Kermanshah University of Medical Sciences
School of Medicine
Department of Community & Family Medicine
Lesson Plan

Course title: Health.2
Audiences: International Med Stu, Fifth semester, Basic Sciences
Unit number: 2 theoretical units
Time and Place: Mondays, 10- 12 AM, School of Medicine
Course Director: Dr. Ali Azizi, Community Medicine specialist

Overall goals of the course: Students become familiar with Principle of Epidemiology

Overall goal for each class:

Students become familiar with:

1. Definition, uses, history and concepts of epidemiology
2. Occurrence of diseases: Surveillance and the disease morbidity measurement
3. occurrence of diseases: death and other health measures
4. Terms and method of disease transmission
5. Principles of cross sectional and ecological studies
6. Principles of case - control studies
7. Principles of Cohort Studies
8. Risk Estimation
9. Principles of Intervention Studies
10. Randomized clinical trial
11. Correlation and causality in epidemiology
12. Bias in interpreting causality relationships
13. Principles and application of screening
14. Evaluation of diagnostic tests
15. Epidemics and how to investigate them (1)
16. Epidemics and how they are examined (2)
17. The natural history of disease and prognosis

Specific goals for the overall goals of each session

Session 1: Familiarity with Definition, uses, history and concepts of epidemiology
Special goals: In the end, students will be able to:

1.1. Provide a comprehensive definition of epidemiology.
1.2. Give a brief history of epidemiologic activities.
1.3. List the fields of epidemiology activity and its application.
1.4. Explain the relationship between epidemiology and clinical medicine.
1.5. Describe the differences between epidemiology and clinical medicine.
1.6. Epidemiologic approach to health problems

Session 2: Familiarity with Occurrence of diseases: Surveillance and the disease morbidity measurement
Special goals: In the end, students will be able to:

2.1. Describe the main tools to measure the various events in epidemiology.
2.2. Describe the types of important ratios.
2.3. Describe the types of ratio and their application.
2.4. Describe the difference between crud, specific and standardized rates.
2.5. Describe the concept of Fraction Numerator in epidemiology.
2.6. Explain the concept of Fraction Denominator in epidemiology.
2.7. Explain the types of Fraction Denominator in epidemiology.
2.8. 3. Explain mortality measurement tools.
2.9. Calculate and interpret the types of incidence rates.
2.10. Explain Calculate and interpret the types of prevalence rates.
2.11. Explain the prevalence application.
2.12. Explain the incidence rate applications.
2.13. Explain the relationship between incidence and outbreak.
2.14. Explain active and inactive care of diseases

Session 3: Familiarity with occurrence of diseases: death and other health measures
Special goals: In the end, students will be able to:
3.1. Explain death and mortality measurement tools.
3.2. Explain Calculate and interpret crud death rate.
3.3. Explain the uses and limitations of the crud death rate.
3.4. Explain Calculate specific mortality rates.
3.5. Explain the uses and limitations of specific mortality rates.
3.6. Explain Calculate and interpret of mortality rates.
3.7. Explain Calculate the relative proportion of mortality.
3.8. Explain Calculate survival rate and describe its uses.
3.9. Describe how to calculate the adjusted or standardized death rates.
3.10. Explain the use of applied or standardized death rates.

Session 4: Familiarity with Terms and method of disease transmission
Special goals: In the end, students will be able to:
4.1. Describe common sources of infection and the source of infectious diseases.
4.2. Explain the common terminology of ways to transmit infectious diseases.
4.3. Define the common terminology for the sensitive host.
4.4. Explain the difference between the direct and indirect transmission pathways of infectious diseases.
4.5. Explain the difference between the latent period, incubation period and communicable period in infectious diseases.

Session 5: Familiarity with Principles of cross sectional and ecological studies
Special goals: In the end, students will be able to:
5.1. Describe types of epidemiologic studies
5.2. Describe Characteristics and application of a descriptive study.
5.3. Describe the process of descriptive study.
5.4. Describe characteristics of the cross-sectional study and its design.
5.5. Describe Characteristics of the study of correlation (ecological) and its design.

5.6. Describe advantages and disadvantages of a cross-sectional study.

5.7. T Describe advantages and disadvantages of a study of ecological studies.

Session 6: Familiarity with Principles of case - control studies

Special goals: In the end, students will be able to:

6.1. Describe the characteristics of the case-control study.

6.2. Describe how to design a case-control study.

6.3. Explain a case study design.

6.4. Explain the Odds Ratio concept.

6.5. Explain calculate and interpret Odds Ratio in case study.

6.6. Describe the strengths and weaknesses of a case-control study.

6.7. Explain the types of common bias in the case-control study.

Session 7: Familiarity with Principles of Cohort Studies

Special goals: In the end, students will be able to:

7.1. Describe the characteristics of the cohort study.

7.2. Explain how to design a cohort study.

7.3. Describe Design a cohort study.

7.4. Identify the strengths and weaknesses of cohort study.

7.5. Explain the concept of relative risk and associated risk.

7.6. Explain calculate and interpret relative risk in cohort study.

7.7. Explain the types of common bias in the cohort study.

Session 8: Familiarity with Risk Estimation

Special goals: In the end, students will be able to:

8.1. Explain the concept of absolute risk and interpret it.

8.2. Explain the concept of relative risk and interpret it.

8.3. Explain the concept and method of calculating the attributable risk.

8.4. Explain the concept and method of calculating population attributable risk.

Session 9: Familiarity with Principles of Intervention Studies

Special goals: In the end, students will be able to:

91.1. Explain the variety of interventional studies.

91.2. Describe the characteristics of the clinical trial study.

91.3. Explain the design of clinical trials (parallel, transverse, and factual).

91.4. Explain the design of clinical trials (parallel, transverse, and factual).

91.5. Explain method for selecting subjects studied in a clinical trial study.

91.6. Explain the method of random allocation in treatment groups.

Session 10: Familiarity with Randomized clinical trial

Special goals: In the end, students will be able to:

10.1. Explain the information collection methods in randomized clinical trials.

10.2. Explain how to demonstrate the results of randomized clinical trials.

10.3. Explain the method of interpreting the results of randomized clinical trials.

10.4. Explain the steps to test a new drug in medicine.

Session 11: Familiarity with Correlation and causality in epidemiology

Special goals: In the end, students will be able to:

11.1. Define correlation and causality in epidemiology.
11.2. Explain Criteria for judging the causality.
11.3. Explain the indirect relationship.
11.4. Explain the causal relationship is one-to-one and multi-factor.
11.5. Explain Hill's criteria for proving the causal role of a relationship.

Session 12: Familiarity with Bias in interpreting causality relationships
Special goals: In the end, students will be able to:
12.1. Explain the meaning of the confounding in the causality relationship.
12.2. Explain the types of bias in the causality relation.
12.3. Define the confounding variable.
12.4. Explain the interaction (inter action) between variables.
12.5. Describe how to control of all types of bias.

Session 13: Familiarity with Principles and application of screening
Special goals: In the end, students will be able to:
13.1. Describe the characteristics of an appropriate screening test.
13.2. Define the validity of the screening tests and the components of it.
13.3. Explain the reliability of the screening tests and describe the components that make up it.
13.4. Explain the relationship between validity and reliability.
13.5. Explain the positive and negative predictive value.
13.6. Explain application table 2 × 2 in screening test.
13.7. Calculate the sensitivity and specificity of screening tests and interpret the results.
13.8. Calculate the predictive value in screening tests and interpret the results.
13.9. Explain the relationship between the predictive value of the test and prevalence of disease.

Session 14: Familiarity with Evaluation of diagnostic tests
Special goals: In the end, students will be able to:
14.1. Define screening.
14.2. Describe characteristics of the disease are appropriate for screening..
14.3. Explain the types of screening.
14.4. Explain the value of screening programs
14.5. Explain the choice of bias in screening.
14.6. Explain bias opportunity to decide on screening.
14.7. Explain the preconditioned bias in screening.
14.8. Explain cost-benefit analysis for lied time bias on screening.

Session 15: Familiarity with Epidemics and how to investigate them (1)
Special goals: In the end, students will be able to:
15.1. Define the epidemic and give examples for them.
15.2. List the goals of an epidemic.
15.3. Describe different epidemic patterns.
15.4. Compare the "instantaneous" and "continuous" sources of epidemics.
15.5. Give examples epidemic patterns.
15.6. Drown epidemic curves for “instantaneous" and "continuous" sources of epidemics.

15.7. Explains the investigate steps to an instantaneous source's epidemic.

Session 16: Familiarity with Epidemics and how to investigate them (2)
Special goals: In the end, students will be able to:

16.1. List the stages of an epidemic with a continuous and progressive source, explaining each step.
16.2. Discuss the measures needed to stop epidemic transmission.
16.3. Take steps to prevent people who are prone to epidemics.
16.4. Explain how to report epidemics.
16.5. Review an example of the final report of a pandemic epidemic.

Session 17: Familiarity with the natural history of disease and prognosis
Special goals: In the end, students will be able to:

17.1. Explain ways to determine the prognosis of diseases.
17.2. Explain the concept of the case fatality rate of death and its calculation method.
17.3. Explain the concept of 5-year survival and its calculation method.
17.4. Explain the logic and method of calculating the lifetime table.
17.5. Explain the assumptions of using a lifetime table

References:

Epidemiology / Leon Gordis.—Fifth edition, 2014

Teaching method:

The lecture method, using slides and whiteboard, is in line with the questionnaire. In order to create a student participation in conducting a lecture, a question and answer method is used**.**

Educational tools:

A class with visual-audio features (computer, video projector, whiteboard or smartboard)

Evaluation

Exam	Date		Share of total score (in percent)	Exam Type
Midterm exam	11 Nov 2019		50%	**MCQ and Descriptive**
End of Term Exam	According to college program		50%	**MCQ and Descriptive**
One absence is allowed, the second absent is 0.25 and the third absent is 0.5 score (except by providing acceptable evidence) and more than three absences are treated in accordance with the training regulations.				

Class rules and expectations of Students:

Students should **avoid** any disturbance during teaching, such as:

1. Entering the class after the teacher

2. Eating and drinking during class
3. Long talk, laugh and make noise

Use of mobile phones and other audio and video equipment

Name and signature of the teacher:

Name and signature of Head of Department:

Name and signature of the EDO Director of the School of Medicine:

Time and Place: Mondays, 10- 12 AM, School of Medicine, 2019

Session	Date	Subject	Teacher
1	16 Sep 2019	Definition, uses, history and concepts of epidemiology	Dr. Azizi
2	22 Sep 2019	Occurrence of diseases: Surveillance and the disease morbidity measurement	Dr. Azizi
3	30 Sep 2019	occurrence of diseases: death and other health measures	Dr. Azizi
4	7 Oct 2019	Terms and method of disease transmission	Dr. Azizi
5	14 Oct 2019	Principles of cross sectional and ecological studies	Dr. Azizi
6	21 Oct 2019	Principles of case - control studies	Dr. Azizi
7	28 Oct 2019	Principles of Cohort Studies	Dr. Azizi
8	4 Nov 2019	Risk Estimation	Dr. Azizi
9	11 Nov 2019	Principles of Intervention Studies	Dr. Azizi
10	18 Nov 2019	Randomized clinical trial	Dr. Azizi
11	25 Nov 2019	Correlation and causality in epidemiology	Dr. Azizi
12	2 Des 2019	Bias in interpreting causality relationships	Dr. Azizi
13	9 Des 2019	Principles and application of screening	Dr. Azizi
14	16 Des 2019	Evaluation of diagnostic tests	Dr. Azizi
15	23 Des 2019	Epidemics and how to investigate them (1)	Dr. Azizi
16	30 Des 2019	Epidemics and how they are examined (2)	Dr. Azizi
17	6 June 2019	The natural history of disease and prognosis	Dr. Azizi