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## GUIDELINES FOR PRACTICAL EXERCISES

**Name 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 term

**Practical exercises:** 25 hours

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Guidelines for practical classes are developed in accordance with the working program of the discipline (syllabus) " Basics evidence-based medicine"and discussed at the meeting departments.

protocol № " \_ \_ \_ " from \_\_\_\_\_2023.

Head of the Department,

Candidate of Medical Sciences, acting Associate Professor  
 \_\_\_\_\_ Sarsenbayeva G. Zh.

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**1. Topic # 1: Definition of evidence-based medicine. History of the development of evidence-based medicine. Global development experience. Terminology and tools of evidence-based medicine.**

**2. Goal:** Introduce students to aboutsnovnymi conceptsmi and tasksami fundamentals of evidence-based medicine, historyher development and worldsby email address experienceom DM development. Introduce students to the terminology and tools of evidence-based medicine, types of research in evidence-based medicine.

**3. Learning objectives:**

- basic terms of evidence-based medicine (DM);
- development of evidence-based medicine;
- scope of evidence-based medicine.
- research methods (observations);
- principles of evidence;
- types of observational studies;
- a cohort study.

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

1. What is evidence-based medicine?
2. In what area is DM used?
3. What are the basic principles of DM?
4. What does DM technology include?
5. What are the main prerequisites for DM?
6. What are the features of DM technology?

**5. The main forms/methods/technologies of training for achieving the final results of training in the discipline:** training case

**6. Forms of control for assessing the level of achievement of the final results of training in the discipline:** evaluation interview using a checklist

**7. Literature:** see appendix 1.

**8. Control (questions, tests):**

1. What is the history of DM occurrence??
2. What is it core development experience DM?
3. What is it global development experience DM?

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4. What is a double-blind multicenter study?
5. How are clinical trials conducted?
6. How are clinical trials classified?

**1. Topic #2: Clinical epidemiology: definition, history of development, basic principles and research methods.**

**2. Goal:** study of clinical epidemiology.

**3. Learning objectives:**

- history of clinical epidemiology;
- fundamentals of the state of clinical epidemiology;
- principles of evidence-based medicine.

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

1. What are the main concepts of clinical epidemiology that you can name?
2. What is the origin of the term clinical epidemiology?
3. What is the relationship between clinical medicine and epidemiology?

**5. The main forms/methods/technologies of training for achieving the final results of training in the discipline:** training case

**6. Forms of control for assessing the level of achievement of the final results of training in the discipline:** evaluation interview using a checklist

**7. Literature:** see appendix 1.

**8. Control (questions):**

1. What basic principles of clinical epidemiology do you know?
2. What social aspects of clinical epidemiology exist?
3. What are the main areas of clinical epidemiology?

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

**2. Goal:** Introduce students to work on the Internet and an electronic database.

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### 3. Learning objectives:

- the concept of a database;
- rules for working in databases;
- medical databases.

### 4. Main questions of the topic:

1. What are the main criteria for the operation of electronic databases?
2. What are the features of the medical information system?

### 5. The main forms/methods/technologies of training for achieving the final results of training in the discipline: training case

### 6. Forms of control for assessing the level of achievement of the final results of training in the discipline: evaluation interview using a checklist

### 7. Literature: see appendix 1.

### 8. Control (questions):

1. What features of medical electronic databases do you know?
2. What is the purpose of using databases in medicine?
3. What special programs are developed for working with data?
4. What additional settings of the PubMed search engine do you know?
5. What allows you to produce PubMed?

### 1. Topic№4: Five stages of evidence-based medicine. The first stage of evidence-based medicine. Problem formulation using the principle PICO.

**2. Goal:** teach students to engage in collective thinking activities, increase student activity as a result of mutual exchange of opinions, teach them to formulate opinions and draw their own conclusions in the course, ensure students' assimilation of the course material, and develop students' ability to use the following methods: knowledge by stages of evidence-based medicine for understanding and solving scientific research projects problems, prepare students for continuous learning. Learning the first stage of evidence-based medicine. Study principles of clinical problem formulation using the RISO principle.

### 3. Learning objectives: students should know and be able to:

- basic terms of evidence-based medicine (DM);
- using the evidence-based medicine database;

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- five stages of evidence-based medicine.
- basic terms of evidence-based medicine (DM);
- using the evidence-based medicine database;
- the first stage of evidence-based medicine.
- distinguish between types PICO research projects;
- basic skills in using the evidence-based medicine database and PICO;
- critically evaluate medical information using evidence-based medicine filters and PICO.

#### 4. Main questions of the topic:

1. What is the purpose of studying DM stages?
2. What is the correct way to conduct a step-by-step assessment of DM research?
3. What is the first step in DM?
4. What is the goal of phase 1 pre-marketing trials of the clinical research process?
5. How can I make a critical assessment of information correctly?
6. Where it is used PICO?
7. How the development took place PICO in our country?

#### 5. The main forms/methods/technologies of training for achieving the final results of training in the discipline: training case

#### 6. Forms of control for assessing the level of achievement of the final results of training in the discipline: evaluation interview using a checklist


#### 7. Literature: see appendix 1.

#### 8. Control (questions):

1. Why are there five main stages in DM?
2. What is the practical application of DM stages?
3. What types of DM research do you know?
4. Why are there five main stages in DM?
5. How is the first stage of DM performed?
6. What components PICO you know?
7. In what areas of medicine are the principles of RISO applicable?

#### 1. Topic №5: Search for information on the Internet using DM filters. Critical evaluation of the obtained data. Fundamentals of statistical analysis of medical data.

2. **Goal:** practice the skills of searching for information on the Internet using DM filters. Define the basics of statistical analysis of medical data. Teach the methods of statistical analysis

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contained in the package of applied programs STATISTICA, comparison of groups by quantitative and qualitative characteristics.

### 3. Learning objectives:

- master computer skills;
- knowledge of searching for information on the Internet;
- master the basic skills of using the evidence-based medicine database.

methods of statistical analysis;

- compare groups by quantitative and qualitative criteria;
- define combining the results of several studies (meta-analysis);
- applying multi-factor data analysis.

### 4. Main questions of the topic:

1. How to search for the right information on the Internet?
2. How to use electronic databases of evidence-based medicine?
3. What data types can you name?
4. How do I prepare my data for statistical analysis?
5. What methods of statistical analysis do you know?
6. Where is the STATISTICA application program used?

**5. The main forms/methods/technologies of training for achieving the final results of training in the discipline:** training case

**6. Forms of control for assessing the level of achievement of the final results of training in the discipline:** evaluation interview using a checklist

**7. Literature:** see appendix 1.

### 8. Control (questions):

1. What DM filters do you know?
2. What rules for finding information on the Internet do you know?
3. What are the advantages of using the DM database that you can name?
4. What is meta-analysis?

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5. What are the current requirements for describing the procedure and results of statistical analysis of biomedical data in publications?
6. What is the analysis of the relationship (correlation, association) of two attributes?
7. How is medical information statistically processed?

**1. Topic # 6: Meta-analysis of articles. Using the "Forest raft" method. The fourth and fifth stages of evidence-based medicine. Application of the obtained data in practice.**

**2. Goal:** Draw conclusions and prove your point of view, learn to explain pictures, tables, drawings, analyze medical articles, knowledge analysis and terminology. Learn basic concepts and tasks the fourth and fifth stages of DM. Application of the obtained data in practice.

**3. Learning objectives:**

- be able to assess the methodological quality of the article, conduct critical assessments of medical literature on evidence-based medicine;
- be able to understand what type of clinical trials have been conducted;
- master the basic skills of using the evidence-based medicine database.
  - fourth stage of DM
  - the fifth stage of DM
  - putting data into practice

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

1. What medical methods of writing an article do you know?
2. How do the resulting data contribute to clinical practice?
3. How is the fourth stage implemented in the DM?
4. How is the fifth stage implemented in the DM?
5. How are the data obtained applied in practice?


**5. The main forms/methods/technologies of training for achieving the final results of training in the discipline:** training case

**6. Forms of control for assessing the level of achievement of the final results of training in the discipline:** evaluation interview using a checklist

**7. Literature:** see appendix 1.

**8. Control (questions):**



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1. What methods of writing medical articles do you know?
2. How can this information be implemented in clinical practice?
3. What is the fourth stage of DM?
4. What is the fifth stage of DM?
5. How is the implementation of clinical research results in the field of pharmacy implemented in practice?
6. What methods of evaluating the results of the implementation of conducted clinical trials in practice are used in DM?

**1. Topic №7: Approximate planning and execution of an audit of a clinical trial center. Error analysis. Clinical guidelines: definition, basic principles of development and implementation in practice. Advantages and disadvantages of clinical guidelines.**

**2. Goal:** Study planning and conducting a clinical audit. Study clinical guidelines.

**3. Learning objectives:**

- principle of planning and conducting a clinical audit;
- purposes conducting a clinical audit;
- error analysis.
- the concept of "clinical guidelines";
- need for clinical recommendations;
- list of clinical recommendations;
- types of clinical questions;
- advantages guidelines;
- disadvantages manuals.


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

1. How is a clinical audit planned?
2. How is a clinical audit performed?
3. How is error analysis performed?
4. How do you understand the "clinical guidelines"?
5. Is there a need for clinical guidelines?

**5. The main forms/methods/technologies of training for achieving the final results of training in the discipline:** training case

**6. Forms of control for assessing the level of achievement of the final results of training in the discipline:** evaluation interview using a checklist

**7. Literature:** see appendix 1.

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## 8. Control (questions):

1. What is the purpose of conducting a clinical audit?
2. How do you conduct a clinical audit?
3. Who is a member of the commission that conducts the clinical audit?
4. What types of errors can you list?
5. What are the advantages can you name any clinical guidelines?
6. What are the disadvantages can you name any clinical guidelines?

## 1.Topic №8: Critical evaluation of the obtained data. Fundamentals of statistical analysis of medical data.

**2. Goal:** Define the basics of statistical analysis of medical data. Teach the methods of statistical analysis contained in the package of applied programs STATISTICA, comparison of groups by quantitative and qualitative characteristics.

### 3. Learning objectives:

- methods of statistical analysis;
- compare groups by quantitative and qualitative criteria;
- define combining the results of several studies (meta-analysis);
- applying multi-factor data analysis.

### 4. Main questions of the topic:

1. What data types can you name?
2. How do I prepare my data for statistical analysis?
3. What methods of statistical analysis do you know?
4. Where is the STATISTICA application program used?


**5. The main forms/methods/technologies of training for achieving the final results of training in the discipline:** training case

**6. Forms of control for assessing the level of achievement of the final results of training in the discipline:** evaluation interview using a checklist


**7. Literature:** see appendix 1.

## 8. Control (questions):

1. What is meta-analysis?

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2. What are the current requirements for describing the procedure and results of statistical analysis of biomedical data in publications?
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## Appendix 1.

### Recommended literature:

#### Main:

1. Vasiliev A. Yu. Analysis of radiation research methods based on the principles of evidence-based medicine: textbook. posobie, Moscow, 2008
2. Vlasov, V. V. Introduction to evidence-based medicine or how to use biomedical literature to improve your practice and research: textbook, Moscow: Media Sphere Publishing House, 2001
3. Greenhalgh T. Osnovy obrazovatel'noy meditsiny [Fundamentals of evidence-based medicine]. posobie, Moscow, 2004
4. Greenhalgh, T. Fundamentals of evidence-based medicine: textbook.stipend. - 3rd ed. - Moscow: GEOTAR-Media, 2008.
5. Greenhalgh, T. Osnovy obrazovatel'noy meditsiny : uchebnoe posobie [Fundamentals of evidence-based medicine: a textbook]. Moscow: GEOTAR-Media Publ., 2009.

#### Additional information:

1. Evidence-based medicine in questions and answers: textbook.- methodical manual / G. A. Derbisalina [et al.]. - Karagandy: ZHK "AkNur", 2013
2. Heneghan K. Evidence-based medicine: A Pocket Guide, Moscow, 2011
3. Evidence-based medicine. How to practice DM. Kak obuchat DM : praktikum: per. s angl. [How to teach DM: a practical course] / ed. by V. V. Vlasov, K. I. Saitkulov. Moscow: GEOTAR-Media Publ., 2010
4. Klyushin, D. A. Evidence-based medicine. Klyushin D. A., Petunin Yu. I. Primenenie statisticheskikh metodov [Application of statistical methods] : monograph / D. A. Klyushin, Yu. I. Petunin. - Moscow: OOO "I. D. Williams", 2008. - 315 p.
5. Moiseev, V. S. Internal diseases with the basics of evidence-based medicine and clinical pharmacology: ruk.for doctors / ed. by V. S. Moiseev, Moscow: GEOTAR-Media, 2010.
6. General epidemiology with the basics of evidence-based medicine. Guide to practical exercises: textbook.manual / edited by V. I. Pokrovsky, N. I. Briko, Moscow: GEOTAR-Media, 2010

#### Electronic devices database:

1. Clinical pharmacology [Electronic resource]: textbook / edited by V. G. Kukes, A. K. Starodubtsev. - 3rd ed., reprint. and an additional Electron . text messages. (41,8 Mb). - Moscow: Publishing house of the GEOTAR-Media group, 2012. - 840 p.
2. Doctor's consultant. Clinical recommendations. Version 2.1. Clinical guidelines based on evidence-based medicine for the main medical specialties. Pharmacological reference book. ICD-10. Search system [Electronic resource]: practical work. - Electron.text messages. ( 76,8 Mb). - Moscow: GEOTAR-Media, 2008. - e-opt.
3. Patient management plans. Versiya 1.1 [Electronic resource]: electronic ed. / ed.by O. Yu. Atkov. - Electron.text messages. ( 86,1 Mb). - Moscow: GEOTAR-Media, 2009. - e-opt.disk (CD-ROM). - (Evidence-based medicine).