

Course: P.G. Diploma in Health Science Research

Syllabus

Paper.I PUBLIC HEALTH

Part.A: Epidemiology

Unit.1: Principles & Practice of Epidemiology

Aims of epidemiology, Epidemiological approach, epidemiological methods, descriptive epidemiology, analytical epidemiology, experimental epidemiology, uses of epidemiology

Unit.2: Communicable diseases epidemiology

Respiratory infections, Intestinal infections, Food handling, Dengue syndrome, Japanese Encephalitis, Surface Infections

Unit.3: Non-Communicable diseases epidemiology

Coronary heart disease, Hypertension, stroke, Rheumatic heart disease, cancer, diabetes, problems of elderly

Part B: Health Programmes in India

Unit.1: National Health Programmes

Introduction National programmes on Malaria eradication, Filaria control, leprosy, eradication, tuberculosis control, diarrhea diseases control, mental health programme, cancer control, diabetes control, population control and family welfare, minimum needs programme. Programme for street children, AIDS control programme, Rural Health Mission

Unit.2: Child Health

Life Cycle Approach, New born care – care of low birth weight baby, care of sick newborn, immunization, Integrated Child Development Service (ICDS), Developmental assessment

Nutrition – breastfeeding, complementary feeding, nutritional deficiency state, protein energy malnutrition, acute respiratory infection, Diarrhoeal diseases, ORS, fever, Integrated management of neonatal & childhood illnesses (IMNCI), PWD Act, Juvenile justice.

Unit.3: Reproductive Health

Safe motherhood – antenatal care, intranatal care, postnatal care, Abortion – types, indications of MTP, Contraception and sterilization, prevention & management of Reproductive Tract Infections (RTIs), Sexually transmitted diseases – HIV / AIDS, Gender and social discrimination.

Part.C: Health Management

Unit.1: Health Policy & Health Economics

Assessment of population health, Assessing health needs, Developing a health profile, risk and risk assessment, assessing causes of health problem, assessment of potential interventions, policy choices, policy implementation, policy evaluation. Health economics: Role of health economics, types of economic analysis

Unit.2: Health System Management

Introduction to Health System, Principles of health services, overview of health care delivery system, Environment & Health, Alternatives systems of medicine, disaster management, biomedical waste management

Unit.3: Ethical Issues in Medico-social Research

Ethics & epidemiological research, ethics in medical research in India, role of ethical committees in medical research, ethical guidelines research in health- ethical principles for research, rights and responsibilities, researchers and institutions, rights of participants

Paper. II: CLINICAL EPIDEMIOLOGY

Part A – Research Designs - An Overview

Unit.1: Fundamentals of Health Science Research : Definition, Characteristics, Aims and Uses, Steps in Health Science Research - Selection of area, Topic, Problem formulation, Literature study, Identifying variables, Hypothesis, Fixing the Universe, Pilot study, Deciding design, Methods of data collection, Choosing samples, Pretest, Data collection, Processing data, Report writing.

Unit.2: Research Design: Purposes, Types- Observational or descriptive, Analytical, experimental, non-experimental study designs, time series design, before & after study, Quasi-experimental study, ecological study, programme evaluation. Refining a research question, steps involved in refinement of research question, formulating a hypothesis. Steps involved in the preparation of a research protocol, Process of Data collection.

Unit.3: Data presentation and Report writing: Classification, Tabulation, Interpretation, Diagrammatic and Graphic representation. Report writing: Review of literature, Problem, Objectives, Methodology, and Uses of footnotes, Bibliography

Part B – Specific Research Design

Unit.1: cohort study: Types of cohort studies, issues in the design of cohort studies- selection of the exposed population, selection of the comparison group, sources of data, sources of exposure information, sources of outcome data, approaches to follow up, issues in analysis and interpretation.

Unit.2: Descriptive study: Types of descriptive studies, correlational studies, case reports and case series, cross sectional surveys: hypothesis formulation from descriptive studies.

Unit.3: Case Control Study-method, steps in case-control study, bias in case control study, advantages and disadvantages, issues in the design and conduct of case control studies definitions and selection of cases, selection of control, issues in analysis and interpretation.

Part C- Clinical Trials Methodology

Unit.1: Introduction to Clinical Trials

Types of Trials, history of trials, multicentric trials, patient selection, selection of controls, randomization, block randomization, blinding, confounding and interaction, bias, placebos, ethical issues

Unit.2: Basic Study Designs

Randomized control studies – non randomised concurrent control studies, historical control/ databases, cross over designs, withdrawal studies, factorial design, group allocation design, hybrid designs, studies of equivalency, large simple clinical trials, docs response studies, baseline assessment.

Unit 3 Data collection, Analysis & Reporting : Sample size calculation, power, level of significance, event rate, effect size, variability, dichotomous response variables, continuous response variables, repeated , measures, equivalency of interventions, multiple response variables. Data collection and quality control, guidelines for writing a trial report.

Paper.III: FIELD EPIDEMIOLOGY & BIostatISTICS

Part A – Community Survey

Unit.1: Questionnaire Design & Validation: Measurement instruments- development and validation, Types of validity and reliability scaling techniques- likert scale, Thurston scale, Bogardous scale

Unit.2: Sampling in research: Sampling methods: Probability sampling, random sampling, stratified random sampling, systematic sampling, cluster sampling, multistage sampling, Sampling errors, Merits and demerits of sampling

Unit.3: Conducting a community survey

How to plan a survey- definition of terms and concepts, study unit, reference population, sample size. Types of survey-cross sectional survey, longitudinal survey, panel survey, trend survey

Part B - Biostatistics-

Unit.1: Descriptive Statistics

Introduction, Measures of central tendency- Mean, Median, Mode, Measures of Dispersion- Range, Quartile deviation, Mean deviation, Standard deviation, Odds ratio.

Unit.2: Statistical Testing Inference

Probability theory: Binomial, Normal, and Poisson distribution, Statistical Testing of hypothesis and Inference, Type-I Error and Type-II error, Tests of significance, Chi-square test, T-test, Z-test, One tailed and two tailed tests. Measures of association- Correlation.

Unit.3: Univariate & Multivariate analysis

Univariate and multivariate analysis techniques

Part C - Computer Applications in Research.

Unit.1: Introduction to Computer Applications: Introduction , hardware, software, Microsoft windows 98/XP, Microsoft word.

Unit.2: Data entry, Data Cleaning: Introduction to data entry, data cleaning, microsoft Excel, Access (demonstration)

Unit.3: Statistical packages(Practical): Basic information epi info/ epi 6, SPSS, (demonstration)

Paper.IV: Qualitative Research Methodology

Part A - Principles of Qualitative Research

Unit.1: Introduction to Qualitative Research

What is qualitative research?, Qualitative Vs Quantitative Research, Characteristics of qualitative research, Strengths and weaknesses of qualitative research

Unit.2: Designing a qualitative study

Setting out the focus and purpose of enquiry, framing the research questions
sampling plan, tools, data analysis

Unit.3:

Sampling strategies in qualitative research- Random probability sampling, purposive sampling, sample size in qualitative research

Part B – Qualitative Research Methods

Unit.1: Approaches in qualitative research

Action research, case study research, ethnography, grounded theory

Unit.2: Qualitative data collection

Structural difference in quantitative data collection, Data collection techniques in qualitative research –Interviews: structured interviews, semi-structured interviews, unstructured in- depth interviews, Focus Group Discussion (FGD), Direct observation: Ethnography and participant observation

Unit.3: Major data collection techniques

In-depth interviews: Framing qualitative questions, stages of interview, Key steps in conducting in-depth interviews, tips for conducting in-depth interviews, advantages of in-depth interviews

Focus group discussion: definition, when is a focus group used? How is a focus group conducted, developing a focus group topic guide, planning and arranging logistics, getting the focus group started, focus group moderating techniques, presentation of data, Sociogram.

Part C – Qualitative Data Management

Unit.1:

Principles of Qualitative data analysis

What are qualitative data? Basic steps in Qualitative data analysis-free-listing, domain identification, coding, writing qualitative research report

Unit.2: Assessing the quality of qualitative research

How do you assess the quality of qualitative research? Triangulation, ensuring reliability and validity

Unit.3: Use of Computer in Qualitative data analysis

Software tools for qualitative researchers: EZ-TEXT, ATLAS.ti, NUDIST

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2. Reproductive and Child Health Module for Health Worker Female & Module for Medical Officer, National Institute of Health and Family Welfare, New Delhi.
3. IAP Text Books of Pediatrics, 3rd Edition, Parthasathy.A, Nair MKC, Menon PSN (Eds), Jaypee Medical Publishers, New Delhi, 2005
4. Jesson C. Unni. Life Skills Interactive Sessions Minus Two to Plus Two, 1st Edition, Publisher's Guild, Cochin 2003.
5. Irwin G. Sarason, Barbara R. Sarason. Abnormal Psychology- The problem of maladaptive behaviour, 8th Edition, Rekha printers Private Ltd, New Delhi 1996.
6. Dutta D.C. Text Book of Obstetrics. Hiralal Konar(Edr).4th Edition(Reprint). New Central Book Agency (P) Ltd. Calcutta 2000.
7. Pranee Liamputtong & Douglas Ezzy Qualitative Research Methods, Oxford University, Press, New York, 2000
8. Stuart J Pocock: clinical trials : A practical approach, John Wiley & Sons, New York 1993
9. B K Mahajan: Methods in Biostatistics Jaypee Brothers, Bangalore 1999
10. Lawrence M Friedman, Curt D Furberg, David L DeMets, Fundamentals of Clinical Trials, Mosby, New York 1985