DEPARTMENT OF EPIDEMIOLOGY, BIOSTATISTICS AND EVIDENCE-BASED MEDICINE

SHORT SUMMARY OF LECTURES

ON INTEGRATED COURSE PATIENT AND SOCIETY FOR GENERAL MEDICINE

5 credits

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Short summary of Lectures

Lecture 1. **Introduction and bases of Epidemiology.**

Definitions: health, sickness, illness, disease, Public Health, Epidemiology, frequency, distribution, determinants, health population, *health-related* condition, application. Hierarchy of Health Sciences. History of Epidemiology. Scope of Epidemiology. Purpose/use and objectives of Epidemiology. Basic Features of Epidemiology. Core Epidemiologic Functions. Causation. Epidemiologic Triad. Component causes and causal pies. Natural History and Spectrum of Disease. Chain of Infection. Epidemic Disease Occurrence. Epidemic patterns. Implications for public health.
Definitions. Data collection and analysis. Qualitative interviews. Documential analysis. Observation. Generalizability and validity . Frequences. Rates: incidence, prevalence, mortality, birth measures. Measures of association: odd ratio, relative risks. Chi-square statistics.

Lecture 2. Epidemiological studies: descriptive and analytical studies.

Types of Epidemiology: Descriptive and Analytical. Concepts of causality and probability. Descriptive studies: case reports, case series, ecological and cross-sectional. Benefits and limitations of ecological and cross-sectional studies. Measures of outcomes. Analytical studies. Structure of analytical studies. Case-control study. Cohort study. Steps and types in conducting of its. Benefits and limitations of case-control. Measures of association. Validity and accessibility.
Experimental studies**.** Randomized controlled trial. Randomization. Intervention. Comparison groups. Historical and Simultaneous Control Groups. Design of a Randomized Clinical Trial. Gold Standard of Study Designs. Masking. Placebo and blinding. Non-randomized trial. Data collection. Analysis. Types of clinical trials. Overview of epidemiological studies.

Lecture 3. Exposure oriented Epidemiology.

Life-course Epidemiology. Social Epidemiology. Occupational Epidemiology. Environmental Epidemiology. Nutritional Epidemiology.
Reproductive Epidemiology. Clinical Epidemiology. Evidence-Based Medicine. Pharmacoepidemiology. Physical Activity Epidemiology. Radiation Epidemiology.

Lecture 4. Outcome oriented Epidemiology

Epidemiology of infectious diseases. Causation. Epidemiologic Triad. Component causes and causal pies. Natural History and Spectrum of Disease. Chain of Infection. Epidemic Disease Occurrence. Epidemic patterns. Implication for public health. Epidemiology of non-communicable diseases. Component causes and causal pies. Natural History and Spectrum of Disease. ICD-10^{th} version. Disease Occurrence and Outcomes. Implication for public health. Cardiovascular Health and Diseases. Cancer Epidemiology. Epidemiology of Diabetes. Epidemiology of Chronic Respiratory Diseases.

Lecture 5. Introduction to Public Health Surveillance. **Prevention.**

Introduction. Purpose and Characteristics of Public Health. Surveillance. Identifying Health Problems for Surveillance. Identifying or Collecting Data for Surveillance. Analyzing and Interpreting Data. Disseminating Data and Interpretation..Evaluating and Improving Surveillance. Introduction to Investigating of outbreak. Objectives. Steps of outbreak: prepare for field work, establish the existence of an outbreak, verify the diagnosis, construct

a working case definition, find cases systematically and record information, perform descriptive epidemiology, develop hypotheses, evaluate hypotheses epidemiologically; reconsider, refine, and re-evaluate hypotheses; compare and reconcile with laboratory and/or environmental studies; implement control and prevention measures ; initiate or maintain surveillance; communicate findings**.** Prevention of diseases. Preventive measures. Vaccination. Definition of screening test. Outcomes in the Screening Decision Tree. Sensitivity and Specificity: Tests of Validity. Positive and Negative Predictive Value: Yield of Screening Test. Calculating Measures of Validity and Yield. Low or High Risk Population? Importance of Prevalence in Screening. Effect of Prevalence on PPV with Constant Sensitivity and Specificity. Screening Program Considerations (Guidelines).