



Introduction & Overview of the course

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Epidemiology NUR404

Fall semester

1st week



Outline

- Course description
- Course objectives
- Course syllabus
- Course outline
- Students' evaluation (examination)



Objectives

- To describe the content of the course to the students.
- To familiarize students with the methods of students' assessment in the course



Course description

Aim

to introduce the principles and practice of disease epidemiology.

Main components

- Describe the etiology, distribution and determinants of diseases of major public health importance
- Describe prevention and public health control efforts
- Describe the epidemiological aspects of vaccination
- Describe surveillance and outbreak investigation



Course objectives

A greater appreciation and understanding of:

- The main epidemiologic characteristics of the major infectious diseases of humans.
- The factors determining the temporal (time), spatial (space) and social distributions of infectious diseases
- Host, organism and environment relationship as they relate to infectious disease epidemiology.
- How epidemiologic characteristics of infectious diseases are utilized to prevent and control their spread.

Assessment :

- Midcourse exam : 30%
- Presentation: 10%
- Assignment: 10%
- Quiz: 10%
- End of course exam: 40%

Lecture Schedule

Week	Topic	No. of hrs	
1	Introduction to the course and course book	2	
2	Introduction to the principles of epidemiology and measures.	2	
3	Mortality measurements	2	
4	Morbidity measurements	2	
5	Screening of diseases	2	
6	Basic principles of vaccination.	2	
7	Midcourse examination	2	
8	Introduction of infectious diseases	2	
9	Hepatitis	2	
10	Sexually transmitted diseases	2	
11	AIDS	2	
12	Tuberculosis	2	
13	Outbreak investigation & Surveillance	2	
14	Influenza	2	
15	Final course examination	2	



Lecture one: Course outline

Introduction to the course and course book

Course description

- **Course objectives**
- **Course syllabus**
- **Course outline**
- **Students' evaluation
(examination)**
- **Students' feedback on the
course**



Lect. 2 - Introduction to the principles of epidemiology

- History.
- Definition.
- Objectives of epidemiology
- Measures of epidemiology.
- Measurement tools in epidemiology.



Lect.3 –Mortality measurement

- Crude death rate.
- Specific death rate.
- Case fatality rate.
- Proportional mortality rate.
- Survival rate



Lect.4 – Morbidity measurement

- **Incidence**
 - **Attack rate**
 - **Secondary attack rate**
- **Prevalence**
 - **Point prevalence**
 - **Period prevalence**



Lect.5- Screening for diseases

- **Concept of screening**
- **Objectives of the screening.**
- **Criteria of screening.**
- **Characteristics of screening test.**
- **Parameters of screening test.**
- **Uses of screening.**



Lect. 6 - Basic principles of vaccination

- **Basic principles of the human immune response to infection**
- **Implications of immune response for vaccine design**
- **Expanded Program of Immunization (EPI)**
 - **Concept of EPI**
 - **Objective and goal of EPI**
 - **Calendar of EPI**
 - **Coverage EPI**
 - **Factors influencing EPI coverage**
 - **Management of EPI program**



Lect. 7 - Introduction to infectious diseases

- Burden of infectious diseases
- Introduction of the language of infectious diseases
- General characteristics of infections
- Characteristics of host individuals and host populations
- Time course of a single infection



Lect.8 - Hepatitis (A, B, C)

- Types
- Modes of transmission
- Endemicity
- Importance of serological parameters
- Prevention and control

Lect.9 - Sexually transmitted infections (STIs)

- **The principal biological and behavioural factors contributing to the spread of STIs in human populations**
- **The principles and problems of measuring STI transmission in populations**
- **The principles of STI control program**



Lect.10 - HIV/AIDS

- Historical perspective and origin
- Epidemiology
- Mode of transmission
- Risk factors
- Natural history and classification of HIV infection
- Prevention and control



Lect.11 - Tuberculosis

- **Historical background**
- **Epidemiology**
- **Natural history**
- **Infection (transmission mechanism, risk factors, molecular tracing)**
- **TB control and prevention**
 - Case finding and treatment (ascertainment, diagnosis, treatment (DOTs))
 - Chemoprophylaxis
 - BCG
- **Molecular epidemiology and drug resistance**

Lect.12 - Outbreak investigation and surveillance

- **Main steps of outbreak investigation.**
- **Identification of outbreak.**
- **Investigation and control of an outbreak.**
- **Microbiological and chemical analysis**
- **National surveillance**
- **Principles of surveillance**



Lect. 13 - Influenza

- **Historical background**
- **Types of influenza**
- **Mutation in influenza virus**
- **Human infection**
- **Epidemiology**
- **Pandemic influenza**
- **Treatment and prevention**
- **Vaccine and prophylaxis**

Examinations

- **The examinations that will be held during the course include:**
 - Quizzes - during the teaching sessions
 - Midcourse exam – Theoretical
 - End of course exam – Theoretical
- **The exam will include material from the sessions.**
- **Theoretical exams will include different types of question:**
 - Single choice
 - Essay questions.
 - True-false questions



Examples of single choice questions

Q1- Encircle the most appropriate answer in the following statements:

1. Measurements of disease frequency include;

- a. Prevalence
- b. Incidence
- c. Odds Ratio
- d. All the above
- e. A and B

Q. Concerning control of tuberculosis:

- a. BCG provides a high level of protection
- b. Treatment with multiple drugs helps to prevent drug resistance
- c. Case finding and screening is easy
- d. Chemoprophylaxis for contacts is simple, safe and very effective measure



Examples of short answer questions

Q2. Write short notes on prevention and control of the following infections;

- Hepatitis B infection
- Influenza type A
- HIV/AIDS
- Tuberculosis



References

- **Control of communicable diseases manual**, by Heymann DL, American Public Health Association, 19th edition, 2008.
- **Park's textbook of preventive and social medicine**, by Park K, Banarsidas Bhanot Publishers, 21st edition, 2011.