

Department of Community Medicine
Hamdard Institute of Medical Sciences and Research,
New Delhi, India



Course and Curriculum
MASTER OF PUBLIC HEALTH
2020-21

1. Course Objectives in terms of Skills, Competencies and Learning Outcomes:

The course will help candidate to **develop skills in the following areas:**

- Analytical and assessment skills for collecting and interpreting information
- Policy planning and development skills to address public health challenges
- Communication skills for advocacy, dissemination and evaluation of public health data and information
- Financial planning and management skills for running public health programs in the country
- Leadership skills

Specific to the course content, successful candidates are expected to demonstrate the following competencies in a Public Health setting:

1. Apply the course learning to the public health system and its challenges:

- a. Demonstrate adequate knowledge and skills to a wide range of public health topics
- b. Critically conduct the situational analysis and develop action plan for identified public health issues
- c. Develop workforce for taking public health related responsibilities in defined geographical areas
- d. Develop an understanding of the epidemiological transitions of programs specific to each State within the country in order to prioritize public health challenges for policy making

2. Develop, implement and evaluate key public health policies:

- a. Develop a capacity to apply conceptual framework to understand policy processes in health care
- b. Understand roles of supply and demand in policy making in health care
- c. Develop an understanding to facilitate inter-sectoral coordination and public private partnership
- d. Critically analyse resource allocation for competing public health interests across programs
- e. Formulate context appropriate policies and design programs to address public health challenges, effectively

3. Develop and demonstrate competency in managing health systems at different levels:

- a. Identify immediate and long term health program goals at national, State and district levels
- b. Prioritize health issues in population
- c. Describe various managerial information systems and their application
- d. Describe program management plans in health
- e. Understand and apply core management principles for human resources in health

- f. Understand and apply program budgeting and economic evaluation
- g. Understand and apply quality assurance and improvement techniques in health care

4. Develop competency in research:

- a. Understand and apply ethical principles in research, evaluation and dissemination
- b. Develop competence to critically evaluate existing information and identify gaps
- c. Formulate and test research hypotheses in real world scenario
- d. Translate research knowledge for evidence based policy making

1.1 Eligibility Criteria for the Master of Public Health Program:

The following are suggested eligibility criteria for the MPH Program in HIMSR:

Graduates in

- Medicine / AYUSH / Dentistry / Veterinary Sciences / Physiotherapy/Nursing & Other Allied Health Sciences
- Biostatistics / Demography / Population Studies / Nutrition / Sociology / Psychology / Social Work

Desirable:

- ▶ Graduates in Health Science will be given preference
- ▶ Demonstrated work experience in a healthcare-related field.

Total No. of seats: 6

Criteria for admission:

- i. A minimum of 55 % overall marks in graduation
- ii. Admission will be on the basis of performance in interview.

Demonstrated work experience in a healthcare-related field is highly desirable.

1.2 Duration of the course: This course is designed to be a two years' full time program including internship and dissertation.

1.3 Course outline

The MPH course will comprise of 15 Core modules and several elective modules which may be offered by Universities depending on their capacity and capability. **Four** elective streams

comprising five modules each have been suggested in this document in addition to **15 Core** modules. A candidate will need to pass 15 Core (compulsory) modules, and five (5) elective modules of the chosen stream to successfully complete the program.

A. Core modules (compulsory for all four streams)

- a. Principles and practice of Public Health
- b. Introduction to health system and policy in Developing countries
- c. Health Management: Management Principles and practices
- d. Basic Epidemiology
- e. Basic Biostatistics
- f. Demography and population sciences
- g. Introduction to health economics
- h. Health promotions approaches and methods and evaluation
- i. Introduction to financial management and budgeting
- j. Social and behaviour change, effective communication in health care
- k. Reproductive, Maternal, Neonatal, Child Health and Adolescent Health (RMNCH+A) also to include Family Planning
- l. Introduction to health programme evaluation
- m. Principles of social research methods
- n. Environment and occupational health
- o. Law and ethics in public health

B. Elective streams

1. Epidemiology

- i. Advanced Biostatistics
- ii. Advanced Epidemiology
- iii. Survey design and methods
- iv. Infectious disease epidemiology
- v. NCD epidemiology

Note: Modules (i) to (v) compulsory for Epidemiology Stream

2. Health Programme, Policy and Planning

- i. Health policy, process and planning
- ii. Programme planning and evaluation of public health programmes (including current NHPs)
- iii. Translating research into policy and health advocacy
- iv. Current issues in Health Policy: National and global perspective
- v. Role of non-governmental organizations in health care

Note: Modules (i) to (v) compulsory for Health Programme, Policy and Planning Stream

3. RMNCH+A

- i. Sexual and Reproductive health

- ii. Maternal and child health
- iii. Adolescent health
- iv. Gender and health
- v. Public health nutrition

Note: Modules (i) to (v) compulsory for RMNCH+A Stream

Each elective stream **MUST** contain coursework for at least **10 credits or 350 hours**.

C. Internship

D. Dissertation

Semester Distribution of Master's Program

Semesters	Months	In/out Campus
Semester 1	6 months	In campus classes
Semester 2	4 months	In campus classes
	2 months	Internship
Semester 3	6 months	In campus classes
Semester 4	2 months	In campus classes
	4 months	Research, submission and defence of dissertation

Holidays and breaks will be as per rules of Jamia Hamdard. The suggested organization of modules is as follows:

SEMESTER 1 MODULES
Principles and Practices of Public Health
Introduction to Health System and Policy in Developing Countries
Health Management : Management Principles and Practices (Strategic management)
Basic Epidemiology
Basic Biostatistics
Demography and Population Sciences
SEMESTER 2 MODULES
Introduction to Health Economics
Health Promotion Approaches and Methods
Introduction to Financial Management and Budgeting
Social and Behaviour Change, Effective Communication in Health Care

SEMESTER 3 MODULES
Reproductive, Maternal Health, Child Health and adolescent (RMNCH+A)
Introduction to Health Programs and evaluation
Principles of Social Research Methods
Environment and Occupational Health
Law and Ethics in Public Health
SEMESTER 4 MODULES
Elective Stream modules (5)

Pattern for semester examinations of MPH Course

Sem-ester	Paper	Paper code	Subject (core modules)	Marks		
				IA	External	Total
1 st Semester	Paper I	PH101	Principles and Practices of Public Health & Basic Epidemiology	25	75	100
	Paper II	PH102	Demography and Population Sciences	25	75	100
	Paper III	PH103	Health Management & Health System	25	75	100
	Paper IV	PH104	Basic Biostatistics	25	75	100
	Paper V (Practical)	PH105	Practical methods in Epidemiology, Biostatistics, Demography and Health system Management	25	75	100
	TOTAL					500
II nd Semester	Paper I	PH201	Health Economics & Financial Management and Budgeting	25	75	100
	Paper II	PH202	Health Promotion Approaches and Methods	25	75	100
	Paper III	PH203	Social and Behaviour Change, Effective Communication in Health Care	25	75	100
	Paper IV (Practical)	PH204	Practical methods in Health Economics and Social Behaviour science	25	75	100

	Paper V	PH205	Internship	25	75	100
	TOTAL					500
III rd Semester	Paper I	PH301	Reproductive, Maternal Health, Child Health and adolescent	25	75	100
	Paper II	PH302	Introduction to Health Programs and evaluation	25	75	100
	Paper III	PH303	Principles of Social Research Methods & Law and Ethics in Public Health	25	75	100
	Paper IV	PH304	Environment and Occupational Health	25	75	100
	Paper V (Practical)	PH305	Practical methods in Health Programs, Environment Health and Research	25	75	100
	TOTAL					
IV th Semester	Paper I* (Elective)	PH401*	Epidemiology	25	75	100
			Program Policy and Planning			
			RMNCH+A			
	Paper II (Practical)	PH402	Practical methods in Epidemiology or Program Policy and Planning or RMNCH+A	25	75	100
Paper III	PH403	Dissertation	100	200	300	
TOTAL						500
GRAND TOTAL						2000

*Option of choosing Any one

Importance of Professionalism, values and communication: During orientation week, the course is expected to provide the candidate an overview of professionalism, importance of professional values and communication including;

- Professional values- Integrity, objectivity, professional competence and confidentiality.
- Core values- Accountability, Altruism, Compassion/ caring, excellence, integrity, professional duties, social responsibility
- Personal values- ethical or moral values
- Attitude and behaviour- professional behaviour, treating people equally
- Code of conduct, professional accountability and responsibility, misconduct
- Cultural issues in the healthcare environment
- Differences between the various healthcare professions and importance of team efforts

- Entry level health care practitioner, direct access, autonomy in profession, practitioner of medical practice and evidence based practice

General evaluation:

Each semester will have theory exam and practical examination at the end of the semester and in addition the fourth semester will also be evaluated on the basis of the Dissertation.

MASTER OF PUBLIC HEALTH

A. CORE MODULES (COMPULSORY)

1. Principles and practices of public health:

- . Health and Public health
- . Health, its determinants and public health
- . The science and practice of public health
- . History of public health
- . Concept of wellbeing and disease
- . National history of disease
- . Health equity
- . Environments and health introduction
- . Public Health action
- . Organization of the public health system in India

Suggested Reading:

- . Oxford textbook of Global Public Health Ed. Roger Detels, James McEwen, Robert Beaglehole, and Heizo Tanaka Oxford University Press (OUP) 4th Edition: 2002.
- . Park K. Park's textbook of preventive and social medicine. 2021, 26th ed. Jabalpur: Banarsidas Bhanot Publishers.
- . Editorial (1985): "The Distinction between Public Health and Community/Social/Preventive Medicine". Journal of Public Health Policy, December.

2. Health system and policy in developing countries:

- . Evolution of public health initiatives: primary health care, selective primary health care, MDGs, SDGs
- . Alma Atta and Asthana declaration
- . Service Delivery; how care is delivered within countries
- . Health workforce

- . Information systems
- . Medical products, vaccines & technologies, including product supply delivery
- . Financing of health systems and Universal Health Coverage.
- . Leadership, governance and regulation
- . Monitoring and evaluation of health systems
- . Challenges in Public health delivery system: with ref to delivery, performance, effectiveness, efficiency, and equity, discussion about the sources of problems and potential solutions
- . Health Care Systems in India- types of service providers, sources and methods of financing, and regulations.
- . IPHS- Subcentre, PHC, CHC, U-PHC, district hospitals
- . Health care system in Developed and developing countries
- . Health care planning:
 - . Health manpower planning & distribution.
 - . Economics of Health manpower planning and political process.
 - . Evaluating health Systems.
 - . Role of hospitals in Primary health Care.
 - . Administration of rural hospitals
- . Health system strengthening

Health Policy

- . Basic approaches to the design, analysis and interpretation of health programs
- . Framework to evaluate the effectiveness of health programme implementation
- . Process, outcome and impact evaluation
- . Basic theoretical approaches and concepts used in policy analysis
- . Understanding of global and national health policies, including current trends
- . System thinking
- . Health Systems Strengthening
- . Innovations in service delivery
- . Framework for evaluation of services
- . Community Need Assessment
- . Basic steps in Policy Proposal
- . National Health Policy
- . National Population Policy
- . Public Health Declarations Jakarta Health Declaration Ottawa Charter Alma-Ata, Asthana Declaration

Practical activity:

- . Case Study: how to integrate a package of care for a specific problem into a platform of healthcare delivery

- . Visits at Anganwadi, Primary Health Center, District Health Office, HAHC Hospital, water treatment plant, Non Government Organisation

Suggested reading:

- . IPHS Guidelines for Subcentre, PHC, CHC and District Hospitals
- . Rao, K. S. (2016). Do we care?: India's health system. Oxford University Press.
- . Rifkin S. B. (2018). Alma Ata after 40 years: Primary Health Care and Health for All-from consensus to complexity. *BMJ global health*, 3(Suppl 3), e001188.
- . National Health and Research Policy Document. (2011) Department of Health Research Ministry of Health & Family Welfare Government of India, New Delhi
- . Expert Committee Report on Public Health Systems in India
- . Health Systems Strengthening a MOOC (Massive Open Online Course) developed by the Nossal Institute for Global Health & UNICEF
- . Savigny, Donald de, Adam, Taghreed. Systems Thinking for Health Systems Strengthening. 2009. Alliance for Health Policy and Systems Research, World Health Organization.

3. Health management: Management principles and practices:

- . Basic knowledge of health care systems and the environment in which health care managers and providers function
- . Components of strategic management
- . Project management
- . Introduction to logistics management
- . Introduction to human resource management
- . Modern Management Techniques
- . Network analysis: PERT, CPM
- . Quality: define quality, its importance in public health, measures to manage and improve equality
- . Introduction to Operational Research
- . Risk management
- . Planning & Management, Planning Cycle
- . Health Management Information Systems (HMIS) and its application
- . Public Health Leadership

Practical activity:

- . Visit to Hospital record section for HIMS
- . logistics management of health centres

Suggested readings:

- . Lieber J.G. , C. McConnel. Management principles for health professionals. Sundbury, MA: Jones and Barlett. 2010.
- . Sathe, et al. Epidemiology and Management for Health Care: Popular Prakashan, Mumbai
- . International Public Health: Diseases, Programs, Systems, and Policies by Michael Merson, Robert E Black, Anne J Mills - Jones and Bartlett Publishers

4. Basic Epidemiology including communicable and non-communicable diseases: Epidemiology

- . History of Epidemiology
- . Measurements in Epidemiology
- . Incidence and prevalence
- . Causation and association
- . Measures of association
- . Outline of study designs (including cross sectional study design, case control study design, cohort study design and randomised control trials)
- . Introduction to confounding and bias
- . Screening tests- validity and reliability methods
- . Disease surveillance
- . Outbreak investigation

Practical activity:

- . Planning and investigation of an epidemic of communicable diseases in a community setting.
- . Secondary data analysis at State level
- . Secondary data analysis with appropriate qualitative research (FGD,etc.)
- . Short epidemiological study

Diseases of Public Health Importance

Communicable disease

- . Respiratory diseases
- . Intestinal infections
- . Arthropod borne infections
- . Zoonotic Diseases
- . Neglected tropical disease

Non- Communicable disease

- . Cardiovascular diseases
- . Diabetes
- . Blindness
- . Accidents
- . Cancers
- . Mental illness

Field Work

- . Outbreak investigations
- . Infectious disease epidemiology
- . NCD and injury epidemiology

Suggested Reading:

- . Oxford textbook of Global Public Health Ed. Roger Detels, James McEwen, Robert Beaglehole, and Heizo Tanaka Oxford University Press (OUP) 4th Edition: 2002.
- . Gordis Epidemiology (Sixth edition), Elsevier Saunders, 2016
- . Maxcy-Rosenau-Last Public Health & Preventive Medicine, 15th Edition. Ed Robert Wallace, 2008: The McGraw-Hill
- . Park K. Park's textbook of preventive and social medicine. 2021, 26th ed. Jabalpur: Banarsidas Bhanot Publishers.
- . Basic epidemiology / R. Bonita, R. Beaglehole, T. Kjellström. 2nd edition, WHO. 2006
- . Aschengrau, A., & Seage, G. R. (2013). Essentials of epidemiology in public health. Jones & Bartlett Publishers.
- . Park K. Park's textbook of preventive and social medicine. 2021, 26th ed. Jabalpur: Banarsidas Bhanot Publishers.
- . Epidemiology the Basic Science of Public Health a MOOC (Massive Open Online Course) developed by coursera.
- . Principles of Epidemiology in Public Health Practice. Third Edition. An Introduction to Applied Epidemiology and Biostatistics. Centers for Disease Control and Prevention (CDC)

5. Basic Biostatistics:

- . Introduction to biostatistics: Descriptive and Inductive statistics
- . Describing data: Variables: Nominal, Ordinal and Interval scale variables. Measures of central tendency: Mean (arithmetic, geometric, harmonic) Median, Mode; Merits and demerits of different measures. Measures of dispersion: Range, Variance, Standard Deviation; Merits and demerits of different measures of dispersion. Measures of Skewness and Kurtosis; Graphical presentation of data

- . Introduction to the concept of probability, events; exhaustive, mutually exclusive events; laws of probability, additive and multiplicative laws of probability and its properties
- . Discrete probability distributions: Binomial probability distribution and Poisson distribution and their properties. Continuous probability distribution. Introduction to normal distribution and its properties
- . Sampling methods: Type of sampling, Probability sampling, Non-probability sampling, sample size determination
- . Central limit theorem, Bayes theorem
- . Concepts in Inductive statistics: Population, sample parameter, and statistic. Sampling distribution of mean and standard error. Statistical hypothesis, critical region, level of significance, and two types of errors and power calculation. P-value and 95% confidence Interval
- . Test of Significance: T-test for small samples and tests based on normal distribution for large samples. Testing the association of attributes and Chi-square goodness of fit
- . Nonparametric tests: One sample test, two sample tests, linear regression, multiple linear regressions, one-way ANOVA and two-way ANOVA
- . Correlation: Concept of correlation, Pearson correlation coefficient, and its properties; Spearman ranks correlation coefficient
- . Basics of regression

Biostatistics: Practical

- . Introduction to statistical software (SPSS/Stata)
- . Working with data: Computing variables, recoding variables, sorting data, grouping data, ensuring quality of data
- . Exploring data: Descriptive statistics, Frequencies, compare means, frequency tables and crosstabs, multiple response analysis
- . Analysing data: Pearson correlation, The Chi-Square Test of Independence, comparing means: One sample t tests, Paired t tests, Independent samples t tests, and One-way ANOVA
- . Multivariate analysis: Linear regression, logistic Regression analysis

Suggested reading:

- . Medical Biostatistics, Indrayan Second Edition. Chapman & Hall/CRC Taylor & Francis Group
- . PDQ Statistics- Geoffrey R. Norman & David L. Streiner. 2003. 3rd edition. BC Decker Publisher
- . Andy Field: Discovering statistics using IBM SPSS statistics. Sage publication 5th edition
- . Mahajan's Methods In Biostatistics For Medical Students And Research Workers (2018) Ed. Bratati Banerjee. Jaypee publication

6. Demography and population sciences:

- . Introduction to population and health. Concept of demography, Population components, Demographic transition theory
- . Factors affecting population, Population composition: Levels and trends in the sex and age structure of the population of world and developed and developing countries
- . Measures of fertility and mortality
- . Sources of demographic and Health data: Population census, Vital registration system, Sample Registration System, NFHS, DLHS, AHS, etc
- . Standardisation methods
- . Population growth and projection
- . Demographic transition
- . Implication of rapid population growth
- . Demographic dividend or disaster
- . Public Health and Aging
- . Life table
- . Urbanization
- . Population policy
- . Contraceptives methods
- . Family planning

Suggested reading:

- . Registrar General of India, Census of India -2011, Ministry of Home Affairs, Govt. of India.
- . United Nations, World Population Ageing, 1950-2050
- . Principles of population Studies: Asha Bhende and Tara Kanitkar, Himalaya Pub, Houses, Mumbai, 2011
- . Galea Sandro, David Vlahov. Handbook of urban health. Populations, methods and practice. USA: Springer publication 2008
- . World Health Organization. Hidden cities: unmasking and overcoming health inequities in urban settings. WHO and United Nations Human Settlements Programme. 2010.ISBN 978 92 4 154803 8 (WHO)
- . Albert S.M.2014. Public Health and Aging: An Introduction to Maximizing Function and Well-being. USA: Springer publication

- . Park K. Park's textbook of preventive and social medicine. 2021, 26th ed. Jabalpur: Banarsidas Bhanot Publishers.
- . Murray, C. J. L., (1994): Quantifying the Burden of Disease: The Technical Basis for Disability Adjusted Life Years, Bulletin of the WHO, Vol. 72(3), pp.429- 445

7. Introduction to health economics:

- . Health economic basic concept
- . Concepts of efficiency, effectiveness, equity, elasticity of demand, costing, production, marginal cost analysis, and opportunity cost
- . Principles and application of economic evaluation in health care including Cost Benefit Analysis (CBA) and Cost Effective Analysis (CEA),
- . Cost Benefit Analysis Cost Effective analysis, and Cost-Utility analysis
- . Universal health coverage
- . Health Insurance institutions and program
- . Performance Appraisal
- . Key concepts of economics, micro and macro economics

Practical activity:

- . Cost Benefit Analysis (CBA) and Cost Effective Analysis (CEA)
- . Medical audit

Suggested readings:

- . Health Economics in India (Edited), Prashant Panda and Himanshu Rout, New Century Pubns, 2007
- . Methods of economic evaluation of health care programmes, Michael F. Drummond, Mark J. Sculpher, Karl Claxton, Greg L. Stoddart, George W. Torrance, 4th edition, 2015
- . Health Economics Theory, Insights and industry studies, Rexford R Santerre and Stephen P Neun 5th Edition 2010
- . The Economics of Health and Health Care, Sherman Folland, Allen C. Goodman, Miron Stano 7th Edition
- . Principles of Economics, N. Gregory Mankiw, 8th Edition

8. Health promotion approaches and methods:

- . Introduction to Health Promotion
- . Concept of Health promotion
- . Social determinants, Equity in health
- . Theories and models of health promotion
- . Principles of Health promotion

- . Communication Strategies
- . Etiquettes and professionalism
- . Evidence based health promotion
- . Assessment of health promotion strategies in health programs
- . Community need assessment for designing an effective health promotion activity
- . Social issues like:
 - Substance abuse
 - Smokeless (chewable) and smoked tobacco addictions
 - Alcoholism
 - Suicide

Field Work

- . Case study
- . Substance abuse
- . Behavioural disorders among children and adolescent
- . Family study

Suggested readings:

- . The Handbook of Behavior Change. Edited by Martin S. Hagger, Merced, Linda D. Cameron, Merced, Kyra Hamilton et al. :Cambridge University Press. 2020

9. Introduction to Financial management and Budgeting

- . Introduction to financial management
- . Tools of financial analysis and planning in health care
- . Effectiveness and efficiency
- . Zero Based Budgeting Performance Based Budgeting
- . Determinants of demand, supply and costs of production
- . Market model, market failure, and the roles and limitations of markets in health care
- . Universal health coverage and role of health care financing
- .

Suggested readings:

- . Sathe, et al. Epidemiology and Management for Health Care: Popular Prakashan, Mumbai
- . Financial Management in Health serves, Reinhold Gruen and Anne Howarth, McGraw Hill Education
- . Health Financing Universal Health Coverage- a MOOC (Massive Open Online Course) developed by WHO.

10. Social and behaviour change, effective communication in Healthcare:

Social and Behaviour change

- . Introduction on sociological perspectives on health
- . Key concepts in sociology as applied to the study of health
- . Social and cultural processes impacting health status and access to health services
- . Basic theories, concepts and models of social and behavioral disciplines in public health research and practice
- . Introduction to behaviour change theories and communication
- . Implementing and managing social and behaviour change communication in public health:
 - Information Education and Communication (IEC),
 - Inter Personal Communication (IPC),
 - Behaviour Change Communication (BCC),
 - Social Behaviour Change Communication (SBCC)
- . Health and human behaviour
- . Medical anthropology
- . Social marketing

Communication in Healthcare

- . Human behaviour and communication, its role in public health problems and solutions
- . Public speaking
- . Verbal vs. Non-verbal communication
- . Various forms of written communication
- . Evidence based advocacy
- . Using audio visual aid in communication

Field Work

- . Secondary data analysis with appropriate qualitative research (FGD,etc.)
- . Health Communication Modules

Suggested readings:

- . The Handbook of Behavior Change. Edited by Martin S. Hagger, Merced, Linda D. Cameron, Merced, Kyra Hamilton et al, :Cambridge University Press. 2020

11. Introduction to RMNCH+A:

- . Reproductive Child Health (RCH): Evolution–

- . CSSM, RCH, RCH-2,
- . RMNCH and RMNCH+A
- . Universal Immunization programme (UIP)
- . National Family Welfare Programme
- . Public Health Nutrition
 - . Balance and prudent diet
 - . Diet and its assessment
 - . Nutritional requirement
 - . Nutritional deficiencies and its disorders
 - . National Iodine Deficiency Disorders (DD) control programme
 - . IYCF
 - . Mid Day meal scheme and Balwadi program
 - . ICDS

12. Introduction to Design and Evaluation of Public Health Programs

Health Programmes in India

- . Various national programs in India and their critical analysis
- . The origin, historical development, interventions, current state and critique of the different National Health Programmes-
 - . National Health Mission
 - . National water supply and sanitation programme
 - . National Mental Health Programme
 - . National program for control of cancer diabetes cardiovascular disease and stroke
 - . National programme for the control of blindness
 - . National Tuberculosis Elimination Programme
 - . National Leprosy Eradication programme
 - . National Vector borne Disease Control Programme
 - . National AIDS control Programme
- . Concepts underlying the design of health programs
- . Basic approaches to the design, analysis and interpretation of health programs
- . Communicate in public health research
- . Framework to evaluate the effectiveness of health programme implementation
- . Process, outcome and impact evaluation

Practical activity:

- . Case Study: how to integrate a package of care for a specific problem into a platform of healthcare delivery
- . Family study: Dietary assessment

- . Field Activities: School Health Program, Health Education talks and surveys,

Suggested reading:

- . National Health Program of India, National Policies And Legislations Related To Health,. Jugal Kishore. 13 ed. :2019. Publisher: Century Publications
- . Rao, K. S. (2016). Do we care?: India's health system. Oxford University Press.

13. Principles of Research Methods:

- . Objectives of research
- . Research design
- . Ethical issues in research
- . Tools and Measurements in research
- . Sample size and sampling
- . Understanding and analysis of

Qualitative data and research

- a) Ethnography
- b) Grounded Theory
- c) Case Study analysis
- d) Narrative Approaches
- e) Phenomenological Analysis
- f) Community-based Participatory Research
- g) Content Analysis
- h) Discourse Analysis

Quantitative data and research

- a) Demographic Methods
 - b) Epidemiological Designs
 - c) Meta analysis and systemic review
 - d) GIS Mapping and other IT uses in health research
 - d) Bio-statistics
- . Mixed methods
 - . Public health surveillance and research

- . Preparing research protocol and proposal
- . Research grant
- . Operational Research

Practical activity:

Written Assignment: Identify a research topic and develop a research proposal on a subject of your choice using the understanding derived from the course.

Suggested reading:

- . Health Research Methodology: A guide for training in research methods. Second Edition. WHO, 2001.
- . Kothari, C.R., 1990. Research Methodology: Methods and Techniques. New Age International. 418p.
- . ICMR, 2016 Ethical Guidelines for Biomedical Research on Human Participants, ICMR, New Delhi.
- . Research Methods in Community Medicine: Surveys, Epidemiological Research, Programme Evaluation, Clinical Trials, Sixth Edition. J. H. Abramson and Z. H. Abramson © 2008 John Wiley & Sons
- . MacMahon B and Trichopoulos D. (1996). Epidemiology: Principles and Methods, 2nd ed., Little Brown and Company, Boston, Chapter 1.
- . Alliance for Health Policy and Systems Research (2007). What is health policy and systems research and why does it matter? WHO and AHPSR.
- . Basic course in Biomedical Research, MOOC. NPTEL & National Institute of Epidemiology

14. Environment and Occupational health:

Environment

- . Environmental in a national context
 - . Water in relation to health and disease.
 - . Air pollution and ecological balance.
 - . Housing and health.
 - . Effects of radiation on human health (Ionizing, Non-ionizing & Nuclear warfare)
 - . Effects of Noise on human health.
 - . Meteorological environment including effects of global warming.
 - . Effects of heat and cold
- . Ecosystems in various settings (linking the built environment, transport, housing and green space to human health)

- . Sanitation
- . Climate Change & Health
- . Biomedical Waste Management
- . Management of environmental hazards, natural disasters
- . Central Pollution Control Board (CPCB) guidelines
- . Environmental health impact assessment
- . Medical entomology: Arthropods of medical importance and their control
- . Insecticides, pesticides and their application

Occupational Health

- . Occupational Hazards- scope and prevention
- . Pneumoconiosis
- . Lead Poisoning
- . Occupational Cancers & Dermatitis
- . Occupational Hazards of Agricultural Workers
- . Accidents in Industry
- . Sickness Absenteeism
- . Ergonomics
- . Problems of Urbanization & Industrialization
- . Laws related to occupational health;
- . ESI & other schemes for working population in India

Practical activity:

- . Visit: to BMW site
- . Models in department museum
- . Observing Integrated Vector Management activities
- . Visit to ESI hospital

Suggested reading:

- . Park K. Park's textbook of preventive and social medicine. 2021, 26th ed. Jabalpur: Banarsidas Bhanot Publishers.
- . Textbook Of Occupational Health. Ranabir Pal, Sumeet Dixit, Amrita Ghosh, Jugal Kishore, 2020. Century Publications ISBN : 9788188132973
- . Oxford Handbook of Occupational Health (2 ed.). Edited by Julia Smedley, Finlay Dick, and Steven Sadhra. Oxford University Press. 2013

15. Law and ethics in public health

- . Legislation related to Census, Birth and Death, Tobacco and Drug Control, The Transplantation of Human Organs, Women Empowerment and Child Protection

- . Health Legislation related to the Welfare and Rehabilitation of Disadvantaged Occupational Health Legislations, Environment Health Legislations.
- . Food safety and Protection Act Consumer Protection Act.
- . Human rights in public health
- . Individual and social responsibility of Health
- . Role of governments in managing health of people
- . Public health regulations in Indian context
- . Public health information and privacy
- . Research ethics in public health
- . Historical perspectives & Introduction to Bioethics, Nuremberg Code, Declaration of Helsinki,
- . Principle of essentiality, informed consent, confidentiality, minimisation of risk, accountability and responsibility.
- . Ethics of clinical trials: Drug trials, vaccine trials, Clinical trials with medical devices/surgical procedures/radioactive materials, Research in transplantation and stem cell therapy.
- . Regulatory framework and guidelines for conduction of human research: Review processes, Institutional ethical committees, composition of committees, review procedures, WHO, UNESCO and ICMR guidelines.
- . Regulations during emergencies and outbreaks
- . Addressing newer challenges: Bioterrorism, conflicts and emerging infectious diseases

Suggested readings:

- . Michael Boylan. International Public Health Policy and Ethics: 2008. Springe
- . Public Health Law 101. A Foundational Course for Public Health Practitioners Overview. Centers for Disease Control and Prevention.

ELECTIVE MODULES

Stream B1: EPIDEMIOLOGY

i. Advanced Biostatistics:

- Principles of regression
- Methods of regression
- Linear regression
- Logistic regression
- Poisson regression
- Cox proportional hazards regression
- Regression diagnostics
- Introduction to multilevel modelling
- Introduction to data imputation

- Choosing the best models
- ii. Advanced Epidemiology:**
- Directed acyclic graphs and conceptual framework
 - Confounding bias and methods to reduce confounding
 - Selection bias
 - Information bias
 - Measures of validity and reliability
 - Nested study designs
 - Advanced designs in clinical trials
 - Systematic reviews and meta-analysis overview
 - Epidemiology and management of Vector Borne Diseases
 - Health measures following disasters
 - Various public data sources: CRS, SRS, Census, NFHS, DLHS, HMIS, MCTS, etc.
- iii. Survey design and methods:**
- Pre survey formative research
 - Sampling and sample size calculations
 - Ethical issues in surveys
 - Tool development
 - Conduct of surveys
 - Quality control and assurance in surveys
 - Survey data analysis
 - Identify appropriate research designs for a range of questions in health
 - Describe the steps involved in planning and conducting a research project
 - Evaluate the strengths and weaknesses of various data collection methods
- iv. Communicable disease epidemiology:**
- Recognize the burden of communicable diseases (CD) affecting the population
 - Examine factors contributing to the persistence of infectious diseases
 - Understand reasons for emergence and re-emergence of infectious diseases
- Key concepts covered are:
- Incubation periods
 - Epidemic patterns
 - Modes of transmission
 - Transmission dynamics
 - Measures of infectiousness
 - Secondary attack rates
- Analyze the transmission dynamics of diseases and design appropriate control measures
 - Apply basic infectious diseases epidemiological skills to address major emerging and re-emerging communicable diseases

- Surveillance: Case in point: Integrated Disease Surveillance Program (IDSP)
 - Epidemiology of common communicable diseases like TB, Malaria, Leprosy, Polio, STIs, AIDS, Meningococcal meningitis, Hepatitis B, and Measles (mathematical models of infection dynamics, outbreak investigation and surveillance, schedules, adverse reactions, contraindications, vaccine efficacy, impact assessment)
 - Live outbreak investigation
 - Adverse Event Following Immunization (AEFI) investigation
- v. **Non-communicable diseases (NCD) epidemiology:**
- Describe and understand the epidemiology of NCDs
 - Cardiovascular diseases
 - Hypertension
 - Diabetes mellitus
 - Cancers
 - Mental health
 - Stroke
 - Burns/trauma/ accidents etc.
 - Comprehend the upstream and downstream determinants of NCDs
 - Understand the Individual approaches/or high-risk approaches and population based/ or public health approaches to prevent NCDs
 - Recognize the risk factor approach to prevent non-communicable diseases
 - Comprehend the Population based/public health approaches to prevention of common NCD risk factors (physical inactivity, tobacco and unhealthy diet)
 - Familiarize with the current projects on targeting the prevention of NCDs, including, innovations in prevention
 - How prevention of NCDs interlinks with Communicable diseases. How women and child health, health of the girl child links to prevention of NCDs
 - Recognize Economic burden of NCDs and benefits of prevention
 - Comprehend how sustainable development and prevention of NCDs go hand in hand
 - Comprehend the power of policy and role of environment in the prevention of NCDs
 - Population-based screening
 - Surveillance of cancers including cancer registry

Stream B2: Health Programme, Policy and Planning

i. Health policy, process and planning:

- Policy making: key components
- Policy framework
- Stake holders in policy making
- Effects of different interest and advocacy groups in influencing health policy
- Translating research in policy making
- Effects of national and international affairs on health policy
- Introduction to different national population, disease control, tobacco control, nutrition, maternal and child health policies
- Short term versus long term policies

- Resources allocation to optimize health
- Using research and data to drive good policy making

ii. Design and evaluation of public health programs (including current NHPs):

- Concepts underlying the design of health programs;
- Basic approaches to the design in health programmes, with a focus on low resource settings
- analysis and interpretation of studies/programs;
- Communication in conducting public health research
- National health programmes in India (including goals, objectives, purposes, organization, man power, sources, activities, roles and responsibilities)

iii. Translating research for Health Policy and Advocacy:

- Different forms of power influential to policy making
- Concepts of Governance and Institutions
Different theories useful in policy analysis
- Political nature of evidence for policy making in health
- Written and verbal competence in communicating evidence to inform policy
Critical appraisal of issues in health policy and financing

iv. Current issues in health policy: National and Global perspective:

- Theory explaining public health action, its evolution and application in health policy
- Methods of assessing the health impact of different types of policy; national and global perspective
- Assessing health impacts of different policies across sectors
- Impact of health threats and interventions to counter health threats including crisis management

v. Role of Non-governmental Organizations (NGOs) in health care:

- Health service delivery and program Implementation
- Research and evidence generation
- Training and education
- Inter-sectoral coordination in health including Public Private Partnership
- Advocacy and planning in health care

Stream B3: RMNCH+A

i. Reproductive and Sexual Health

- Fundamentals of reproductive biology
- Adolescent Sexual and Reproductive Health
- Understanding Reproductive Health Policy
- Family Welfare and Reproductive Health measures
- Reproductive Health programs in India

ii. Maternal, Newborn and Child Health (MNCH):

- Introduction to maternal, new-born and child health programs and their behavioural basis
- Historical developments in MCH in India
- Reproductive & Perinatal Epidemiology
Prenatal and Infant Growth and Development
- Issues in the Reduction of Maternal and Neonatal Mortality
- Preventing peri-natal and infant mortality
- Infectious Disease and Child Survival
- Nutrition and Growth in Maternal and Child Health
- Legislations and programs in MCH

iii. Adolescent Health:

- Overview of population health approaches for adolescents
- Adolescent Health and Development
- The Social Context of Adolescent Health and Development
- International Adolescent Health
- Adolescent Health status in India
- Adolescent Health Development - policy and systems
- Health issues specific to adolescents: anaemia, teenage pregnancy, menstrual hygiene, obesity, mental health promotion and illness prevention, substance use prevention, violence, media etc.

iv. Gender and Health:

- Define concepts - Gender, vulnerable populations, gender equality and equity and emerging issues
- Understand the difference between equity and equality
- Understand different forms of social exclusion
- Explain the difference between sex and gender and how these variables, combined with other forms of social exclusion impacts on health
- To increase understanding of the importance, benefits and urgency to identify and reduce barriers and address the needs of women and socially excluded groups, and promote their agency in the context of accessing health care and related information
- To increase understanding of the inter- sectionalism between gender and other types of social exclusion/inclusion and patients' experiences in accessing and utilising health services and the impacts on uptake and utilization of services
- To increase understanding of the realities of discrimination from the grass root perspective
- To identify good practices in Gender and Social Inclusion (GSI) within India
- To become familiar with toolkits for including GSI in public health research, programs, policies and advocacy

v. Public Health Nutrition

- Appreciate the basic concepts and principles of foods and nutrition relevant to human health

- Summarize population based dietary and nutritional recommendations
- Define the concept, purpose and scope of Public Health Nutrition
- Understand the definition, utility and applications of epidemiology in nutritional sciences
- Recognize the role of community nutrition in improving human health
Utilize suitable data and assessment methodologies to conduct community needs assessment
- Recognize the pillars of a healthy community
- Identify the most relevant nutrition concerns in the community at present and enlist strategies for their prevention and management (Adolescent, Women, Maternal and child under-nutrition, nutrition transition, over-nutrition and chronic diseases)
- Demonstrate an understanding of principles of nutrition education and enlist the steps of developing nutrition education programs
- Demonstrate an understanding of project planning and management in nutrition programmes
- Appreciate inter-sectoral nature of nutrition and food policy
- Enlist the features of various ongoing nutrition programs
- Under/over nutrition

C. INTERNSHIP:

Two months' internship will be undertaken by all the candidates with an aim to integrate learning and practice in an active public health organization. This can be undertaken at governmental or non-governmental public health organisations or program management units. The internship should include the candidate's role and support in assessing, monitoring, or conducting surveillance of health problems/services in a population; research on population-based health problems; developing and/or implementing policies and intervention strategies to meet public health needs. Overall it should contribute to the organization, and should help in understanding public health management and coordination and gaining personal confidence and leadership experience. **Although finding a suitable internship opportunity lie with the candidate him/herself, mentors will facilitate the process.** After the completion of 2 months of internship, candidates will be expected to submit a brief summary of public health program/challenge dealt with and solution proposed/implemented by the candidate at the end of second semester.

Candidates should submit their project plan and preliminary time scale with their chosen topic for dissertation at the end of the internship to their mentor/tutor to seek appropriate approvals before embarking on the full investigation and project.

The internship is worth two (2) credits.

D. DISSERTATION

At the end of the fourth semester, candidates will submit their **dissertation** on previously chosen and approved topic for assessment. **This will be a 10 credit course.** The dissertation will be evaluated by an internal examiner (60% weightage) and an external examiner (40% weightage) including a viva-voce.

MASTER OF PUBLIC HEALTH