



Interdisciplinary School of Health Sciences
Savitribai Phule Pune University
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SYLLABUS
Master of Public Health
(MPH)

MPH programme

Background

The purpose of the course is to provide knowledge on determinants of health, distribution of diseases and disorders and factors responsible for such health and disease pattern in the population. The science of public health is interdisciplinary in nature and integrates with life sciences, social and behavioural sciences, statistical sciences. The MPH programme of the University was initiated for creating human resource with skills to improve public health, who have ability to develop and implement innovative programmes for health promotion and disease prevention and those who can contribute to the policy making.

Goal and Objectives of the MPH Programme

Goal is to prepare public health practitioners having the knowledge and skills to improve community health for sustainable development.

Objectives:

- To impart knowledge on methods of disease prevention and health promotion
- To develop ability to design and implement strategies to enhance public health and strengthen the health systems
- To develop the critical ability to analyse and understand the impact of public health policies on health status and indicators
- To impart skills for conducting research in public health to enhance evidence-based decision making

About the revised MPH Course

MPH degree programme is divided into four semesters. The courses in each semester are designed to ensure students acquire identified competencies. The revised MPH curriculum, will be taught with interdisciplinary spirit; integrating knowledge and practice across disciplinary boundaries to address public health challenges.

The curriculum is composed of several core and elective courses, some of which are concentrated in a single semester, whereas other courses like nutrition, social epidemiology, extend in succeeding semesters of MPH study.

The Core Courses

The core courses lay basic foundation of public health. The core courses offer students a comprehensive introduction to public health discipline. The core is composed of a series of courses (of varying number of credits/hours of teaching). The core courses are organized under following themes;

1. Courses covering epidemiological methods; quantitative and qualitative research methods, research design and evaluation
2. Courses on health systems in India, structure, organization, management, Policy

3. Courses on human physiology, immunology, pathogen biology and nutrition
4. Courses based on social, behavioural determinants of health such as social epidemiology, health behaviour, gender and health

These courses have both theoretical and practical components which are divided into smaller modules. Faculty from different disciplinary background have developed and will collaboratively teaching the content of these courses to bring interdisciplinary perspectives, tools, and experiences to each content area. The MPH students complete their core coursework spanning across four semesters.

Elective Courses

The elective courses continue to emphasize disciplinary knowledge and the expertise of the faculty. Therefore, MPH programme has several options that allow the curriculum to be tailored to the needs of a student with diverse backgrounds, areas of interest, and experience levels. Although all students are strongly encouraged to learn basic courses during the first semester, they have the flexibility from semester II onwards. The elective courses are complimentary to the core courses.

MPH Course Structure

Subject Code	Subject Title	Number of Credits	Subject Code	Subject Title	Number of Credits
SEMESTER I					
Core Courses			Elective Courses		
MPH101	Fundamentals of Public Health	4	NIL		
MPH102	Epidemiology	4			
MPH103	Biostatistics in Health Sciences	4			
MPH104	Basic nutrition	3			
MPH105	Population and Health	1			
MPH106	Introductory Human Physiology	4			
SEMETER II					
Core Courses			Elective Courses		
MPH201	Infectious Diseases and National Disease Control Programmes	4	MPH206	Diagnostics in Public Health	4
MPH202	Public Health Nutrition	4	MPH207	AYUSH and Integrative Health	3
MPH203	Epidemiological Methods: Survey	4	MPH208	Ageing & Society	2
MPH204	Management of Health Systems	3	MPH209	Monitoring and Evaluation of Public Health Programmes	1
MPH205	Urban Health	1			
SEMESTER III					
Core Courses			Elective Courses		
MPH301	Non-communicable Diseases,	4	MPH305	Public Health Internship	2

	Injuries and Control Programmes				
MPH 302	Qualitative Research Methods	4	MPH306	Environmental and Occupational Health	2
MPH303	Maternal and Child Health	4	MPH307	Health Planning	1
MPH304	Nutrition Research Methods and Techniques	4	MPH308	Global Health Case studies	1
			MPH309	Social epidemiology	2
			MPH310	Public Health in Disaster management and Outbreaks	1
SEMESTER IV					
Core Courses			Elective Courses		
MPH401	Disability and Public Health	2	MPH407	Health Behaviour	2
MPH402	Tribal Health	2	MPH408	Applied Immunology	2
MPH403	Clinical and Field trials	2	MPH409	Research Proposal Development	2
MPH404	Bioethics, Biosafety and regulations	2	MPH410	Critical reading	1
MPH405	Research Project I	4			
MPH406	Research project II	4			

UGC recommended courses (Additional 10 credits)

Subject Code	Subject Title	Number of Credits
	Cyber security/Information security	4C
	Skill based credits	4C
	Human rights education	2C

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Semester I

Semester I		
Core Courses		
Subject Code	Subject Title	Number of Credits
MPH101	Fundamentals of Public Health	4
MPH102	Epidemiology	4
MPH103	Biostatistics in the Health Sciences	4
MPH104	Basic nutrition	3
MPH105	Population and Health	1
MPH106	Introductory Human Physiology	4
Elective Courses – Nil		

Explanatory note for semester I

Semester I introduce students to the discipline of public health. Students are also exposed to the two supportive disciplines of public health that is epidemiology and biostatistics. Key determinants of health viz human physiology, nutrition, social and population are also discussed.

MPH101 Fundamentals of Public Health: 4 credits

Course Objectives:

- To introduce students to the discipline of public health
- To give an overview of the methods of prevention and health promotion
- To understand the determinants and measures of disease and health related states
- To understand the status of health and disease at global and national levels

Course outline:

- 1) Health, its determinants and public health
- 2) The science and practice of public health
- 3) History of public health
- 4) Disease, its measures and prevention
- 5) Measures of disease in population
- 6) Global health and epidemiological transition
- 7) Sources of global health data
- 8) Functional organisation of the public health system in India
- 9) Evolution of global public health initiatives: primary health care, selective primary health care, MDGs, SDGs

Suggested Reading:

- 1) Class handouts
- 2) Oxford textbook of Public Health Ed. Roger Detels, James McEwen, Robert Beaglehole, and Heizo Tanaka Oxford University Press (OUP) 4th Edition: 2002.
- 3) Public Health at the Crossroads – Achievements and Prospects. Robert Beaglehole and Ruth Bonita 2nd Edition Cambridge University Press
- 4) Maxcy-Rosenau-Last Public Health & Preventive Medicine, Fourteenth Edition Ed Robert Wallace, MD, et al.
- 5) Epidemiology and Management for Health Care: Sathe, et al. Popular Prakashan, Mumbai,
- 6) International Public Health: Diseases, Programs, Systems, and Policies by Michael Merson, Robert E Black, Anne J Mills - Jones and Bartlett Publishers.
- 7) Preventive and Social Medicine, K Park, Bansaridas Bhanot Publishing House.

MPH102 Epidemiology: 4 credits

Course Objectives

- To familiarise students on science and methods of epidemiology
- To understand the applications of epidemiology in public health decision making

Course Outline

1. Historical aspects, definition, aim and uses
2. Descriptive epidemiology
3. Risk measurement, Measurement of morbidity and mortality: Incidence, Prevalence, Age-adjustment and survival analysis, use of morbidity and mortality
4. Epidemiological study designs
5. Bias, confounding and interaction
6. Causal association
7. Disease Surveillance

Suggested reading:

- 1) Gordis Leon. Epidemiology (Fifth edition), Elsevier Saunders, 2013.
- 2) Dona Schneider and David E. Lilienfeld. Lilienfeld's Foundations of Epidemiology, Fourth Edition, Oxford University Press, USA, 2015.
- 3) Porta Miquel. A Dictionary of Epidemiology, Oxford University Press, USA, 2014
- 4) Somerville Margaret, et al., Public Health and Epidemiology at a Glance, Second Edition, Wiley-Blackwell, 2016
- 5) Beaglehole. R. Bonita, et. al Basic Epidemiology, 2nd Edition, WHO Publication, Geneva, 2006.
- 6) Spassoff R.A. Epidemiologic Methods for Health Policy, Oxford University Press, 1999
- 7) Barkar, D.J.P., Practical Epidemiology: Churchill pub, Livingstone, 1991.
- 8) Knox E. G. Epidemiology in health care planning: A Guide to the Uses of a Scientific Method, Oxford University Press, USA.

MPH103 Biostatistics in Health Sciences: 4 credits

Theory Credits 2

Course objectives

- To introduce students to the use of bio-statistics in health sciences
- To understand the role of biostatistics as a supportive discipline of epidemiology

Course Outline

1. Introduction to biostatistics: Descriptive and Inductive statistics
2. 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
3. Introduction to the concept of probability, events; exhaustive, mutually exclusive events; laws of probability, additive and multiplicative laws of probability and its properties
4. Discrete probability distributions: Binomial probability distribution and Poisson distribution and their properties. Continuous probability distribution. Introduction to normal distribution and its properties
5. Sampling methods: Type of sampling, Probability sampling, Non-probability sampling, sample size determination
6. Correlation: Concept of correlation, Pearson correlation coefficient, and its properties; Spearman ranks correlation coefficient
7. 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.
8. 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
9. Nonparametric tests: One sample test, two sample tests, linear regression, multiple linear regressions, one-way ANOVA and two-way ANOVA

Biostatistics in the Health Sciences: Practical 2 Credits

Course Objectives

- To train students in use of statistical software
- To explain use of data in decision making
- To make students aware of pitfalls in statistical analysis

Course outline

1. Introduction to statistical software
2. Working with data: Computing variables, recoding variables, sorting data, grouping data, ensuring quality of data

3. Exploring data: Descriptive statistics, Frequencies, compare means, frequency tables and crosstabs, multiple response analysis
4. 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
5. Multivariate analysis: Linear regression, logistic Regression analysis

Suggested reading:

- 1) Statistics for Social sciences: T. Rajaretnam, Sage publication. New Delhi 2016
- 2) Fundamentals of Statistics (Seventh Edition): S.G. Gupta. Himalaya Publication, Mumbai, 2017
- 3) Introduction to Biostatistics and Research Methods (Fifth Edition): P.S.S. Sundar Rao, J. Richard, Prentice Hall, New Delhi, 2012
- 4) An Introduction to Biostatistics: A manual for students in Health Sciences: P.S.S. Sundar Rao, J. Richard Prentice Hall, New Delhi, 1996
- 5) Bio-Statistics: A foundation for Analysis in the Health Sciences: Daniel, W.W., John Wiley and Sons Pub., Canada, 1991.
- 6) Bio-Statistics: A Manual of statistical methods for use in the Health, Nutrition and Anthropology: K. Vishwas Rao, Jaypee Brothers Medical Pub., New Delhi, 1996.

MPH104 Basic Nutrition: 3 credits

Course objectives

- To understand the role of nutrients in the physiological processes

Course outline

1. Introduction to nutrition, inter relationship between food, nutrients & health. Nutritional Status. Common terms related to nutrition.
2. Energy: Introduction, Physiological fuel value, Basal Metabolic Rate, Total Energy Expenditure, Specific dynamic action, Respiratory Quotient
3. Carbohydrates: Classification, function, sources, RDA & deficiency
4. Fibre – types, role in health and diseases.
5. Lipids: Classification of fatty acids, Function, sources, RDA, & deficiency. Saturated fat, MUFA, PUFA, essential fatty acids, prostaglandins. Cholesterol – introduction, sources, requirement.
6. Proteins: Classification of amino acids. (essential & non- essential), functions of protein, sources, RDA & Deficiency. Evaluation of the protein quality – biological value, protein efficiency ratio, nitrogen retention, net protein utilization.
7. Vitamins: Classification – Fat soluble & water soluble, function, sources, RDA & deficiency.
8. Minerals: Major minerals – Ca, P, Mg, Na, K. Minor minerals – Fe, I, F, Zn, Co, Mn, Se, S, Cr., Function, sources, RDA & deficiency.
9. Water: Role of water in the body, its requirement, extracellular & intracellular fluid, maintenance of water balance

Suggested Reading:

1. Mann, J. and Truswell, S. eds., 2017. Essentials of human nutrition. Oxford University Press.
2. Eastwood, M.A., 2013. Principles of human nutrition. Springer.
3. Bender, D., 2014. An introduction to nutrition and metabolism. CRC Press.

MPH105 Population and Health: 1 credit

Course objectives

- To familiarize students to the fundamentals of population studies and its links with health
- To impart practical knowledge and skills of demographic and health data sources and practical use of data

Course outline

1. Introduction to population and health: definition, scope, Concept of demography, Population components, Demographic transition theory
2. Sources of demographic and Health data: Population census, Vital registration system, Sample Registration System, National Family Health Survey (NFHS), District Level Health Survey (DLHS), Annual Health Survey(AHS), National Sample Survey Organization (NSSO) (demonstrate the practical use of the data and its advantages and limitations.)
3. Population composition: Levels and trends in the sex and age structure of the population of world and developed and developing countries
4. Concepts, definition, determinants and measurement of fertility, mortality and migration, population projection
5. Life tables: Concept, importance and methods
6. Population policy: Population policy linkages with health issues

Suggested reading:

- 1) The Springer Series on Demographic Methods and Population Analysis: Ed.: **Land, Kenneth C.** "The Plenum Series on Demographic Methods and Population Analysis" Durham, NC 27708-0088, USA, 2014
- 2) Population Studies and Development from Theory to Fieldwork: **Petit, Véronique** (Ed.) Springer International Publication AG 2018
- 3) Handbook of Population: Ed. Dudley Poston and Michael Micklin. Springer publication, Edition one, 2006
- 4) Principles of population Studies: Asha Bhende and Tara Kanitkar, Himalaya Pub, Houses, Mumbai, 2011
- 5) The methods and Materials of Demography (Second edition): Siegel, Jacob S., and David A. Swanson, Elsevier Academic Press, San Diego, 2004

MPH106 Introductory Human Physiology: 4 credits

Course objectives:

- To provide an understanding about the structure and function of the human body

Course outline

1. Human life cycle: growth and development, sexuality and conception
2. Cells and tissues of the human body
3. Homeostasis
4. Structure and function of organs and systems; musculo-skeletal, cardiovascular, respiratory, digestive, urino-genital, lymphatic, nervous system and sense organs

Suggested reading:

- 1) Textbook of Medical Physiology: A. C. Guyton, Prism Books Pvt. Ltd., Bangalore,
- 2) Anatomy and Physiology for Nurses: R.S. Winwood, J.L. Smith, Education Academic and Medicinal Publishing Division of Hodder and Stoughton, London,
- 3) Atlas of Anatomy: Casey Horton, Marshall Cavendish Books, London,
- 4) Basic Clinical Physiology: J.H. Green, Oxford University press, Delhi
- 5) Samson Wright's Applied Physiology: Keele, Neil, *et.al.* (Ed) Oxford University press, Delhi
- 6) Lehninger, Principles of Biochemistry.

Semester II

Semester II		
Core Courses		
Subject Code	Subject Title	Number of Credits
MPH201	Infectious Diseases and National Disease Control Programmes	4
MPH202	Public Health Nutrition	4
MPH203	Epidemiological Methods: Survey	4
MPH204	Management of Health Systems	3
MPH205	Urban Health	1
Elective Courses		
Subject Code	Subject Title	Number of Credits
MPH206	Diagnostics in Public Health	4
MPH207	AYUSH and Integrative Health	3
MPH208	Ageing & Society	2
MPH209	Monitoring and evaluation of public health programmes	1

Explanatory note on semester II

The objective of semester II is to expose students to the epidemiology of infectious diseases and also functioning of various prevention and control programmes in India. The quantitative methods and qualitative methods provide practical exposure to different types of methods of epidemiological research, collection of data in the population, its organization and analysis. Students also learn appropriate computer based skills.

MPH201 Infectious Diseases and National Disease Control Programmes: 4 credits

Course objectives:

- To understand the biology of pathogens and the mechanism of action of antibiotics and antivirals
- To understand the pathology, pathogenesis, clinical manifestation, mode of transmission, prevention and control of diseases of bacterial and viral etiology
- To understand the principles of infectious disease control programmes
- To orient students about the national disease control programmes,
- Critical evaluation of various disease control programmes

Course outline

1. General overview of infectious diseases and their impact in developing countries
2. Epidemiology of infectious diseases
3. Structure of prokaryotic cell, pathogenic modifications
4. Anti-microbial agents, drug resistance
5. Infectious disease control programmes (including agent biology, epidemiology, pathogenesis and pathology, clinical presentation and management; public health strategies and mechanisms)
 - a. Vaccine preventable diseases: TB, polio, diphtheria, tetanus, measles.
 - b. Respiratory diseases: Tuberculosis, leprosy, ARI's
 - c. Intestinal: Diarrhoea, typhoid, worm infestations
 - d. Contact: STIs and AIDS
 - e. Vector borne: malaria and filaria, JE, dengue, leptospirosis,
 - f. zoonotic: plague and rabies
6. Neglected tropical diseases
7. Health planning: Definition of Planning, Health Planning Models
8. History of Planning in India
9. Development of National Health Policy: Evolution of Indian National Health Policies 1981-83, 2001 and 2017
10. Global agendas
 - a. Health for all- Millennium Development Goals- Sustainable Development Goals
 - b. Primary Health Care - Universal health coverage

Suggested reading:

- 1) Duguid et al. Textbook of Medical microbiology
- 2) Javetz and Melnick :Adelbergs Medical Microbiology
- 3) World Health Organization: Report on infectious diseases, and Report on Multidrug resistance, World Health Organization, Geneva
- 4) Principles and Practice of Medicine: Davidson, Edward, Bouchier et. Al., Pearson Professional Ltd. London

- 5) Biology of Disease : Jonathan Phillips, Paul Murray, Blackwell Science Ltd. Australia,
- 6) Human Virology : A textbook of Students of Medicine and Microbiology, Dentistry, Leslie Collier, John Oxford, Oxford University Press, Tokyo
- 7) Textbook of Medicine : Cecil, Bennett, et al., Harcourt Brace Jovanovich Inc. U.S.A.
- 8) Nelson K E : Infectious disease epidemiology : theory and practice
- 9) Giesecke J : Modern infectious disease epidemiology
- 10) National Disease Control Programmes websites and class handouts
- 11) Expert Committee Report on Public Health Systems in India 1996

MPH202 Public Health Nutrition: 4 credits

Course objectives

- To understand the global and national burden of nutritional deficiencies
- To identify public health nutrition interventions
- To study the impact of nutritional policies and programmes and nutritional status of the population

Course outline

1. Introduction to public health nutrition
2. Nutrition Transition: Demographic, economic transition, poverty alleviation, food consumption patterns
3. Undernutrition: global and Indian prevalence of undernutrition, risk factors consequences
4. Micronutrient deficiency disorders: prevalence, risk factors, Interventions that worked globally, lessons learnt.
5. Overnutrition: Evolutionary principle, Obesity: prevalence and risk factors: Physical activity and inactivity, screening of those at nutritional risk, Life style diseases: Interventions that worked globally, lessons learnt.
6. Guidelines for prevention of non- communicable diseases
7. Food Security: Factors affecting food security, economics food security and community development, Food security bill

Suggested reading:s

- 1) Vir S.C., (2015), Public health nutrition in developing countries (Part I and II), Woodhead Publishing India Pvt, Ltd.
- 2) WHO and Chan, M., (2011) 'Haemoglobin concentrations for the diagnosis of anemia and assessment of severity', Geneva, Switzerland: World Health Organization, Geneva pp. 1–6.
- 3) Cashman, K. D., Sheehy, T., & O'Neill, C. M. (2018). Is vitamin D deficiency a public health concern for low middle income countries? A systematic literature review. *European journal of nutrition*, 1-21.

MPH203 Epidemiological Methods: Survey: 4 credits

Course objectives:

- To introduce students to quantitative research methods in public health including issues of ethics and biosafety
- To train students in the method of analysis of data and report writing. The information from this course will be subsequently used for planning health interventions

Course outline:

1. Types of research; steps in conducting research
2. Ethics in research
3. Survey methods and their application to public health research
4. Survey design and planning, sampling, construction of questionnaire,
5. Data collection, analysis
6. Report writing

Suggested reading:

1. Health Research Methodology: A guide for training in research methods. Second Edition. WHO, 2001.
2. Kothari, C.R., 1990. Research Methodology: Methods and Techniques. New Age International. 418p.
3. John Creswell (2013). Research Design: Qualitative, Quantitative, and mixed methods approaches. Fourth edition, Sage Publications
4. ICMR, 2016 Ethical Guidelines for Biomedical Research on Human Participants, ICMR, New Delhi.

MPH204: Management of Health Systems : 3 credits

Course objective:

- To familiarize students with the challenges of management of health care system in India
- To familiarize students with the principles and techniques of management
- To impart knowledge on health care financing health economics including cost-benefit and cost-utility analysis

Course outline:

1. Health Care Systems in India: health care system includes many sectors or subsystems, types of service providers, sources and methods of financing, and regulations. Model of health care system in India.
2. Challenges in Public health delivery system: with ref to delivery, performance, effectiveness, efficiency, and equity, discussion about the sources of problems and potential solutions
3. Human resource management in public health (HRM): nature of human resource management, limitations
4. Health management information system (HMIS): health information sources, challenges in HMIS, advantages and lacunas in current system, recommendations to improve utilization of current HMIS.
5. Brief overview of evolution of management theories and tools and techniques used in management: SWOT, Log Frame, PERT, CPM
6. Health financing, budgeting and economics
7. Overview on Health financing in Developing countries
8. Health financing concepts such as cost and cost classification
9. Budget management
10. Cost-effective analysis, Cost-benefit analysis and Cost-Utility analysis;
11. Economic analysis reporting for projects
12. Health insurance in India: Private insurance, community-based insurance schemes

Suggested readings:

1. Fallon L F., Eric J Zgodzinski. Public health management. Sundbury, MA: Jones and Barlett.2009.
2. LieberJ.G. , C. McConnel. Management principles for health professionals. Sundbury, MA: Jones and Barlett. 2010.
3. Buchbinder, SB, n.H.Shanks. Introduction to health care management. Sundbury, MA: Jones and Barlett. 2007.
4. Fallon L F., C.McConnell.Human Resource Management in Health care .Sundbury, MA: Jones and Barlett. 2007.
5. Essentials of Health Economics: Diane M. Dewar, series editor: Richard Rigelman, United states, 2010
6. Health Economics: Peter Zweifel and Friedrich Breyer, Oxford University Press, New York, 1997
7. Health Program planning and evaluation A practical, Systematic approach for community Health; L. Michele Issel Jones and Bartlett Publishers, Canada,2009
8. Health economics, an International Perspective; BarbaraMcpake, LilaniKumaranayake and Charles Normand, Routledge, Taylor & Francis Group, New York, 2006
9. Health Economics in India (Edited), Prashant Panda and Himanshu Rout, New Century Pubns, 2007

MPH205: Urban Health: 1 Credit

Course Objective:

- To impart knowledge on the determinants of urban health, health care in urban areas, health of vulnerable sections in cities and occupational health

Course outline:

1. Urban population: urban demography, epidemiology, changes in urban physical and social environment and their consequences for health
2. 'Urban' as determinant of health: defining health disparities and health equity; the determinants of urban health; locating and understanding health disparities using data, housing, segregation, built environment, food insecurity, violence and crime,
3. Urbanization and health outcome: emerging public health issues associated with rapid growth of urban population overcoming health inequities in urban settings,
4. Health services in urban areas: health services in urban areas, public health care access and other issues, inadequacy of public health services,
5. Health issues of the vulnerable population in urban areas
6. Urban Health planning: design and implementation of cost-effective health care system

Suggested reading:

- 1) Galea Sandro, David Vlahov. Handbook of urban health. Populations, methods and practice. USA: Springer publication 2008
- 2) Cecilia Tacoli Urbanization, gender and urban poverty: paid work and unpaid carework in the city, Published by UNFPA, March 2012
- 3) 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)
- 4) Umar Benna, Urbanization and its impact on socio-economic growth in developing regions. Published by IGI Global. 2017
- 5) The Centre on Housing Rights and Evictions (COHRE), Women, Slums and Urbanisation: Examining the Causes and Consequences. Published by COHRE, Geneva, Switzerland 2008. ISBN: 978-92-95004-42-9.
- 6) Peter Ellis and Mark Roberts. Leveraging Urbanization in South Asia Managing Spatial Transformation for Prosperity and Livability. Published by World Bank Group. Washington 2016. ISBN (paper): 978-1-4648-0662-9 ISBN (electronic): 978-1-4648-0663-6 DOI: 10.1596/978-1-4648-0662-9
- 7) Gusmano MK, Rodwin VG, Weisz D. Health care in the world cities: New York, Paris, and London. Baltimore, MD: The Johns Hopkins University Press, 2010.

MPH206 Diagnostics in Public Health: 4 credits

Course objective

- To demonstrate the diagnostic methods that are used for supporting disease control and environmental health activities and the underlying principles

Course outline:

1. Introduction to Lab
2. Microbiology –Basic aseptic techniques and media preparation, spread plate, streak plate Gram staining, microbial growth curve, culture, antibiotic susceptibility testing.
3. Haematological methods: Blood grouping, TBC, WBC, RBC count
4. Biochemistry: glucose estimation, liver function tests; Estimation of haemoglobin
5. Immunology: Ouchterlony Double Diffusion, ELISA
6. Molecular biology: Protein estimation by Biuret, Bradford and Folins Lowry method
7. Environmental measures: Water quality testing

Suggested reading:

1. Textbook of Medical Laboratory Technology, P.B. Godkar, Balani publishing, House Bombay.
2. Basic laboratory Methods in Medical Bacteriology, WHO, Geneva.
3. Basic laboratory Methods in Medical Parasitology, WHO, Geneva

MPH207 AYUSH and Integrative Health: 3 credits

Course objectives:

- To get an overview of Traditional, Complementary and Integrative Medicine (TCIM)
- To examine the current status of practitioners in India and their interactions with the health system
- To identify potentials and challenges about TCIM in public health context

Course outline:

1. Definitions, plural systems of medicine, Traditional Medicine, Complementary & Integrative Medicine, Global trends and policy framework
2. Introduction to Traditional Medicine: Chinese, Arabic, Greek, Korean, Japanese, African and Ethno-medicine from different parts of the world
3. Indian traditional medicine - AYUSH Systems: Ayurveda, Yoga, Unani, Siddha, Sowa Rigpa, Naturopathy, Homeopathy, Herbal medicine and health traditions
4. Concept of Integrative Health, holistic health, whole systems approaches, personalized health, predictive, preventive, personalized approaches, curative to preventive health care, global initiatives in Integrative Medicine, WHO traditional medicine strategy
5. Historical evolution of integrative medicine in India and key committee reports (e.g. Udapa, Chopra)
6. Current status of practitioners of TCIM in public health in India, national AYUSH mission and other initiatives
7. TCIM: potential and challenges in disease prevention, health promotion, surveillance and care; public health competencies

Suggested reading:

1. Patwardhan B Et al. Integrative Approaches for Health: Biomedical Research, Ayurveda and Yoga. Elsevier, USA, 2015
2. Patwardhan B. Traditional Medicine for Affordable Global Health, A report of CIPIH, World Health Organization, Geneva, 2005.
3. Chandra S. Status report on Indian medicine and folk healing. Report submitted to Govt. of India. 2011
4. Valiathan MS. Introduction to Ayurveda, Oriental Black Swan, India, 2013
5. Valiathan MS. Ayurvedic Inheritance of India, NPTEL Online Lecture Series, IIT Madras, 2013.
6. WHO Traditional Medicine Strategy: 2014-2023, World Health Organization, Geneva, 2014.

MPH208 Ageing & Society: 2 credits

Course Objectives:

1. To provide an overview of demographic, social, psychological and health issues related to population ageing
2. To expose students to the health status of older adults, disease and disability burden and challenges to public health due to population ageing

Course outline:

1. Demographic trends and epidemiological description of the major health problems and issues for older populations and their implications for public health
2. Theories of ageing and biology of ageing: Identify the components of usual versus successful aging, behavioural, social and environmental factors that influence successful ageing
3. Chronic conditions and Disability in older adults: their implications for public health, functional decline, Fall prevention
4. Nutrition of older adults: frailty, obesity in older adults
4. Health care services for older adults: strategies to prevent diseases and promote health in elderly
5. Dementia, Alzheimers and other mental health conditions in older adults: its implications for families and society, Alzheimer's Disease and Caregiving
6. Socio-cultural change and social care needs of older adults: Historical shifts in position, , family care giving, current social care giving needs of ageing adults
7. End of life care
8. Policy and programmes for welfare of older adults: Policies and programs from India and around the world that support healthy ageing will be examined.

Suggested reading:

1. Prohaska, T.R. Lynda A. Anderson, Robert H. Binstock (eds) 2012. Public Health for an Aging Society. USA: JHU Press. ISBN: 9781421404356
2. Whitbourne S.K. 2001. Adult development and ageing. Biopsychosocial perspectives John Wiley & sons.
3. Hofer S.M. Duane F Alwin. Ian Stuart Hamilton. 2011. An introduction to gerontology. UK: Cambridge University Press.
4. Scott M. 2008. Handbook of cognitive ageing. Interdisciplinary perspectives. USA: Sage publications
5. Albert S.M. 2014. Public Health and Aging: An Introduction to Maximizing Function and Well-being. USA: Springer publication
6. Schweda, M. Larissa Pfaller, Kai Brauer, Frank Adloff, Silke Schocktan. 2017. Planning later life: bioethics and public health in ageing societies: Routledge
7. National Research Council (US) Panel on Race, Ethnicity, and Health in Later Life; Anderson NB, Bulatao RA, Cohen B, editors. Critical Perspectives on Racial and Ethnic Differences in Health in Late Life. Washington (DC): National Academies Press (US); 2004. 17, Behavioral Health Interventions: What Works and Why? Available from: <https://www.ncbi.nlm.nih.gov/books/NBK25527/>

MPH209 Monitoring & Evaluation of Public Health Programmes: 1 credit

Course objective

- To expose students to the methods of monitoring and evaluation in the broader framework of health and nutrition programmes.
- To build students capacity to develop framework for monitoring and evaluation independently

Course outline:

1. Introduction to monitoring and evaluation: difference between monitoring and evaluation
2. Programme Logic models and Theory of change
3. Deciding on key aspects of the program to monitor, identifying data sources, designing sound data collection and collation tools
4. Evaluation principles and approaches for field-based programs, identifying evaluation questions and developing a learning agenda, selecting an appropriate evaluation design, Collecting evaluation data
5. Developing Objectives and indicators for M&E : quantitative and qualitative indicators
6. Evaluation: types, evaluation question,
7. Identifying program stakeholders and their information needs
8. Selecting appropriate communication tools for different audiences

Suggested reading:

Class handouts

Semester III

Semester III		
Core Courses		
Subject Code	Subject Title	Number of Credits
MPH301	Non-communicable Diseases, Injuries and Control Programmes	4
MPH302	Qualitative Research Methods	4
MPH303	Maternal and Child Health	4
MPH304	Nutrition Research Methods and Techniques	4
Elective Courses		
Subject Code	Subject Title	Number of Credits
MPH305	Public Health Internship	2
MPH306	Environmental and Occupational Health	2
MPH307	Health Planning	1
MPH308	Global Health Case Studies	1
MPH309	Social Epidemiology	2
MPH310	Public Health in Disaster Management and Outbreaks	1

Explanatory note on semester III

The courses offered in this semester provide in depth understanding of dual burden of diseases in India. The courses discuss burden of non-communicable diseases, morbidities and mortality during maternity and child hood. The course on nutrition methods and techniques provides hands on training in conducting nutritional assessment in the population. The elective courses in this semester are combination of theoretical and practical courses. Course on health behaviour imparts skills in development and assessment of health education material and also provides knowledge on theories of behaviour. While gender and health course is complementary as it provides deeper understanding of the reasons for variation in maternal health statistics. Social epidemiology II course helps students understand why health inequalities exist and what are ways in which they can be researched and documented. A course on diagnostics and Public health internship provides hands on training and imparts necessary skills to work in the field of public health.

MPH301 Non-communicable Diseases, Injuries and Control Programmes: 4 credits

Course Objectives:

- To give an understanding of the pathophysiology of major NCDs. Classification, clinical manifestations, diagnosis and, treatment.
- To understand the risk factors for common NCDs, and methods of prevention, control and health promotion
- To give an understanding of the pathophysiology of some common mental health problems

Course outline:

1. Epidemiology of NCDs, risk factors, global status, prevention and control, global initiatives
2. National strategies for control of NCDs (epidemiology, pathophysiology including biochemical and genetic parameters, cardinal signs, clinical and diagnostic features (with special emphasis on biochemical parameters), treatment (emphasize pharmacological component) prevention and control
 - a. Diabetes
 - b. Cardiovascular diseases
 - c. Asthma and COPD
 - d. Cancer
 - e. Musculo-skeletal conditions
3. Tobacco, obesity and other risk factors for NCDs
4. Unintentional Injuries- prevention and control; global and national strategies
5. Introduction to mental health, health promotion, National Mental health programme
6. Epidemiology of Major Mental Disorders burden of mental health morbidities, psycho-social, etiology of mental and behavioural disorders; depression, schizophrenia, Alzheimer's, Parkinson's, senile dementia, suicides

Suggested reading:

- 1) Class handouts
- 2) World Health Organization (2016). Global Report on Diabetes. WHO Press, Switzerland
- 3) National Centre for Disease Control Director General of Health Services Ministry of Health and Family Welfare, GOI 2017. Training Module for Medical Officers for Prevention, Control and Population Level Screening of Hypertension, Diabetes and Common Cancer (Oral, Breast and Cervical). National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke
- 4) World Health Organization 2014: GLOBAL STATUS REPORT on Non-Communicable Diseases
- 5) World Health Organization 2013: Global Action Plan for the Prevention and Control of Non-Communicable Diseases, 2013-2020, WHO, Geneva, Switzerland
- 6) Standard Treatment Guidelines: Hypertension Screening, Diagnosis, Assessment, and Management of Primary Hypertension in Adults in India- Quick Reference Guide May 2016 Ministry of Health and Family Welfare, Government of India
- 7) Prevention of cardiovascular disease: guidelines for assessment and management of total cardiovascular risk: World Health Organization. ISBN 978 92 4 154717 8 (NLM classification: WG 120) © World Health Organization 2007

MPH302 Qualitative Research Methods : 4 credits

Course objectives:

- To orient students about use of various qualitative data collection methods for use in public health research.
- To introduce various interpretive analytic approaches, explore their use, and guide students in applying them to data.
- To introduce computer software used for data analysis

Course outline

1. Foundation of qualitative research and epistemology
2. Approaches in qualitative research: Substantive theory, Grounded theory approach, interpretivist approach, Role of theory in qualitative health research
3. Research Designs: Conceptual framework, Pure designs, mix-methods designs
4. Introduction to Qualitative data collection methods
 - 4.1 Interview
 - 4.2 Focus Group Discussion
 - 4.3 Observation
 - 4.4 Case Study
 - 4.5 Participatory methods
5. Sampling in qualitative research: Sample size, sample selection techniques,
6. Quality Control of qualitative data: setting standards, judging quality, validity and credibility
7. Analytic approaches, methods, and techniques: Principles of analysis, Steps in analysis; thematic analysis, content analysis, narrative analysis,
8. Computer assisted applications for qualitative analysis and Presenting, report writing and paper writing using qualitative data

Suggested reading:

- 1) Ulin P, Robinson E, Tolley E. *Qualitative Methods in Public Health: A field guide for Applied Research*, Jossey Bass Pub, 2005
- 2) Russell Bernard H., Gery W. Ryan *Analyzing Qualitative Data: Systematic Approaches*, SAGE Publications, 2010.
- 3) Green J, Thorogood J, *Qualitative methods for Health research*, Sage Pub, 2004
- 4) Catherine Pope, Nicholas Mays, *Qualitative Research in Health Care*, John Wiley & Sons, 2008
- 5) David Silverman *Interpreting Qualitative Data: Methods for Analyzing Talk, Text and Interaction* SAGE Publications, 2006
- 6) Carol Grbich Sage Pub, *Qualitative Research in Health* 1999
- 7) Matthew B. Miles, A. Michael Huberman, *Qualitative Data Analysis* Sage Pub, 1994

MPH303 Maternal and Child Health: 4 credits

Course objectives

- To introduce students to the essential components of maternal and child health and health care programme
- To discuss global and national maternal and child morbidity and mortality trends its important interventions to responsible for the change in trends
- To introduce students to the concept of gender and importance of gender issues in in public health practice and research and policy planning

Course outline

Unit 1 Women's, maternal Health

1. Burden of reproductive ill-health: unintended pregnancies, unsafe abortions, MTP act, non-sexually transmitted infections, infertility, violence against women
2. Evolution of the concept of reproductive health and its implications
3. Early human development and public health implications, Gametogenesis, fertilization, implantation, Foetal development, Preconception period, maternal and paternal risk factors for maternal and fetal outcomes, Developmental origins of adult diseases
4. Antepartum – antenatal care and significance, physiological changes during pregnancy, complications of pregnancy, high risk pregnancy
Intrapartum- stages of labour and delivery, components of labour, danger sign and management of labour complications of labour and delivery
Postpartum – care, complications of postpartum
5. Maternal morbidity and mortality; levels and causes of maternal mortality
6. Contraception, sterilization, population control

Unit 2 Child Health

1. Levels and trends in child mortality, major causes of neonatal, infant and child mortality and public health interventions
2. Major causes of neonatal mortality; Preterm births, low birth weight and public health interventions; birth defects
3. Common morbidities among young children; lower respiratory tract infections, diarrhoea,
4. Immunization; coverage, factors
5. Infancy and child hood: Growth and development; physical, motor, cognitive, psycho-social and language development , first 1000 days, ECD
6. Child nutrition
7. Policy and programmes: the main national and international interventions for prevention of reproductive and childhood/adolescent morbidity and mortality, including RMNCHA+, JSSK, RBSK, IYCF, IMNCI, maternity benefit schemes

Unit 3: Gender

1. Concept of gender, distinguish sex from gender
2. Gender as determinant of health
3. Role of biology and sociology in health and health care
4. Gender and health inequities
5. Gender and disability
6. Gender perspective in public health in India:
7. Gender, Sexuality, and HIV/AIDS— social and structural contexts of HIV vulnerability

Suggested reading:

- 1) Kotch Jonathan B. Maternal and Child Health: Programs, Problems, and Policy in Public Health 3rd Edition Jones & Bartlett Learning; 3 edition (May 11, 2012) ISBN-13: 978-1449611590
- 2) Ehiri John (Ed.) Maternal and child health: Global challenges, programmes and policies .Springer-Verlag US 2009
- 3) Dutta D C. Textbook of Obstetrics: Including Perinatology and Contraception. Jaypee Brothers Medical Publisher Ltd. New Delhi. 8th Edition 2016
- 4) Dutta D C Textbook of Gynaecology. JAYPEE BROTHERS MEDICAL PUBLISHERS (P) LTD New Delhi 6th edition 2013
- 5) Behrman RE and Kliegman R. Nelson's textbook of paediatrics. Elsevier Inc Publication 2016 ISBN: 978-1-4557-7566-8
- 6) Ghai O P. Essentials of Paediatrics. CBS Publications and Distributions Pvt Ltd. New Delhi 8th Edition 2013
- 7) Rieker and Bird (2005) Rethinking gender differences in health: Why we need to integrate social and biological perspectives. Journal of Gerontology. Series B. 60B, II, 40-47.
- 8) Fausto-Sterling, Anne. Sex / Gender: Biology in a Social World. Routledge, 2012. ISBN: 9780415881463
- 9) Morrow, M. (2007). "Introduction: Beyond Gender Matters" and "Our Bodies, Our Selves' in Context: Reflections on the Women's Health Movement in Canada." In Women's Health in Canada: Critical Perspectives on Theory and Policy, edited by M. Morrow, O. Hankivsky, & C. Varcoe (pp. 3-63). Toronto: University of Toronto Press.
- 10) Nichols, F.H. (2000). History of the Women's Health Movement in the 20th century. J ObstetGynecol Neonatal Nurs., 29(1), 56-64.
- 11) Springer, K.W, Hankivsky, O., & Lisa M. Bates, L.M. (2012). Gender and health: Relational, intersectional, and biosocial approaches. Social Science & Medicine, 74(11), 1661-1666.
- 12) Lorber, Judith and Lisa Jean Moore (2002). Women get sicker but men die quicker: Social epidemiology. In Gender and the social construction of illness. Lanham MD: Alta Mira Press, 13-36. 7.

MPH304 Nutrition Research Methods and Techniques: 4 credits

Course objective:

- To orient students to the research methods in the field of public health nutrition.
- To develop their skills in nutrition research methods and to update them with the current techniques in nutrition research.

Course outline:

1. Principles of nutritional epidemiology
2. Nutritional Survey, Surveillance, Monitoring and Evaluation
3. Tools and Techniques: Anthropometry
 - a. Height and weight measurements
 - b. BMI, Z score, WHO software's: Anthro, Anthroplus
 - c. Circumference measurements- MUAC cut offs: SAM, MAM, Old classification in comparison with new. Other circumferential measurements
 - d. Skinfold measurement
 - e. Comparison to standards
 - f. Technical error of measurement
 - g. Growth charts- growth monitoring, Types of charts, target height, percentiles, deriving third percentile.
4. Dietary and Nutrient intake analysis – Energy expenditure, energy balance, Diet recall, Food frequency, Weighment method, comparison with standards; Units of measurement in foods, Standardisation of foods for portion sizes, Nutritional questionnaires
5. Nutritional screens - Physical examinations for clinical signs and symptoms, Biochemical assessment methods, cut offs.
6. Standards for comparison – RDA, NCHS standards, ICMR standards

Suggested reading:

- 1) Willett, W. (2012). Nutritional epidemiology. Oxford University Press.
- 2) Margetts, B. M., & Nelson, M. (Eds.). (1997). Design concepts in nutritional epidemiology. OUP Oxford.
- 3) Frisancho, A. R. (1990). Anthropometric standards for the assessment of growth and nutritional status. University of Michigan Press.
- 4) Cohen, B. E. (2002). Community food security assessment toolkit (pp. 02-013). Washington, DC: US Department of Agriculture, Economic Research Service.
- 5) Billig, P., Bendahmane, D., & Swindale, A. (1999). Water and sanitation indicators measurement guide. Food and Nutrition Technical Assistance Project, Academy for Educational Development.
- 6) World Health Organization. (1995). The use and interpretation of anthropometry: report of a WHO expert committee. World Health Organ Tech Rep Ser., 854, 312-409.
- 7) Holick, M. F. (2009). Vitamin D status: measurement, interpretation, and clinical application. *Annals of epidemiology*, 19(2), 73-78.

MPH305 Public Health Internship: 2 credits

Course objective:

To provide an understanding of day to day activities and functions of professionals working in the public health system

Course outline

Four-weeks internship at a public health facility, or with a disease control programme. Assessment through activity diary, journal and report submission and presentation. Report may be submitted in Semester III. This course is usually timed during the period between Sem II and III.

MPH 306 Environmental and Occupational Health: 2 credits

Course objective:

- To enable the students to identify the various sources of environmental threats and occupational hazards to health and the ways to manage these threats and hazards so as to prevent related diseases

Course outline:

1. Principles of environment health and human ecology
2. Food sanitation and safety
3. Vector and rodent control
4. Waste disposal
5. Environmental pollution: Environment health policy, Current and emerging issues in environment including global warming
6. Occupational health: Hazards at the workplace, Diagnostic criteria of various occupational diseases
7. Workplace safety: Prevention of occupational hazards (including accident prevention) Legislations related to occupational health, Employees State Insurance Scheme
8. Climate change: Global warming, ozone depletion, pollution, etc.
9. Climate change and its adverse effects – health

Suggested readings:

Class handouts

MPH307 Health Planning: 1 credits

Course objectives

- To understand the health planning from the perspective of national and global developments concerning health sector.

Course outline: Health Planning (Credit 1)

1. Definition of Planning, Health Planning Models
2. History of Planning in India
3. Development of National Health Policy: Evolution of Indian National Health Policies 1981-83, 2001 and 2017
4. Global agendas
 - a. Health for all- Millennium Development Goals- Sustainable Development Goals
 - b. Primary Health Care - Universal health coverage

Suggested reading:

- 1) National Health and Research Policy Documents
- 2) Expert Committee Report on Public Health Systems in India
- 3) Class handouts

MPH308 Global Health Case studies: 1 credit

Course objectives:

- To learn about health systems and services in high, medium, low income settings

Course outline:

Students will select any topic in the field of maternal and child health, infectious diseases, non-communicable diseases, injuries, mental health and prepare a dissertation on the health systems and health interventions in a different country and present an analysis of the similarities and differences with the existing situation in India

Suggested reading:

As per the discussion between student and mentor

MPH309 Social Epidemiology: 2 credits

Course objectives:

- To explore both theories explaining the relationship between the social phenomena and health as well as methodological tools for studying this relationship

Course outline:

1. Theories, models and constructs: Approaches in social epidemiology, Population perspective,
2. Theory building perspective, (1) Bio-Psychosocial paradigm (2) social production of disease, political economy of health, (3) eco-social theory and related multi-level frameworks, (4) Life course approach Explanatory models in Cultural epidemiology
3. Methods of social epidemiology: different methodological consideration and approaches within social epidemiology
4. Multilevel Approaches: Discussion on approached for research in social epidemiology
 - a) Neighbourhood effect studies, compositional and contextual effects of neighborhoods on health; and describe how multi-level study designs help us to distinguish between them.
 - b) Psycho-social environment, stress and health studies, Causal associations between job stressors and health, Work/life balance and gender differences in job strain
 - c) Social support, Social network and its impact on health, social network analysis
 - d) Lifecourse approach,
5. Income inequality and health : Absolute income effect, Social comparisons and relative deprivation, Contextual effect of income inequality
Causal Explanations in social epidemiology
6. Social epidemiology and policy

Suggested reading:

- 1) Bartley Mel. Health inequality : an introduction to theories, concepts, and methods
Cambridge : Polity Press : 2004
- 2) Oakes & Kaufman, Methods in Social Epidemiology. Jossey-Bass Pub, 2006
- 3) Berkman LF, Kawachi I & Glymour MM. (2nd eds). Social Epidemiology. New York: Oxford University Press, 2014.
- 4) Dorling D. Injustice: why social inequality persists. Portland, OR: The Policy Press, 2010.
- 5) Lisa F. Berkman, Ichiro Kawachi, Social Epidemiology, Oxford University Press, 2000
- 6) Kawachi I, S.V. Subramanian, Daniel Kim Social Capital and Health, Springer 2007
- 7) Kawachi & L. F. Berkman, Neighborhoods and Health. Oxford University Press 2003
- 8) Krieger N. Embodying inequality: epidemiologic perspectives, Baywood Pub, 2005

MPH310: Public Health in Disaster Management and Outbreaks: 1 Credit

Course objectives

To introduce students to the climate change and its implications on Public Health and orient them towards outbreak investigation and introduce natural and man-made disasters and mitigation principles

Course outline

Unit 1 Public Health in Outbreaks

1. Disease outbreaks in India
2. Outbreak investigation
3. Epidemic control in India; integrated disease surveillance, legislation for the control of outbreak in India, international health regulations

Unit 2 Disaster management

1. Introduction to Natural & Man-made Disasters
2. Disaster Preparedness: Disaster Preparedness Plan, Disaster Preparedness for People and Infrastructure, Role of technology in disaster Preparedness
3. Disaster management: Hazard, Risk and Vulnerability, Concept and Relationship, disaster Risk Reduction, risk Analysis Techniques, People Participation in Risk Assessment
4. Disaster Mitigation: Disaster Mitigation Strategies, Emerging Trends in Disaster Mitigation, Role of Team and Coordination,
5. Rehabilitation, Reconstruction & Recovery
6. Disaster Response: role and responsibilities of different governmental organizations at local, district, state and central level

Suggested reading:

- 1) Taori, K (2005) Disaster Management through Panchayati Raj, Concept Publishing Company, New Delhi.
- 2) Roy, P.S. (2000): Space Technology for Disaster management: A Remote Sensing & GIS Perspective, Indian Institute of Remote Sensing (NRSA) Dehradun.
- 3) Sharma, R.K. & Sharma, G. (2005) (ed) Natural Disaster, APH Publishing Corporation, New Delhi.

Semester IV

Semester IV		
Core Courses		
Subject Code	Subject Title	Number of Credits
MPH401	Disability and Public Health	2
MPH402	Tribal Health	2
MPH403	Clinical and Field Trials	2
MPH404	Bioethics, Bio-safety and regulations	2
MPH405	Research project I	4
MPH406	Research project II	4
Elective Courses		
Subject Code	Subject Title	Number of Credits
MPH407	Health Behaviour	2
MPH408	Applied Immunology	2
MPH409	Research Proposal Development	2
MPH410	Critical reading	2

Explanatory note on semester IV

Semester IV provides students with an insight into the managerial and administrative modalities of health services, imparts knowledge on public health emergencies and disaster managements. It also exposes students to the traditional systems of medicines and the concept of integrative health. Students are also introduced to the basic concepts in health economics, bioethics and biosafety.

MPH401: Disability and Public health: 2 credits

Course objectives

- To introduce students to disability as a public health issue
- To identify needs of the disabled and find ways to address the issues that the disabled face in developing countries

Course outline:

1. Defining disability: evolving concept of disability, medical model, social model and human rights perspective of disability
2. Disability and public health: issues of definition and ethics
3. Data sources and estimating disability: global and national level data sources, trends in developed and developing countries, epidemiological data on disability
3. Determinants of disability: preventable disability, developing preventative strategies for avoidable disabling conditions,
4. Health and social care needs of disabled: health care needs of disabled, accessibility, availability and affordability of health services for disabled, approach to comprehensive, integrated care for disabled, role of public health
5. social and psychological experience of disability, stigma and discrimination faced by affected individuals, identification of care needs, role of psycho-social support, approach to comprehensive, integrated care for disabled
6. Public health implications of disability: overview of policy, programmes, innovation, interventions, rehabilitation, reablement

Suggested reading:

- 1) Drum C.E. Krahn G.L., Hank Bersani Jr. Disability and Public Health. Washington, USA: American Public Health Association. Washington USA. 2016 Print ISSN: 0090-0036 | Electronic ISSN: 1541-0048
- 2) Lollar D.J, Anderson, ElenaM (eds) Public Health Perspectives on Disability: Epidemiology to Ethics and Beyond. USA: Springer Publication, 2011. ISBN 978-1-4419-73412
- 3) Berghs M, Atkin K, Graham H, Hatton C, Thomas C. Implications for public health research of models and theories of disability: a scoping study and evidence synthesis. Published by Public Health Res div of National Institute for Health research. 2016.
- 4) Beyrer C, and Pizer HF, (eds). Public health and human rights; evidence-based approaches. Baltimore, MD: The Johns Hopkins University Press, 2007.
- 5) Jean O'Hara Jane McCarthy Nick Bouras. Intellectual Disability and Ill Health - A Review of the Evidence .Cambridge University Press India Pvt Ltd, 2010. ISBN: 9780521728898, 0521728894

MPH402 Tribal Health: 2 Credits

Course objectives:

- 1) To orient students with health issues of tribal population of India**

Course outline

- 1) Overview of territorial distribution and classification of tribes in India
- 2) Contemporary tribal health issues: tribal health indicators, trends and patterns
- 3) Tribal health programmes, strategies, initiatives and schemes
- 4) Nutrition and Food Security in tribal regions
- 5) Poverty and Health in Tribal regions
- 6) Tribal development, displacement, rehabilitation and its impact on health
- 7) Water Hygiene Sanitation and Health in tribal communities
- 8) Indigenous and emerging practices and its impact on health
- 9) Ethno-medicine, forest resources and tribal health

Suggested reading

- 1) Census of India
- 2) National Family Health Survey (NFHS) – 1, 2, 3, 4, 5
- 3) Lancet: Maternal and Child Health series – 2018
- 4) Lancet: Indigenous Health series: 2010
- 5) Tribal health report: First Comprehensive Report on Tribal Health in India: Report of the expert committee on tribal health
- 6) R. K. Mutatkar (2018). Tribal Health and Malnutrition. Concept Publishing Company Private Ltd, New Delhi, India
- 7) Salil Basu (2000). Dimensions of Tribal Health in India. Health and Population- Perspectives and Issues 23(2): 61-70, 2000
- 8) National Health Mission Programmes on Tribal Health Issues (Tribal RNTCP action plans, AIDS control programmes, NVBDCP, RCH-II)

MPH 403 Clinical and Field Trials: 2 credits

Course Objectives:

The course aims to furnish the students with the following knowledge and skills:

- a. Understand the general principles of clinical trials research
- b. Have a theoretical idea about the design conduct and analysis of clinical Trials

Course outline: Clinical trials and Field trials:

1. Introduction to Clinical research: clinical research designs, clinical trial, conduct and regulation
2. History of the development of the clinical trials research process
3. Introduction to the phases of clinical trials research
4. Designing trials
5. Trial size
6. Field organization and ensuring data of high quality
7. Trial design
8. Community engagement
9. Determining sample size
10. Single and multicentre trials
11. Techniques for randomization
12. Data collection management and endpoints
13. Recruitment and retention of trial participants
14. Standard Operating Procedures (SOP's)
15. Adverse events and serious adverse events (SAE's)
16. Interim monitoring
17. Introduction to field trials of health interventions
18. Phase IV studies
19. Budgeting human resource and materials
20. Quality control

Suggested reading:

- 1) Clinical Trials: A Practical Guide to Design, Analysis, and Reporting by Duolao Wang and Ameet Bakhai (Remedica, 2006)
- 2) Textbook of Clinical Trials edited by David Machin, Simon Day and Sylvan Green (Wiley, 2004)
- 3) Field Trials of Health Interventions: A Toolbox by Peter G. Smith, Richard H. Morrow, David A. Ross (OUP, 2015)
- 4) Randomization in Clinical Trials: Theory and Practice (2nd ed.) by William F. Rosenberger and John M. Lachin (Wiley, 2016)
- 5) An Insider's Guide to Clinical Trials by Curtis L. Meinert (OUP, 2011).
- 6) CONSORT Checklist-CONSORT statement. 2010. Available on www.consortstatement.org/media/default/downloads/consort2010
- 7) The University of Illinois at Chicago. Evidence Based Medicine: PICO. Available on <http://researchguides.uic.edu>.

MPH404 Bioethics, Biosafety and regulations: credits 2

Course objectives:

- To introduce students to the ethical principles and practices in public health research
- To introduce students to the existing guidelines

Course outline:

1. Introduction to Bioethics – principles and history
2. National Ethical Guidelines for biomedical and health research
3. Regulations for medical devices, drug and biological material regulations
4. Publication ethics and regulations – introduction; fabrication, falsification, or plagiarism; ethics in scientific publications, guidelines and best practices of publications, committee of publication ethics
5. Guidelines for biosafety , animal ethics , stem cell guidelines, data sharing policies

Suggested reading:

1. National Ethical Guidelines for biomedical and health research involving human participants. ICMR, 2017
2. Guidelines and e-learning tools of Committee of Publication Ethics
3. CDSCO, 2013. Regulations and Guidelines Specific to Ethics Schedule Y & CDSCO-GCP.,
4. Available on www.cdsaindia.in/sites/default/files/02_Regulations_Dr.Bangaruranjan.pdf
5. CONSORT Checklist-CONSORT statement. 2010. Available on www.consortstatement.org/media/default/downloads/consort2010
7. The University of Illinois at Chicago. Evidence Based Medicine: PICO. Available on <http://researchguides.uic.edu>.
8. <http://researchguides.uic.edu>.

MPH405 & MPH 406 Research project I and II :4+4 credits

Course objective:

The purpose of research project is to encourage students to undertake independent research and to foster research-related skills, which should benefit future study and employment.

Each candidate for the Masters of Public Health (MPH) is required to undertake a research project in Semester III and completes it by end of Sem IV. The research project must exhibit original investigation, analysis and interpretation. The research project is to be done with research supervisor.

Initiate research and formulate feasible research questions

Design, develop tools and conduct original research

Synthesize literature and conduct analyses

Present research findings and argument in a suitably structured and sequenced manner

MPH407 Health Behaviour: 2 credits

Course objectives:

- To introduce students to the factors affecting on health and illness behaviour of population, and methods of behavioural modifications

Course outline:

1. Introduction to health behavior research; attitude, behaviour, perception, risk, self efficacy etc and how these concepts used in prevention and health promotion programmes
2. Introduction to health behaviour theories and models: Health Belief Model, Transtheoretical model, Theory of Reasoned Action and Planned Behavior
3. Behaviour change communication: Adherence and Resistance, Motivation and behaviour change, illness, diseases and behaviour change, social and psychological factors contributing to long-term behavioural change
4. Health education: methods of health education interventions, ways of communication, and assessment of impact of health education
5. Health promotion and disease prevention: a) Lay Representations of illness, social and psychological factors involved in the illness experience b) Stress and illness: Stress and Coping, role of social support in stress, coping and health outcome c) Substance use and psychological intervention d) Pain and chronic illness
6. Methods to measure behavioural change: scale development and validation of a scale by taking examples from existing research, when to use scale, analysis of data gathered using scale.
7. Cultural Epidemiology Framework and respective domains: Cultural identity (Domain I), Illness Explanatory Model (Domain II), key social interpersonal relations (Domain III) and relevant societal structural features of the health systems acknowledging the potential impact of social status and political economy (Domain IV)

Suggested reading:

- 1) Marks D, Murray M, Brian Evans, Estacio EV, Health Psychology. Delhi: sage publication, 2011
- 2) McDowell Ian. Measuring Health: A guide to relating scales and questionnaires. New York: Oxford University Press, 2006.
- 3) Scott Kahan, Andrea C. Gielen, Peter J. Fagan, Lawrence W. (eds) Green Health Behavior Change in Populations. USA: JHU Press, 09-Oct-2014
- 4) Karen Glanz, Barbara Rimer and K. Viswanath (eds) Health Behaviour : Theory Research and Practice. Jossey-Bass, July 2015
- 5) Prestwich, A., Jared Kenworthy, Mark Conner Health Behavior Change: Theories, Methods and Interventions. London and New York: Routledge, 6 October 2017, ISBN-13: 978-1138694811
- 6) Baranowski, T., Perry, C.L., Parcel, G.S. 2002. How Individuals, Environments, and Health Behavior Interact. In: Glanz, K., Rimer, B.K., Lewis, F.M., editors. Health Behavior and Health Education: Theory, Research, and Practice. 3rd Edition. San Francisco, CA: Jossey-Bass. p. 165-184.
- 7) Gitlin L., Sara Czaja. Behavioral Intervention Research: Designing, Evaluating, and Implementing. New York: Springer Publishing Company, 2015 ISBN 13 9780826126580
- 8) Weiss, M. G., (2017). The promise of cultural epidemiology. Taiwanese Journal of Psychiatry, 31(1), 8–24.
- 9) Weiss M. G. (2018). Cultural Epidemiology: Conceptual framework and current directions of an interdisciplinary field. Bulletin of the Institute of Ethnography SASA

MPH408 Applied Immunology: 2 credits

Course objectives

- To provide a basic knowledge of the immune response and its involvement in health and disease

Course outline

2. Introduction, basic concepts in immunology, components of the immune system
3. Innate immunity: Different lines and layers of defence, The complement system
4. Adaptive immunity- humoral and cell mediated: The structure of a typical antibody molecule, Interaction between the antibody and specific antigen; Antigen processing and presentation
5. Cytokines and immunomodulation Hypersensitivity and allergy
6. Vaccines and Vaccination: immunology of selected infectious diseases of public health importance
7. Applications of immunology in diagnosis and management of common diseases

Suggested reading:

- 1) Essential Immunology: - Ivan Roitt, Blackwell scientific publications, London Edinburgh Boston, Australia, 1997.
- 2) Immunology: Janis Kuby, W.H. Freeman and company, U.S.A.1992
- 3) Immunobiology: The immune system in health and disease: J. Travers, current biology pub, New York, 1997.
- 4) Vaccines Prospects and perspectives: Harmindar Sing, Rajesh Bhatia, Forward pub. Co., Delhi, 1993
- 5) Relevant documents and Suggested texts therein from the WHO website
- 6) WHO Technical Publications: Vaccines, Human Genetics Program series.
- 7) Harrison's Principles of Internal Medicine 16th Ed.-2005

MPH409 Research Proposal Development: 2 credits

Course objectives:

To impart training in the methodology of developing a research proposal and scientific writing

Course outline:

Students will write a research grant or fellowship application including ethical guidelines and other regulatory requirements. Students are expected to select a topic, conduct a literature review, identify a research gap, frame research questions, develop objectives, study hypothesis, select a study design, write the detailed methodology, develop the analysis format including statistical tests to be applied

MPH410: Critical Reading: 1 credit

Course objective

To introduce students to critical reading, analysis and interpretation of academic articles

Course outline:

The course will focus on capacity building to improve reading, understanding, analysis and interpretation of academic article. Students will be given a research article and mentored to understand the research gap, research questions, objectives, methods and results and understand how to identify the novel contributions of the research, how they contribute to existing knowledge and limitations of the study