

**Centre of Social Medicine and Community Health
School of Social Sciences
Jawaharlal Nehru University**

Winter Semester 2016

Course No.	SM 602
Course Title	Epidemiology
Course In-charge	Dr.Prachin Ghodajkar
Credits	3
Instruction Method	Lectures, Discussions and Tutorials
Evaluation Method	Term Papers and Viva-voce – 2.5 Credits Participation in Class Discussions/Tutorials & End Semester Viva-voce – 0.5 Credit

Course Outline

The objective of this course is to (i) generate critical reflection by the students on the science of epidemiology, (ii) introduce them to the advancing frontiers of conceptual issues in the discipline, (iii) enable epidemiological thinking, (iv) equip them with basic epidemiological methods relevant for public health analysis, policy and planning, and (v) develop their capacity to make correct choices for developing designs of epidemiological studies, with special focus on integrating social dimensions into epidemiology.

Part I: Scope of Epidemiology

- a. Epidemiology as an approach and a discipline
 - Disciplinary boundaries and principles
 - History and Uses
 - Diverse perspectives: method vs mode of thinking; positivist vs realist

- b. Basic Methods and Concepts in Bio-statistics
 - Basic demography
 - Normal curve
 - Mean, median, mode

- Probability

Part II: Epidemiology for Public Health: Concepts and Methods

CONCEPTS

- Nature, Extent and Distribution: Deciphering Patterns
- Natural history: At individual and at population levels
- Causality: Theories of causality and methodological issues

METHODS

- Measuring magnitude and distribution: Sources of data; measures, indicators & indices
 - Health, morbidity and mortality
 - Determinants of health
 - Health Services
 - Health care utilization patterns
 - People's perceptions
- Establishing natural history: Tracking processes and changes over time
[Changes in nature, magnitude, distribution and outcomes; Causality]
- Tools and techniques for establishing causality
 - Investigating an epidemic
 - Study designs and survey methods
 - Tests of significance, correlation and regression
 - Estimation of risk
 - Multi-variate analysis
- Policy and Planning
 - Epidemiological approach to planning for a specific disease
 - Formulating health policies and plans
 - Assessing needs
 - Assessing impact of non-health interventions
 - Health technology assessment
 - Evaluating programme designs
- Monitoring and Evaluation
 - Surveillance
 - Health services information
 - Evaluation

III. Summarising Issues

- Conceptualisation of structures, patterns, linkages and processes
- The role of quantitative and qualitative methods: 'evidence', 'facts', 'perceptions' and understanding of the 'dynamic processes of health'.

Reading List

Part I: Scope of Epidemiology

Essential Readings

I a.

1. MacMahon, B. & Pugh, T.F. (1970): *Epidemiology: Principles and Method*. Boston, Little Brown, (Chapter 1).
2. Beaglehole, R. et al. (1993): *Basic Epidemiology*. Geneva, WHO. (pp. 1-4)
3. Lilienfeld, Abraham M. (1994): *Foundations of Epidemiology*. New York, Oxford University Press, (Chapter 1 & 2)
4. Priya, R. (1987): The Epidemiological Approach – Its Elements and Its Scope. *MFC Bull.* 132, pp. 1-5.
5. Pearce, N. (1996): Traditional Epidemiology, Modern Epidemiology and Public Health, *AJPH*, 86(5) p.p. 678-683.
6. Krieger N. (2001): Theories for Social Epidemiology in the 21st Century: an ecosocial perspective. *Intern. J Epid.*, 30, pp 668-77.
7. Priya, R. (2004): Preface, in *Between Exaggeration & Denial-Minimising Suffering from HIV Infection & AIDS in India*. Monograph, SP-Lokayan, CED, CSDS, CSMCH-JNU, p. 2.

I b.

1. Mahajan B. K. (1997): *Methods in Biostatistics*. New Delhi, Jaypee Brothers, Medical Publishers (P) Ltd. (Chapters 3-5).

Suggested Readings

I a.

1. Susser M. (1987): *Epidemiology, Health and Society*. New York, Oxford University Press.
2. Turshen M. (1981): The Political Ecology of Health and Disease, *Health Bulletin*, No.1, 1981, pp.1-38.

3. Rosen G. (1988): *History of Public Health*, New York, M.D. Publications. Chapters 5,6,7,8.
4. Morris J. N. (1970): *Uses of Epidemiology*. London, Livingston.
5. Burrage H. (1987): Epidemiology and Community Health – A Strained Connection. *Social Science and Medicine*, Vol. 25, No. 8, pp. 895-903.
6. Beaglehole, R. et al. (1993): *Basic Epidemiology*. Geneva, WHO. (Chapter 1)
7. Olaske, M Demise (ed.) (2001): *Epidemiology and the Delivery of Health Services*. New York, KAPP, (Chapter 1).
8. Timmereck, T. C. (1998): *An Introduction to Epidemiology*. Massachusetts, Jones and Bartlett Publishers, (Chapter 3).
9. Nancy Krieger (2008): Proximal, Distal Divide: what's Level Got to Do with It. *American Journal of Public Health*, Vol 98, No. 2. PP. 221-230.
10. Leavell, H.R. & Clark, E. G. (1965): *Preventive Medicine for the Doctor in his Community*. New York, McGraw Hill. (Chapter 2).

I b.

1. Beaglehole R. et al. (1993): *Basic Epidemiology*. Geneva, WHO. (Chapter 4)
2. Govt. of India, Planning Commission (2002) : *National Human Development Report 2001*, New Delhi

Part II: Epidemiology for Public Health

Essential Readings

II a.

1. India (2005). *Health Information of India 2005*, Ministry of Health and Family Welfare, CBHI, New Delhi,
2. NNMB (2012): NNMB Report, Diet and Nutritional Status of Rural Population. Prevalence of Hypertension and Diabetes Among Adults and Infant and Young Child Feeding Procedures – Report of Third repeat Survey. NIN, ICMR, Hyderabad.

3. National Family Health Survey (NFHS–2 & 3) (1998-1999 & 2005-06) India: International Institute for Population Sciences, (IIPS), Bombay.
4. NSSO: a) National Sample Survey: Forty-Second Round, No. 364 “Morbidity and Utilisation of Medical Services”, September 1989, Department of Statistics, New Delhi.
 b) National Sample Survey Fifty Second Round (July 1995-June 1996) Survekshana Vol. XXIII, No.3, Jan-March 2000, Issue No. 82, “Note on Morbidity and Treatment of Ailments”, Ministry of Statistics and Programme Implementation, GOI.
 c) National Sample Survey: “Morbidity, Health Care and Condition of the Aged”, (NSS 60th Round January-June 2004), Ministry of Statistics and Programme Implementation, GOI, New Delhi, 2006.
5. MOHFW (2013): “National Health Profile of India-2013”, Central Bureau of Health Intelligence (CBHI), DGHS, New Delhi.
6. World Bank (1993): World Development Report 1993. New York, OUP. Pg. 26 and 117.
7. Priya R. (2001): DALYs as a Tool for Public Health Policy – A Critical Assessment, in Qadeer, I. et al.(ed.) *Public Health and the Poverty of Reforms: The South Asian Predicament*. New Delhi, Sage Pub.
8. TREASURE, T. (1999). The measurement of health related quality of life. *Heart* 81: 331-332
9. ICMR (1959): *Tuberculosis in India. A Sample Survey*, New Delhi, ICMR
10. Raj Narain et al (1978): Problems in Defining a Case of Pulmonary TB in Prevalence Surveys, *Bull. WHO* Vol. 29, pp. 701.
11. Gothi, G.D. (1978): Incidence of Pulmonary TB and Change in Bacteriological Status of a Case at Shorter Intervals, *Indian Journal of Medical Research*, Vol. 68, October pp. 564-76.
12. Priya, R. (2008): Revisiting the Epidemiology of HIV Infection, Table 5, p. 45, in Priya R & Mehta S (ed.) *Dialogue on AIDS-Perspectives for the Indian Context*. V.K.Pub., Delhi.

II b.

1. Leavell, H.R. & Clark, E. G. (1965): *Preventive Medicine for the Doctor in his Community*. New York, McGraw Hill. (Chapter 2).
2. Beaglehole, R. et al. (1993): *Basic Epidemiology*. Geneva, WHO. (Chapter 6)
3. McDermott, Walsh (1969): Demography, Culture, and Economics and the Evolutionary Stages of Medicine. In Kilbourne, E.D. and Smillie, W.G., *Human Ecology and Public Health*, 4th ed. London, Macmillan, pp. 67-28.
4. Dubos R. and Dubos J. (1952): *The White Plague*. Boston, Little Brown

II c.

1. MacMahon, B. & Pugh, T.F. (1996): *Epidemiology: Principles and Method*. Boston, Little Brown, (Chapter 5).
2. Mahajan B. K. (1997): *Methods in Biostatistics*. New Delhi, Jaypee Brothers, Medical Publishers (P) Ltd. (Chapters 6-12).
3. Beaglehole, R. et al. (1993): *Basic Epidemiology*. Geneva, WHO. (Chapter 3)
4. Ratcliffe, John, W. and Gozalexdol, Valla, Amalla (1988): Rigour in Health related research: towards an expended Conceptualization, *International Journal of Health Services*, Vol. 18, No. 3, pp. 361-392.
5. Snow, J. (1954): *On the Mode of Communication of Cholera*. London, John Churchill.
6. Doll R. & Hill A.B. (1950): Smoking and Cancer of the Lung – A Preliminary Report. *BMJ*, Sept. 30. pp.739 – 748.
7. Doll R. and Hill A. B. (1964): Mortality, Relation to Smoking - Ten Years Observation of British Doctors, *British Medical Journal*, 30th May, pp. 1300-1410.
8. McDermott, Walsh (1969): Demography, Culture, and Economics and the Evolutionary Stages of Medicine. Kilbourne, E.D. & Smillie. W.G. (ed.) *Human Ecology and Public Health*, 4th ed. London, Macmillan, pp. 67-78.
9. Shah G. (1997): *Public Health and Urban Development – The Plague in Surat*. Delhi, Sage Pub.
10. Gordon J.E. et al (1962): Weanling Diarrhoea, *Am. J. Med.*, March, pp. 345.

11. Priya, Ritu (2004): “Between Exaggeration and Denial: Minimising Suffering from HIV Infection and AIDS in India”, Swasthya Panchyat-Lokayan, Coalition for Environment & Development, Centre for the Study of Developing Societies and Centre of Social Medicine & Community Health, JNU.
12. Lauderdale D.S. Birth Outcomes for Arabic-Named Women in California Before and After September 11. *Demography*, Volume 43-Number 1, February 2006: 185–201

II.d.

1. Banerji, D. and Anderson, S. (1963): A Sociological Study of Awareness of Symptoms Suggestive of Pulmonary TB, *Bull WHO* Vol. 29, No. 5, pp. 665-83.
2. Banerji D. (1981): Public Health Perspective in the Formulation of the National Tuberculosis Programme of India, *NTI Bull.* November 14.
3. Tuberculosis Prevention Trial, Madras (1980): Trial of BCG Vaccine in South India for TB Prevention, *Indian Journal of Medical Research*, Vol. 72, Suppl, pp.1-74.
4. Tuberculosis Chemotherapy Centre (1979): Concurrent Comparison of Home and Sanatorium Treatment of Pulmonary Tuberculosis in South India, *Bull WHO*, Vol, pp. 51-144.
5. Ritu Priya, Atul Kotwal & Imrana Qadeer (2009): ‘Towards an Eco-social Epidemiology Approach to Goitre and Other Iodine Deficiency Disorders: A Case study of India’s Technocratic Programme for Universal Iodisation of Salt’. *IJHS*, Vol. 39, No.2. pp: 343-362.
6. Beaglehole, R. et al. (1993): *Basic Epidemiology*. Geneva, WHO. (Chapter 10)
7. Seager J.R. (1995): ‘Research on Urban Health – The Priorities and Approaches’ in Harpham T. & Tanner M. (ed.) *Urban Health in Developing Countries – Progress and Prospects*. London, Earthscan Pub. Ltd.

II e.

1. Lilienfield, Abraham M. (1994): *Foundations of Epidemiology*. New York, Oxford University Press, (Chapter 6)
2. Govt. of India (2001). Combating HIV/AIDS Epidemic in India 2000-2001, New Delhi, Ministry of Health and Family Welfare, National AIDS Control Organisation.

3. L Michele Issel (2004): “Health Program Planning and Evaluation: A Practical, Systematic Approach for Community Health”, Jones and Bartlett Publishers, London, pp: 1-35.
4. Pawson, R. & Tilley, N. (2008): *Realistic Evaluation*, Sage Pub. London. Ch. 3, pp. 55-82.

III.

1. Susser M. & E. (1996): Choosing a Future for Epidemiology – Parts I and II. *AJPH* 86 (5) pp. 668-673 and 674-677.
2. Qadeer I. (2000): Critique of Methods and Science: The Role of Objectivity in the Science of Public Health and Health Policy, *In* LeRoy J. & Sen. K (Ed.): Health Systems and Social Development: an alternative paradigm in health systems research, Organised by R.I.A.G.G., European Commission, Netherlands.

Suggested Readings

II a.

1. MacMahon, B. & Pugh, T.F. (1996): *Epidemiology: Principles and Method*. Boston, Little Brown, (Chapter 6-10).
2. Rothman, J. K. and Greenland, S. (1998): *Modern Epidemiology*. Philadelphia, Lippincott Williams and Wilkins
3. Lillienfield, Abraham M. (1994): *Foundations of Epidemiology*. New York, Oxford University Press, (Chapters 10-12)
4. Dawber T.R., Kannel W.B. and Lyell L. P. (1963): An Approach to Longitudinal Studies in a Community: The Framingham Study. *Ann NY Aca. Sc.* 107 pp. 539-556.
5. Mantel N. & Haenszel W. (1959): Statistical Aspects of Data from Retrospective Studies of Disease. *J. of Nat. Cancer Inst.* 22(4): pp. 719-47.

II b.

1. Zinsser, H. (1934): *Rats, Lice and History*. Boston, Little Brown.
2. McNeill, H. W. (1998). *Plagues and Peoples*, New York, Anchor Book.
3. Satyanarayana, K. (1986). Social Epidemiology of Nutrition in Ranga Reddy District. Ph.D. Thesis submitted to the Centre of Social Medicine and Community Health, Jawaharlal Nehru University, New Delhi.
4. McKeown, T. (1972): An Interpretation of the Modern Rise of Population, *Population Studies*, Vol. 26, No. 3.
5. Priya, Ritu (2006): "Town Planning, Public Health and Delhi's Urban Poor: A Historical View" *In Urban Studies*, ed. Patel Sujata an Deb Kashal, Oxford University Press, pp: 223-245.
6. Dasgupta R. (2012): "Urbanising Cholera: The Social Determinants of Its Re-emergence ". Orient Blackswan, New Delhi.

II C&D

1. Indian Council of Medical Research (1991): Tuberculosis Research Center, Madras: Report on Research Activities during 1991: Short Course Chemotherapy under District TB Programme, New Delhi, ICMR, pp.10-25.
2. Govt. of India (2002). *Health Information of India 1999*. Ministry of Health and Family Welfare, New Delhi, CBHI.

3. Sen Gita, Iyer Aditi, George Asha (2002): "Structural Reforms and Health Equity: A Comparison of NSS Surveys, 1986-87 and 1995-96", *EPW*, April, 6, pp:1342-1352.
4. Sagar A. : The Reproductive Health Package – A Chimera for Women's Health, in Qadeer I. et al. (ed.) *Public Health and the Poverty of Reforms in South Asia*. New Delhi, Sage Pub.
5. Dasgupta, R and Priya, R (2002): The Sustainability of Hepatitis B Immunisation within the Universal Immunisation Programme in India, *Health Policy and Planning*, 17(1), pp. 99-105.
6. Murray C.J.L. (1994): Quantifying the burden of disease: The technical basis for disability-adjusted life years. *Bull WHO*, 72(3), pp. 429-445.
7. Robine J-M. et al (1993): Distinguishing Health Expectancies and Health-Adjusted Life Years. *AJPH*, 83 (6), pp.797-8.
8. Drummond N. & Mason C. (1990): Diabetes in a Social Context –Just A Different Way of Life in the Age of Reason. Cunnungham-Burley S. & McKeganey N.P. (ed.) *Readings in Medical Sociology*. London, Tavistock/Routledge. Pp.37-54.
9. Nanddraj, Sunil et al (2001): "Women and Health Care in Mumbai: A Study of morbidity, utilization and expenditure on health care by the households of the metropolis", Cehat, Mumbai.
10. Mehrotra, Ritu Priya (2000): " A Study of Illness, Disease and Wellbeing among a Group of Construction Workers in their Ecological Context", Ph.D./CSM&CH/SSS/JNU, Chapter IX, X.
11. Padma, G. Rama (2005): "Men's participation in reproductive health: A Study of some villages in Andhra Pradesh", (AMCHSS), Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Science & Technology, Trivandrum.
12. Iyer, Aditi (2005): "Gender, caste, class, and health care access: experiences of rural households in Koppal district, Karnatka", (AMCHSS), Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Science & Technology, Trivandrum.
13. Das, Ranendra Kumar and Das, Veena (2005): "The interface between mental health and reproductive health of women among the urban poor in Delhi", Achutha Menon

Centre for Health Science Studies,(AMCHSS) Sree Chitra Tirunal Institute for Medical Science & Technology, Trivandrum.

14. Audinarayana, N. (2005): “Correlates of high-risk sexual behaviour among never-married male industrial workers in Tirupur City in Tamilnadu”, (AMCHSS), Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Science & Technology, Trivandrum.

II e.

1. Office of the Registrar General of India (1998): Survey of Causes of Death in Rural India – 1995. New Delhi, Ministry of Home Affairs, GOI.
2. Langmuir A.D. (1963): The Surveillance of Communicable Diseases of National Importance. *New Eng.J. of Med.*, 268, pp.182-192.
3. Arora, N.K. (2000): “Barriers on Polio Eradication”, An AIIMS-India CLEN Study 2000-2001, Clinical Epidemiology Unit, AIIMS, New Delhi.
4. Arora, N.K. (2001): “Vitamin-A and Iron folic acid Supplementation- a case study”, Program Evaluation An IPEN Study 2001-2002, Central Coordinating Team on behalf of IndiaCLEN Program Evaluation Network IPEN.
5. Arora, N.K. (2002): “Family Health Awareness Campaign: Concurrent Evaluation”, Program Evaluation An IPEN Study 2002, Central Coordinating Team on behalf of IndiaCLEN Program Evaluation Network IPEN.

III.

1. Smith J.C. (1996): The Basic Science of Public Health - The Theory and Practice of Modern Epidemiology and the Population Perspective in Health and Disease. Unpublished M.Phil. Dissertation, CSMCH, JNU.
2. Gopalan C. (2007): From ‘Farms to Pharmacies’: Beginnings of a Sad Decline. *Economic and Political Weekly*, September 1, 2007, pp. 3535-3536.

