical
  - C. legal and economic

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D. educational and medical

E. educational and social

10. Inability to perform normal activities at home, at work, during rest – this refers to ...

A. disability.

B. diseases.

C. discomfort.

D. dissatisfaction.

E. recovery.

11. One of the main provisions of clinical epidemiology is:

A. in most cases, the diagnosis, prognosis and treatment results for a particular patient are not clearly defined and therefore should be expressed in terms of probabilities

B. probabilities for a particular patient are poorly evaluated

C. the results are not subject to systematic errors leading to incorrect conclusions

D. any observations, including clinical ones, are not affected by randomness

E. to get conclusions, doctors should rely on their experience

12. Doctors learned about the limited effectiveness and even uselessness of the most common methods of treatment in the ... century.

A. XIX

B. XX

C. XVIII

D. XXI

E. XVIII

13. "RevMan" is ...

A. special software.

B. program on the Internet.

C. branch of evidence-based medicine.

D. computer game.

E. clinical guidance.

14. The foundation of a doctor's moral choice is ... .

A. evidence-based medicine

B. ethics

C. deontology

D. practical skills

E. clinical case

15. For the first time in 1990, a group of Canadian scientists from McMaster University in Toronto proposed the term ... .

A. evidence-based medicine

B. clinical epidemiology

C. ethics and deontology

D. biostatistics

E. bioethics

16. The question "What factors are associated with an increased risk of disease?" refers to:


A. risk

B. disease

C. outcomes

D. diagnosis

E. treatment

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17. The question "What are the consequences of the disease?" refers to:

- A. prognosis
- B. questions
- C. clinical outcomes
- D. diagnosis
- E. treatment methods

18. The new state of medical science reflects ... .

- A. evidence-based medicine
- B. history of medicine
- C. clinical deontology
- D. bioethics
- E. biostatistics

19. The strength of qualitative research is ... .

- A. reliability
- B. evidence
- C. triangulation
- D. induction
- E. deduction

20. The "gold standard" is considered to be:

- A. randomized controlled trial
- B. controlled trial
- C. prospective study
- D. cohort study
- E. clinical trials

### Situational tasks

#### 1. Task

On the 7th day after appendectomy for destructive appendicitis, the patient had dull pains in the lower abdomen and perineum, increased urge to stool, an increase in body temperature to 39-gy. Diagnosis: Pelvic abscess

Questions:

- 1. Choose the principle of evidence-based medicine according to this situation
- 2. What kind of research is used in this task

#### 2. Task


The patient, 29 years old, about 2 hours ago suddenly felt severe pain in the left half of the chest, lack of air. There was no injury, he denies lung diseases. Body temperature is normal. Breathing over the left lung is not listened to. Percussion determines the box sound on the left and the displacement of the mediastinum to the right. Diagnosis: Spontaneous nonspecific pneumothorax.

Questions:

- 1. Choose the principle of evidence-based medicine according to this situation
- 2. What kind of research is used in this task

Questions about the topic of the lesson:

- 1. What is the purpose of studying clinical epidemiology?

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2. What social aspects of clinical epidemiology do you know?
3. What are the main directions of clinical epidemiology?
4. What relates to clinical outcomes in clinical epidemiology?

Conclusion: Therefore, the main goal of clinical epidemiology should be considered the active introduction of methods of clinical observation and data analysis that ensure the right decisions in the treatment of patients and in the economy.

1. Topic #3: Cochrane Library, MEDLINE, EMBASE. PubMed-search methodology, search tools.

Test questions:

1 First-generation universal database:

- A. A Yahoo
- B. B Google
- C. C BMJ
- D. D Cochranlib.
- E. E Pubmed

2 Second generation search engine:

- A. A Direct Hit
- B. B Yandex
- C. C CM.ru
- D. D Altavista
- E. E Euroseek


3 Search engine in Russian:

- A. A Rambler
- B. B Inference
- C. C Oingo
- D. D Lycos
- E. E HotBot

4 The use of meta-search is assumed if:

- A. A other search engines don't find anything
- B. B The topic is clearly formulated
- C. C the search prescription is complex
- D. D it is necessary to obtain a large number of relevant results
- E. E There is no research on this topic

5 Medical search engines include:

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- A. A Medical World Search
- B. B Clinical Review
- C. C Russian server
- D. D Medical server
- E. E Geotar

6 MEDLINE is:

- A. A Bibliographic database
- B. B Library
- C. C Magazine
- D. D Electronic version of meta-analysis
- E. E Collection of recommendations

7 Thematic catalogs include:

- A. A Yahoo Health
- B. B Medline
- C. C Pubmed
- D. D Russian medical server
- E. E World Health Organization website

8 Electronic libraries containing scientific evidence literature include:

- A. A Pubmed
- B. B KazNMU Library
- C. C Russian Library
- D. D Kazakh National Library
- E. E Russian Medical server


9 The electronic means of search are:

- A. A Thematic catalogs
- B. B Libraries
- C. C Books
- D. D Collections of recommendations
- E. E Conference materials

10 Russian-language search engine is:

- A. A Rambler
- B. B Inference
- C. COingo
- D. D Lycos
- E. E HotBot



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## 1. Topic No. 4: Five stages of evidence-based medicine.

Tests:

1. The concept of "Evidence-based medicine" was introduced by scientists of the University ...

- A. McMaster.
- B. Sorbonne.
- C. Harvard.
- D. Oxford.
- E. Cambridge.

2. 1st step in DM:

- A. formulation of a clinical question
- B. development of practical guidelines
- C. writing an article on a selected topic
- D. search for information on a selected topic
- E. application of scientific data in practice

3. The 2nd step of DM is...


- A. search for scientific information in an electronic database.
- B. study of the state of the issue in the world literature.
- C. issue of the article.
- D. choice of treatment method.
- E. choice of diagnostic methods.

4. The 3rd step in evidence-based medicine is:

- A. critical analysis of scientific information
- B. development of practical guidelines
- C. writing an article on the chosen topic
- D. search for information on the selected topic
- E. formulation of a clinical question

5. In evidence-based medicine, the 4th step includes:

- A. application of scientific data into practice
- B. development of practical guidelines
- C. writing an article on the chosen topic
- D. search for information on the selected topic
- E. formulation of a clinical question

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6. One of the components of the applied question is:

- A. outcome
- B. prognosis
- C. disability
- D. drug
- E. Morbidity

7. Mandatory component of the applied question:

- A. patient or problem
- B. question word
- C. situation modeling
- D. medical worker
- E. literature

8. Evidence-based medicine is ...

- A. conscientious, accurate and meaningful use of the best results of clinical research to choose the treatment of a particular patient.
- B. generalization and interpretation of laboratory data.
- C. independent medical science.
- D. study of public health.
- E. theoretical basis of Soviet healthcare.

9. The purpose of cohort research


- A. to identify differences in the frequency of occurrence of certain clinical outcomes +
- B. to determine the cause of rare diseases
- C. to compare the advantages and disadvantages of the interventions
- D. to assess the prevalence of certain diseases in the population
- E. to describe the side effects of drugs in the study

10. Decision-making not based on the principles of evidence-based medicine is ...

- A. decision-making based on a short story.
- B. decision-making based on scientific approaches.
- C. decision-making depending on the disease.
- D. decision-making depending on the patient's status.
- E. decision-making based on economic costs.

11. Intrinsic validity is...

- A. reliability.
- B. generalizability.

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- C. evidence.
- D. popularization.
- E. evaluation of results.

12. Generalizability refers to:

- A. external characteristics of the sample
- B. internal characteristics of the sample
- C. qualitative indicators
- D. external characteristics of the population
- E. internal characteristics of the population

13. The frequency of the disease relates to:

- A. clinical issues
- B. clinical outcomes
- C. general medical issues
- D. aspects of clinical epidemiology
- E. aspects of evidence-based medicine

14. The search for information on evidence-based medicine begins with:

- A. database definitions
- B. printing articles
- C. copying
- D. reading articles
- E. viewing a resume


15. One of the components of the goal of clinical epidemiology:

- A. development and application of methods of clinical observation
- B. modification of clinical observation
- C. approbation of clinical observation
- D. development of clinical observation
- E. fairness of clinical observation

16. Specialized Websites:

- A. National Guidelines Clearinghouse
- B. Britishmedicaljournal
- C. Medical Server
- D. Russian electronic website
- E. International electronic website

17. Sources of scientific evidence:

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- A. DARE, MEDLINE sites
- B. archival sources
- C. statistical indicators
- D. Legislative materials
- E. economic materials

18. The basic clinical question contains:


- A. 2 components
- B. 1 component
- C. 3 components
- D. 4 components
- E. 5 components

19. The design of clinical trials is...

- A. the method of conducting scientific research in the clinic, i.e. its organization or architecture.
- B. the method of conducting medical interventions in the intervention group.
- C. the method of conducting medical interventions in the intervention group or in the comparison group.
- D. the method of conducting medical interventions in the comparison group.
- E. the method of conducting experimental research.

20. Case-control is ...

- A. analytical observational research.
- B. scientific research.
- C. analytical research.
- D. descriptive observational research.
- E. descriptive research.

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### Situational tasks

#### Task 1.

Primiparous 23 years old, delivered by an ambulance team to the maternity hospital after one attack of eclampsia, which occurred at home, 30 minutes ago.

Pregnancy is 37-38 weeks, the condition is severe, consciousness is inhibited. The skin is pale, pronounced swelling of the legs, blood pressure 150/100 mm Hg, pulse 98 beats per minute. Diagnosis: Pregnancy 37-38 weeks. Eclampsia.

#### Questions

1. Choose the principle of evidence-based medicine according to this situation
2. Name the survey types of research

#### Task # 2

A 29-year-old woman was taken to the hospital by an ambulance team due to complaints of cramping abdominal pain, severe bleeding from the genital tract for 60 minutes, dizziness, weakness. From anamnesis: with menstrual cycle disorders and chronic salpingoophoritis, she has been registered with a gynecologist for 3 years, 2 months ago she received anti-inflammatory therapy, the last menstruation was 1.5 months ago. Objectively: the condition is severe, blood pressure is 100/60 mmHg, pulse is 108 beats per minute, weak filling, temperature is 37.20 C. After a gynecological examination, a preliminary diagnosis was made: ectopic pregnancy

#### Questions

1. Choose the principle of evidence-based medicine according to this situation
2. Name the survey types of research

#### Task #3

The patient, 29 years old, was admitted to the hospital with complaints of pain in the lower abdomen and spotting bloody discharge from the genital tract, which appeared three hours ago. From anamnesis: two spontaneous abortions with repeated curettage of the uterine cavity, the last menstruation two months ago.

On the mirrors: the cervix is cyanotic, the discharge is spotty and sparse. During vaginal examination, the cervix is preserved, the external pharynx passes the tip of the finger, the uterus is enlarged to 7 weeks of pregnancy, softened, appendages are not defined, arches are free, spotting spotting. Diagnosis: Pregnancy of 7 weeks. Threat of termination of pregnancy

#### Questions

1. Choose the principle of evidence-based medicine according to this situation
2. Name the survey types of research


#### Questions about the topic of the lesson:

1. Why are there five main stages in DM?
2. What is the application of DM stages in practice?
3. What types of research in DM do you know?

The first stage of evidence-based medicine. Problem formulation using the PICO principle.

The main issues of the topic:

1. What is the first step in DM?
2. What is the purpose of the 1st phase of pre-registration trials of the clinical research process?
3. How to make a critical assessment of the information?

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4. Where is CISCO applied?
5. How was the development of CISCO in our country?

working in groups

1. What does the first stage of DM include?
2. How are the types of studies divided?
  1. What are the criteria of RISO?
  2. What are the main terms of evidence-based medicine?
    1. What are the features of the clinical research process?
    2. What are the features of the use of PICO?

**1. Topic #5:** Searching for information on the Internet using DM filters.

**4. Main issues of the topic:**

1. How to search for the right information on the Internet?
2. How to use electronic databases of evidence-based medicine?
 

work in groups.

  1. What rules of working in databases do you know?
  2. How to search for information on the Internet correctly?
    1. What advantages of using a DM database can you name?
    2. What disadvantages of using the DM database can you name?
      1. For what purpose have evidence-based medicine databases been created?
      2. What is the application of DM filters?

Critical evaluation of the data obtained. Fundamentals of statistical analysis of medical data.  
Work in groups

1. On what principle is the comparison of a group on a quantitative basis?
2. On what principle is the comparison of a group on a qualitative basis?
  1. What are the methods of statistical analysis?
  2. What are the features of application programs?
    1. What is the purpose of statistical analysis of medical articles?
    2. Rules for the use of multivariate data analysis.


Security questions:

1. What is meta-analysis?
2. What are the modern requirements for the description in publications of the procedure and results of statistical analysis of biomedical data do you know?
3. What is the analysis of the relationship (correlation, association) of two features?
4. How is the statistical processing of medical information carried out?

**1. Topic No. 6:** Meta-analysis of articles. Application of the "Forest raft" method

Group work

1. What are the types of clinical trials?

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2. What are the methods of conducting a critical assessment?

1. What are the features of a systematic review?

2. What are the features of meta-analysis of articles?

1. What is the purpose of assessing the methodological quality of the article?

2. What are the principles of working in the evidence-based medicine database?

Security questions:

1. What methods of writing medical articles do you know?

2. How can the information obtained be implemented into clinical practice?

The fourth and fifth stages of evidence-based medicine. Application of the obtained data in practice.

Security questions:

1. What is the fourth stage of DM?

2. What is the fifth stage of DM?

3. How is the implementation of the results of clinical trials in the field of pharmacy in practice carried out?

4. What methods of evaluating the results of the implementation of clinical trials in practice are used in DM?

Tests:

1 The correct interpretation of the PICO method for the formulation of a clinical question:

A P- patient, I- intervention, C- comparison, O- outcome

BP- patient, I- interpretation, C- comparison, O- outcome

CP- patient, I- interpretation, C- conclusion, O- outcome

DP- patient, I- intervention, C- comparison, O- organization

EP- problem, I- search, C- output, O- outcome

2 Sign of the experimental group in the experiment:

One of the comparison groups receiving the test drug

B one of the comparison groups receiving a placebo

A patient from the comparison groups receiving standard treatment

One of the comparison groups who is not receiving any treatment

One of the comparison groups receiving basic therapy


3 Rank the types of trials according to the strength of their evidence:

A RCT; Controlled trials without randomization; Cohort trials; Uncontrolled studies; Descriptive Studies.

Uncontrolled studies without randomization; RCTs; Descriptive studies; Cohort trials; Uncontrolled studies.

C Descriptive studies; RCTs; Controlled studies without randomization; Cohort trials; Uncontrolled studies.

D Uncontrolled studies; Descriptive studies; RCTs; Controlled studies without randomization; Cohort trials.

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Ecohort trials; RCTs; Controlled trials without randomization; Uncontrolled trials; Descriptive studies.

The 4 categories of proof - C are based on:

A Source of evidence is non-randomized studies.

B RCT. The evidence is limited, because there was not enough patients in the final part of the study. Recommendations can be extended to a limited population.

The discussion conducted by experts, as a result of which a consensus was reached.

D approaches to pharmacotherapy adopted in medical institutions.

The completed and well-planned RCTs, the perfect mathematical apparatus (meta-analysis) was used. They allow you to make recommendations for their use in a certain population.

5 Categories of proof – D are based on:

A discussion conducted by experts, as a result of which a consensus was reached.

VRKI. The evidence is limited, because there were not enough patients in the final part of the study. Recommendations can be extended to a limited population.

SRKI. The source of the evidence is non-randomized studies.

D approaches to pharmacotherapy adopted in medical institutions.

Incomplete and well-planned RCTs, perfect mathematical apparatus (meta-analysis) was used.

They allow you to make recommendations for their use in a certain population.

6 The 1st step of the DM is:

A formulation of a clinical question

B Development of practical guidelines

Writing an article on a selected topic

D Search for information on the selected topic

E application of scientific data in practice

7 2 step DM is:

Apoisk of scientific information in an electronic database

The state of the question in the world literature

C issue of the article

D Choice of treatment method

Evelection diagnostic methods

8 The 3rd step of DM is:

A Critical analysis of scientific information

Development of practical manuals

Writing an article on a selected topic

D Search for information on the selected topic

Formulation of a clinical question

9 In DM, the 4th step includes:


A the application of scientific data into practice

B Development of practical guidelines

C Writing an article on a selected topic

E Formulation of a clinical question



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10 One of the components of the application question is:

- A outcome
- B forecast
- Synvalidization
- D Drug
- E Health improvement

**1. Topic No. 7:** Approximate planning and audit of the clinical trials center. Error analysis.

**Working in groups.**

1. Types of planning.
2. Methods of error analysis.
  1. Members of the audit commission.
  2. Principles of clinical audit planning.
    1. Methods of error correction after the audit.
    2. Types of audit.

**Clinical guidelines:** definition, basic principles of development and implementation in practice.  
 Advantages and disadvantages of clinical guidelines.

**The main issues of the topic:**

- 1 How do you understand "clinical guidelines"?
- 2 Is there a need for clinical guidelines?

**Control (questions):**

- 1 What advantages of clinical guidelines can you name?
- 2 What disadvantages of clinical guidelines can you name?