

# **CURRICULUM**

## **Master of Public Health**

### **(MPH)**

**(Two Years Programme)**

**The University of Health Sciences, Lahore**

**2013**

# Table of Contents

---

<b>PREFACE</b> .....	<b>1</b>
<b>1. INTRODUCTION</b> .....	<b>2</b>
1.1 MISSION STATEMENT .....	2
1.2 VISION STATEMENT .....	2
1.3 INSTITUTIONAL GOAL .....	2
1.4 INSTITUTIONAL OBJECTIVES.....	2
<b>2. GOALS AND OBJECTIVES OF THE MPH PROGRAMME</b> .....	<b>3</b>
2.1 GOAL OF THE MPH PROGRAMME .....	3
2.2 OBJECTIVES OF THE MPH PROGRAMME .....	3
<b>3. PROGRAMME ORGANIZATION AND STRUCTURE</b> .....	<b>3</b>
3.1 PROGRAMME DURATION, CREDITS AND MEDIUM OF INSTRUCTION .....	4
3.2 SESSION-WISE DISTRIBUTION: .....	4
<b>4. METHOD OF ASSESSMENT/EXAMINATION</b> .....	<b>6</b>
<b>ANNEX 1: SEQUENCING OF THE MPH PROGRAMME</b> .....	<b>9</b>
<b>ANNEX 2:</b> .....	<b>14</b>
<b>COURSES FOR SESSION I</b> .....	<b>14</b>
01: FOUNDATIONS OF PUBLIC HEALTH.....	14
02: BASIC EPIDEMIOLOGY.....	17
03: BASIC BIostatISTICS .....	21
04: POPULATION DYNAMICS .....	27
05: COMPUTER APPLICATIONS IN PUBLIC HEALTH .....	30
06: QUALITATIVE RESEARCH METHODS.....	33
07: ENVIRONMENTAL HEALTH.....	38
08: OCCUPATIONAL HEALTH .....	42
09. SOCIAL AND BEHAVIOURAL SCIENCES IN PUBLIC HEALTH .....	43
10: HEALTH SYSTEMS ANALYSIS .....	47
<b>ANNEX 3: COURSES FOR SESSION II</b> .....	<b>50</b>
11: RESEARCH PROCESS I AND II.....	50
12: INTRODUCTION TO REPRODUCTIVE HEALTH.....	54
13: CHILD HEALTH PROGRAMMES AND INTERVENTIONS .....	61
14: APPLIED EPIDEMIOLOGY AND BIostatISTICS .....	64
15: COMMUNICABLE AND NON-COMMUNICABLE DISEASE CONTROL .....	68
16: HEALTH EDUCATION AND HEALTH PROMOTION.....	72
17: HEALTH SYSTEMS MANAGEMENT .....	76
18: HEALTH PLANNING .....	79
<b>ANNEX 4: COURSES FOR SESSION III</b> .....	<b>81</b>
19: HEALTH CARE FINANCING .....	81
20: APPLIED NUTRITION .....	85
21: HOSPITAL MANAGEMENT.....	92
22: ADVANCED EPIDEMIOLOGY AND BIostatISTICS.....	96
23. HEALTH POLICY.....	100
24: COMMUNITY-BASED REPRODUCTIVE HEALTH INTERVENTIONS.....	104

<b>ANNEX 5: DISSERTATION GUIDELINES (SESSION III).....</b>	<b>108</b>
25: DISSERTATION .....	108
PROPOSAL CRITIQUE AND EVALUATION GUIDELINES.....	115
DISSERTATION CRITIQUE AND EVALUATION GUIDELINES .....	118
<b>ANNEX 6: PRACTICUM FOR SESSION IV.....</b>	<b>122</b>
26: PRACTICUM (ON-THE-JOB ASSIGNMENT).....	122
<b>ANNEX 7: CORE COMPETENCY MODEL.....</b>	<b>132</b>
<b>ANNEX 8: ADMISSION CRITERIA AND PROCEDURES.....</b>	<b>133</b>
INTRODUCTION .....	133
ELIGIBILITY CRITERIA .....	133
APPLICATION PROCEDURES .....	135
ADMISSIONS PROCEDURES.....	136

## **PREFACE**

Needless to say that the importance of Public Health is many times more in the 21<sup>st</sup> century compared to the previous years. The threats of new diseases, the ease of their transmission to populations around the world, bioterrorism, epidemic of obesity, maternal and child health, environmental and occupational impacts on health of the populations and the socio-political impact of policy making in countries are imminent. The responsibility of providing protection, both health-wise and financially, to the less advantaged has rapidly become an immense challenge at the national and international levels.

Therefore, we need an effective public health system. This will require well-educated public health professionals. Public health professionals are required to receive education and training in a wide range of disciplines fulfilling competencies needed with focus on populations. Therefore, we need to develop this area of education and training in line of improving health of the populations through scientific evidence for changes in policies and their implementation.

The Public Health education in Pakistan is outmoded as the curricula do not address the changing needs of the population being taught at the undergraduate level (Community Medicine) or at the post graduate levels (Public Health). It does not coach the professionals with necessary competencies to function as a part of the Health Systems according to the changing needs of the populations.

According to a careful estimate, Pakistan needs at least 5000 Public Health professionals every year to make the health systems work and progress in terms of health of the populations. There are a few Public Health Institutes in Punjab. Private sector is now trying to fill in the gap. The numbers produced by the few existing Institutes are too few and far from the required standards.

In light of this, the University of Health Sciences needs to take up Public Health education and training regulation in the province. It will require to improve on the existing facilities and encourage even private institutes to offer a high quality education and training for ensuring the delivery of recognizable change in the health of the people.

## **1. Introduction**

The Master of Public Health (MPH) offered by the University of Health Sciences, Lahore is planned as a twenty four months post-graduate degree program.

The mission and vision statements are described below.

### **1.1 Mission Statement**

To bring a qualitative and quantitative revolution in medical education by providing an environment geared towards promoting research and academic culture in order to improve the existing healthcare system.

This will be brought about through education and research for the scientific development of health policies, translation of policies into feasible action plans and executing such plans.

### **1.2 Vision Statement**

To train health professionals through Bio-Psycho-Social Model and develop human resources required for meaningful, multidisciplinary health care.

### **1.3 Institutional Goal**

The Institutional goal is to improve the health of the population through enhancing human resource development and improving the health related policy through research and practices.

### **1.4 Institutional Objectives**

The objectives of the institution are to:

1. Produce competent, committed and skilled public health professionals.
2. Assist in the translation of the knowledge into sound evidence-based policies and practices.
3. Prepare leadership in public health.
4. Develop, administer and evaluate health policies and programmes.
5. Participate directly in efforts to improve the health of the community using community-based and health systems' assessment of preventive/curative services.
6. Conduct basic and applied research relevant to the description, risk factors and interventions for the resolution of health problems in the human populations.

These objectives will be appreciated through developing institutional values, such as a merit-based system, transparency, assuring quality through a team network and providing sustainable institutional infrastructure.

## **2. Goals and Objectives of the MPH Programme**

### **2.1 Goal of the MPH Programme**

The MPH programme aims to improve the health status of the population, which is to be achieved by providing public health and health care professionals with a high quality postgraduate training programme in public health sciences.

### **2.2 Objectives of the MPH Programme**

The graduates of the MPH programme are prepared to:

1. Solve health-related problems within the financial, socio-cultural, environmental and political framework of Pakistan and its surrounding region.
2. Design, conduct, analyze and interpret the results of relevant studies, projects and programmes.
3. Plan, manage, monitor and evaluate interventions in the field of public health.
4. Communicate public health messages to diverse audience effectively.
5. Advocate sound public health policies and practices.

The Master of Public Health programme will provide experienced professionals with a thorough grounding in population-based approaches to health sector problem identification, investigation, and analysis and response management.

## **3. Programme Organization and Structure**

The intensive curriculum emphasizes on basic public health sciences, essential managerial and analytical skills including project planning and evaluation, epidemiological investigations, health systems analysis and research, reproductive and child health, environmental and occupational health, disease control, and effective communication and leadership. It adopts a discipline-based methodology based on core competencies.

The 24-month curriculum is organized around a guiding framework, which first provides students with a conceptual overview of the diverse profession of public health and team-oriented approach to professional practice as well as a 3-month practicum (hands-on-training).

The courses are taught in a concurrent manner to build upon and integrate with each other. The **first session curriculum** provides exposure to the basics of public health disciplines. The **second session curriculum** provides advanced applied training in key methodological and programmatic disciplines which continues into the third session, along with electives and a supervised dissertation. The dissertation integrates public health knowledge, skills, and methods in a professionally and individually relevant practice context. Elective courses are offered only during the **third session** if minimally six participants enroll for a course. New credited courses will be subsequently introduced on a need-and-demand basis in the coming years.

Students are encouraged to become involved in the institutional research wherein a Field Area will provide an opportunity for supervised, mentored practical experiences while addressing the health needs of Pakistan and its surrounding region.

In the **fourth session** the students proceed to their respective workplaces/attachments and apply the skills that they learnt in the first three sessions. The immediate supervisor's/mentor's appraisal at the end of the session is submitted to the Registrar.

### 3.1 Programme Duration, Credits and Medium of Instruction

The total programme consists of 67 credits. One credit is equivalent to 16 hours of formal teaching/contact hours or 45 hours of practical fieldwork. Practical fieldwork is defined as consisting of individual fieldwork, group fieldwork, field visits, individual assignments and class exercises and is indicated after a + sign.

English is the medium of instruction and examination for the MPH programme.

### 3.2 Session-wise Distribution:

The distribution of the core and elective courses in the three sessions is given in the following tables.

#### Year I Session I: Core Courses (Credits 21)

Foundations of Public Health	1
Basic Epidemiology	3
Basic Biostatistics	3
Population Dynamics	1
Computer Applications in Public Health	1+2

Qualitative Research Methods	1+1
Environmental and Occupational Health	3+1
Social and Behavioural Sciences in Public Health	1
Health Systems Analysis	3

### Session II: All Core/Applied Courses (Credits 24)

Introduction to Reproductive Health	1.5+0.5
Child Health programs and Interventions	1.5+0.5
Applied Epidemiology and Biostatistics	2+1
Communicable and Non-communicable Disease Control	3+1
Health Education and Health Promotion	2.5+0.5
Health Systems Management	3
Research Process I and II	2+2
Health Planning	2.5+0.5

### Session III: Tracks/ Elective\* Courses (Credits 20)

<b>Health Care Financing</b>	<b>3</b>
Applied Nutrition	
Hospital Management	3
Advanced Epidemiology & Biostatistics	
Community-based Reproductive Health Interventions	3
Health Policy	
Research Process III	0+1
Proposal and Dissertation writing	2+8

\* Three out of six elective courses need to be taken.

### Session IV: Practicum (Credits 2)

Courses	Credits
Practicum and Report writing	2

Each session is of 22 weeks duration with an additional 2 weeks' break. The teaching hours per session differ as the division of time for lectures and practical work for different courses varies.



#### 4. Method of Assessment/Examination

The students are evaluated during each course on the basis of:

1. **Formative assessment:** which is a mix of tests, end of course examinations, class and home assignments, class participation, interactive discussions, practical exercises and/or group works depending on the course outline (ongoing assessment); and
2. **Summative assessment** based on the end of the 2 year examination papers. Summative assessments are held at the end of first three sessions. The general viva voce examination will be carried out at the end of the written papers. Dissertation work is assessed through a viva voce examination on the basis of a structured format covering the quality of the project, work performed in the field, data generation and analysis and presentation of results, discussion and conclusions presented as a written report.

In the fourth session, the students either go back to their workplaces or take an attachment with a national programme, agency etc. and apply the skills learnt in the first three sessions. At the end of the session an on-job written report will be submitted by the students in addition to the written appraisal by the designated supervisor/mentor. A joint agreement has to be made with the supervisor/mentor and the faculty advisors at prior to the beginning for the fourth session. This will be finally assessed by the senior faculty of .

**Twenty percent marks** shall be reserved for the ongoing (formative) assessment and **eighty percent** for the final examination paper and dissertation (summative assessment).

Candidates obtaining less than 60% in any of the examinations will be deemed to have failed in that paper/session of the MPH. A student failing in a paper (when scores of session examination and ongoing assessment are less than 50%), will be allowed to clear that paper in the supplementary examination to be held within 3 months of the declaration of the result of the session. However, a student accumulating more than two failures at any stage shall cease to be a student of the University.

The distribution of marks for each examination is as follows:

<b>Paper 2. All Applied courses</b>	<b>Credit</b>	<b>Assessment tool</b>	<b>marks</b>
Introduction to Reproductive Health	2	MCQ,SEQ	50
Child Health programs and Interventions	2	MCQ,SEQ	50
Applied Epidemiology and Biostatistics	3	MCQ,SEQ	75
Communicable and Non-communicable Disease Control	4	MCQ,SEQ	100
Health Education and Health Promotion	3	MCQ,SEQ	75
Health Systems Management	3	MCQ,SEQ	75
Research Process I and II	4	MCQ,SEQ	100
Health Planning	3	MCQ,SEQ	75
Total credit hours	24		600

<b>Session III. All Elective courses + Dissertation</b>	<b>credit</b>	<b>Assessment tool</b>	<b>marks</b>
Health Care Financing	3		
Applied Nutrition			75
Hospital Management	3		
Advanced Epidemiology & Biostatistics			75
Community-based Reproductive Health Interventions	3		
Health Policy			75
Research Process III	1	Research	25
Proposal and Dissertation writing	10	Thesis defense &	250
Total	20		500

<b>Courses</b>	<b>Practical Credits</b>	<b>Assessment tool</b>	<b>marks</b>
Practicum and Report writing	2	Report	100

	Year I Papers	Year II Papers	Ongoing Assessment Year I	Ongoing Assessment Year II	Research Project/ Dissertation/ Viva Voce	Practicum	Total Marks	Passing Marks
<i>Total Marks</i>	500	600+200	200	300	300	100	2200	1320

Candidates passing all the session examinations shall be declared to have passed the MPH programme and shall be awarded the degree.

The final evaluation of the students will be as per the existing university regulations. The minimum passing marks in each of the subjects will be 60%; however the overall cumulative minimum marks required for passing the MPH programme will be 60%.

Grading of course work is as under:

- Grade "A" 90% or higher
- Grade "B" 70% to 89%
- Grade "C" 60% to 69%
- Fail Less than 60%

# MPH PROGRAMME

## Annex 1: Sequencing of the MPH Programme

First Year																												
No.	Courses (credits)	Weeks																										
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
		Session I																										
1	Non-credit Orientation 1 day																											
2	Foundations of Public Health (1)																											
3	Basic Epidemiology (3) <sup>*</sup>																											
4	Basic Biostatistics (3)																											
5	Introduction to Population Dynamics (1)																											
6	Computer Applications in Public Health (1+2)																											
7	Qualitative Research Methods (1+1)																											
8	Environmental and Occupational Health (3+1)																											
9	Social & Behavioural Sciences in PH (1)																											
10	Health Systems Analysis(3)																											

\* The credits distribution per course is shown below as didactic + practical, e.g. 1+1 is calculated as one credit of didactic classroom teaching and one credit for interactive work such as exercises, field assignments, etc.

	<b>Session II</b>
--	-------------------

No.	Courses (credits)	Weeks																															
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52						
11	Research Process I, II (2+2)																						Prep Leave	Exam	Session Break								
12	Introduction to Reproductive Health (1.5+0.5)																																
13	Child Health Programmes(1.5+0.5)																																
14	Applied Epidemiology and Biostatistics (2+1)																																
15	Communicable & Non-communicable Diseases(3+1)																																
16	Health Education and Health Promotion (2.5+0.5)																																
17	Health Systems Management (3)																																
18	Health Planning (2.5+0.5)																																

<b>Second Year Session III</b>																									
--------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

No.	Courses (credits)	Weeks																										
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
1	Research Process Part III (1)										Prep leave/Exam/Synopsis																	
2	Elective 1 (2.5+0.5)																											
3	Elective 2 (2.5+0.5)																											
4	Elective 3 (2.5+0.5)																											
5	Dissertation (2+8)																											

		Session IV																											
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
	26. Practicum (On-the-job Assignment) (0+2)															Viva Voce	Reporting to Workplace								Submission of Report	End of MPH Programme			

## Annex 2:

### Courses for Session I

#### 01: Foundations of Public Health

**Course Title:** Foundations of Public Health

**Course Credits:** 1

**Introduction:**

Public Health Science is a multidisciplinary field that has changed over the years. However, an effective public health system is as urgent as it has ever been. A public health professional receives education and training in a wide range of disciplines but aim at improving health through a population focus. Public Health education and training not only includes the five long-recognized core components of public health (i.e., epidemiology, biostatistics, environmental health, health services administration and social and behavioural sciences) but new areas are also considered these days as essentials of public health: disease-control, reproductive and child health, informatics, genomics, communication, cultural and social diversity, community-based participatory research, policy and law, global health and ethics. Public health professionals' education and preparedness should be of concern to everyone for this will improve the health of the populations

**Learning Goal:**

The goal of this course is to introduce the MPH students to the various facets of public health concepts, the problem solving paradigm and prepare them for the multi-disciplinary approach of public health.

**Learning Objectives:**

By the end of the course participants should be able to:

1. Examine public health through its historical context and use this information in the evaluation of current public health issues
2. Analyze a public health problem and evaluate interventions and policy alternatives using the problem-solving methodology

**Contents:**

The following areas will be covered during the course:

1. Definition of public health in a historical perspective
2. Recent developments in public health and future directions of public health
3. Problem-solving methodology applied to public health
  - Defining the problem
  - Measuring the magnitude of the problem
  - Developing a conceptual framework for understanding the key determinants
  - Identifying and developing strategies (policies and interventions)
  - Setting priorities and recommending intervention or policies
  - Implementing interventions or policies and evaluation plan
  - Developing a communication strategy
4. Research in public health and importance of evidence-based decision making
5. Overview of public health programs in Pakistan

**Teaching Methodology:**

The methodology used ranges from didactic and participative lectures, discussions to practical problem solving exercises.

**Recommended Readings:**

1. Basch PF. Textbook of international health, 2<sup>nd</sup>Ed. New York, NY:OxfordUniversity Press.
2. Brownson RC, Baker BA, Leet TL, Gillespie KN. Evidence-based public health. New York, NY: OxfordUniversity Press; 2003.
3. Detels R, McEwen J, Beaglehole R, Tanaka H, (eds.). Oxford textbook of public health: the practice of public health, 4<sup>th</sup> ed. Oxford: Oxford University Press; 2002.
4. Malin N, Wilmot S, Manthorpe J. Key concepts and debates in health and social policy. Philadelphia, PA: Open University Press; 2002.
5. Porter D. Health, civilization and the state, 1<sup>st</sup> ed. New York, NY: Chapman and Hall Routledge; 1999.



6. Rohde J, Wyon J. Community-based health care lessons from Bangladesh to Boston, 1<sup>st</sup> ed. Cambridge, MA: Management Sciences for Health in collaboration with the Harvard ; 2002.
7. Schneiderman N, Speers MA, Silva JM, Tomes H, Gentry JH (eds.). Integrating behavioral and social sciences with public health, 1<sup>st</sup> ed. WashingtonDC: American Psychological Association; 2001.
8. Tulchinsky TH, Varavikova EA. The new public health: an introduction for the 21<sup>st</sup> century. San Diego, CA: Academic Press; 2000.

**Students' Evaluation:**

**Formative (20%)**

Class participation

Group work (group performance and group report)

**Summative Assessment (80%)**

Based on the end of the course examination

## 02: Basic Epidemiology

### Course Title: Basic Epidemiology

Course Credits: 3

#### Introduction:

Epidemiology is an essential discipline for public health practice. The importance of this science is demonstrated by the inclusion of epidemiology courses in most medical, nursing and public health curricula. Basic Epidemiology lays stress on the basic epidemiological principles and their application to research methodology developing on the understanding of the fundamental principles and on the development of the practical skills and concepts rather than on mathematical calculations.

This core course is offered in the first session of the MPH programme. This is particularly linked with the courses on Health Informatics and Computer Applications in Public Health.

#### Learning Goal:

The goal of this course is to enable health professionals to understand the concepts and apply the epidemiological and statistical methods to design, conduct, analyze and apply interventions for evaluation, making use of computer statistical software and information technology.

#### Learning Objectives:

By the end of the course, the participants must be able to:

1. Define Epidemiology and its uses in Public Health and Research
  - Importance of epidemiological investigations
  - Developments in modern Epidemiology
  - Uses of Epidemiology in health and disease
2. Apply and design strategies commonly used for epidemiological studies
  - Describe Descriptive and Analytical studies, the principals of various study designs with their merits and main outcome measures highlighted for each study design: case report and case series (description), cross-sectional studies(prevalence), cohort studies (incidence, relative risks), case control studies (Odds Ratio), experimental studies/clinical trials, intervention studies
  - Describe each study design with its uses, strengths and limitations

3. Assess the burden of disease using the measures of disease frequency e.g.:
  - Define rates, ratios, proportions in relation to vital statistics. Calculate incidence, prevalence, morbidity and mortality rates in human populations.
  - Apply these measures in defining population dynamics
4. Describe the validity and reliability of a study design: internal and external validity and its measure, Hawthorne effect etc. Reliability and its measures.
5. Investigate association in terms of strength of association and causality. Make 2x2 tables. Calculate Relative risk, Attributable risk, population attributable risk percent and population attributable risk fraction. Interpret these measures.
6. Identify Risk and risk factors: definition and characteristics. Define Causality and judge cause-effect relationship:
  - Examine the epidemiological evidence
  - Examine the statistical evidence
  - Examine biological plausibility
7. Drawing Inference from study results (alternative explanations):
  - Define confounding, its characteristics and effects on the results and how to control for it.
  - Define Bias, its characteristics and effects on results and how to control for it.
  - Define Chance, its characteristics and effects on results and how to control for it.
8. Apply screening in disease control:
  - Define Screening, uses, screening tests, their validity and yield discussing the bias associated with Screening.

**Contents:**

The following are the contents of the course:

1. Definition of Epidemiology
2. Importance of Epidemiology
3. Types of study designs: their importance, uses and limitations.
4. Outcome measures for each study design e.g. Relative risk, Odds ratio etc.
5. Causality and association
6. Inferential Epidemiology
7. Validity and Reliability

8. Measuring the Disease burden: Rates, Ratios, Incidence, Prevalence
9. Role of Chance, Confounding and Bias in interpretations.
10. Screening in disease control.

**Recommended Readings in Epidemiology:**

1. Beaglehole R, Bonita R, Kjellstrom T. Basic epidemiology. Geneva: World Health Organization; 1993.
2. Gordis L. Epidemiology. Philadelphia, PA: WB Saunders Company; 2008.
3. Greenberg RS, Daniels SR, Flanders WD, Eley JW, Boring JR. Medical Epidemiology, 2<sup>nd</sup> ed. New York, NY: McGraw Hill; 1996.
4. Hennekens CH, Buring JE. Epidemiology in medicine. Boston, MA: Little Brown and Company; 1987.
5. Holford TR. Multivariate methods in epidemiology. New York, NY: Oxford University Press; 2002.
6. Last JM. A dictionary of epidemiology, 2<sup>nd</sup> ed. New York, NY: Oxford University Press; 1988.
7. Lilienfeld AM, Lilienfeld DE. Foundations of epidemiology, 3<sup>rd</sup> edition. New York, NY: Oxford University Press; 1994.
8. MacMahon B, Thomas FP. Epidemiology: principles and methods, 1st ed. Boston, MA: Little, Brown and Company; 1970.
9. Mausner JK, Bahn AK. Epidemiology: an introductory text, 2nd ed. Philadelphia, Pa: WB Saunders Company; 1985.
10. Olsen J, Saracci R, Trichopoulos D, (eds.). Teaching epidemiology: a guide for teachers in epidemiology, public health and clinical medicine, 2<sup>nd</sup> ed. Oxford: Oxford University Press.
11. Fletcher RH, Fletcher SW, Wagner EH. Clinical epidemiology: the essentials, 3<sup>rd</sup> ed. Philadelphia, PA: Williams & Wilkins Publishers; 1996.
12. Szklo M, Nieto FJ. Epidemiology: beyond the basics. Boston, MA: Jones and Bartlett Publishers; 2000.
13. Vetter N, Matthews I. Epidemiology and public health medicine, 1<sup>st</sup> ed. Edinburgh: Churchill Livingstone; 1999.

14. Dupont WD. Statistical Modelling for Biomedical Researchers. A simple introduction to the analysis of a complex data. 2<sup>nd</sup> edition. CambridgeUniversity Press; 2008.

**Teaching Methodology:**

Interactive (scenario-based learning) and other teaching tools, discussions and practical examples (exercises), lectures.

### **03: Basic Biostatistics**

#### **Course Title: Basic Biostatistics**

**Course Credits:** 3

This discipline plays a fundamental role to prepare the students to apply basic statistical methods in designing the scientific studies, data collection, data analysis and draw inferences. This will introduce essential statistical tools to the students of Public Health to conduct and interpret quality research.

#### **Learning Goals:**

The following are the learning goals of this course:

1. Introduce important statistical concepts to the students of Public Health to solve everyday problems
2. To prepare the students to design studies/trials including the sample size, sampling techniques, data analysis, tests of significance etc.
3. To prepare the student to interpret collected data and draw inferences.

#### **Learning Objectives:**

The following are the objectives of the course:

1. Define and give the rationale for statistics in medicine
2. Define variables and their types:
  - What are variables, different type of variables, classify variables into qualitative, quantitative, discrete and continuous variables
  - Define dependent and independent variables
  - Breakdown the range of a series of quantitative measurements into intervals and specify which measurement belongs to which intervals.
3. Define the data types and the scales of measurements
  - Continuous and discrete data sets
  - Ordinal and nominal data sets
  - Interval scales
  - Composite scales

4. Interpret a given data: Apply descriptive statistics for continuous variables in terms of:
  - Measures of central tendency: Calculate the mean, median and mode and interpret them.
  - Measures of dispersion: variance, standard deviation, coefficient of variation
  - Measures of shapes: regarding the distribution of the data sets
5. Apply frequency distribution to a given data and its interpretation. What are percentiles, their uses and limitations in a dataset
6. Apply the concepts of probability. Recognize the algebraic notations used in statistics to differentiate between parameters and statistics.
7. Define Probability, types of probability with examples.
8. Describe the common probability distributions especially Normal and Binomial distributions.
  - List the descriptive properties of a normal distribution with mean  $\mu$  and standard deviation  $\sigma$
  - Use tables of normal distribution function to estimate the area under a normal curve with mean  $\mu$  and  $\sigma$  for one and between 2 values of the variable.
  - Define Binomial distribution: use the normal approximation to the binomial probabilities and use of continuity correction to improve the estimates.
9. Describe Population and its relation to sample:
10. Define Sampling and its techniques:
  - Distinguish between probability and non-probability sampling
  - Define various types of probability and non-probability sampling
  - Why sampling errors arise in a sample estimate of a parameter.
  - Describe the sampling distributions of a mean and a proportion.
  - Interpret and explain quantitatively the effect of the standard deviation and sample size on the sampling distributions
11. Calculate the sampling errors; Calculate the standard error of a mean and a proportion and its interpretation.
12. Calculate and interpret confidence intervals for a parameter. Explain why it is necessary to calculate confidence interval in a data
13. Apply concepts of comparing data (Inferential statistics):

- Learn about the basics of hypothesis development
  - What is a Null hypothesis and Alternate Hypothesis
  - Describe the rationale of a significance test
  - Define Alpha and Beta errors
  - Calculate the Power of a study
14. Apply various tests of significance: their rationale and use.
  15. Calculate Confidence Intervals
  16. Explain the meaning of 'p' in statistical terms and its interpretation.
  17. Apply the steps of Hypothesis testing
    - Choosing an appropriate test of significance
    - Use the tests of significance for parametric data: for a single mean, for two means of unpaired observations, two means of paired observations, three or more independent means (ANOVA).
    - Use the tests of significance for categorical data: for one proportion, two independent proportions, two paired proportions, several proportions, analyzing frequency tables (2x2, 2xk tables), large tables with ordered categories.
  18. Investigate the association between two continuous variables: using a scattergram to:
    - Identify dependent and independent variables
    - Apply correlation–calculate correlation coefficients,
    - interpretation and presentation of correlation.
  19. Investigate the relationship of two continuous variables using regression, calculating linear regression of y on x and draw line of regression, interpreting and presenting regression.
    - When to choose –regression or correlation?

**Contents:**

The following are the contents of the course:

1. Introduction to Biostatistics
2. Types of statistical applications
3. Variables
4. Scales of measurements
5. Descriptive Statistics



6. Measures of central tendencies
7. Measures of variability
8. Measures of shapes
9. Probability
10. Probability Distributions: Normal, Poisson, Binomial
11. Sampling techniques, sampling errors/ Confidence Intervals
12. Concepts of analytical statistics: Hypothesis testing:
13. Alpha and Beta errors
14. Tests of Significance: Normal test, t test, Chi square test etc.
15. Correlation
16. Regression
17. Sampling and various sampling techniques
18. Data presentation: Figures, graphs, tables

**Teaching Methodology:**

Interactive (scenario-based learning) and other teaching tools, discussions and practical examples (exercises), lectures

**Recommended Readings:**

1. Altman DG. Practical statistics for medical research, 3<sup>rd</sup> ed. London, UK: Chapman & Hall; 1991.
2. Colton T. Statistics in medicine, 1<sup>st</sup> ed. Boston, MA: Little Brown and Company ; 1994.
3. Daniel WW. Biostatistics: a foundation for analysis in the health sciences, fifth edition. New York, NY: John Wiley & Sons; 1991.
4. Kirkwood BR. Essentials of medical statistics, 2<sup>nd</sup> ed. Oxford, UK: Blackwell Scientific Publications; 1988.
5. Selvin S (ed.). Statistical analysis of epidemiologic data, 3<sup>rd</sup> edition. New York, NY: OxfordUniversity Press; 1991.
6. Dupont WD. Statistical Modelling for Biomedical Researchers. A simple introduction to the analysis of a complex data. 2<sup>nd</sup> edition. CambridgeUniversity Press; 2008.

**Articles:**

1. Bashir A, Yaqoob M, et. al. Prevalence and associated impairments of mental retardation in six to ten year old children in Pakistan: a prospective study. *Acta Paediatr* 2002;91; 833-37.
2. Beasley RP. Hepatitis B virus as the etiologic agent in hepatocellular carcinoma – epidemiologic considerations. *Hepatology* 1982;2; 21S-26S.
3. Bentley ME. Household behaviors in the management of diarrhea and their relevance for persistent diarrhea. *Acta Paediatr* 1992; 381(suppl.); 49-54.
4. Bhutta ZA. Beyond informed consent. *Bull World Health Organ* 2004;82; 771-778.
5. Brahmbhatt H, Gray RH. Child mortality associated with reasons for non-breastfeeding and weaning: is breastfeeding best for HIV-positive mothers? *AIDS* 2003;17; 879-85.
6. Butte NF, Villalpando S, et. al. Higher total energy expenditure contributes to growth faltering in breast-fed infants living in rural Mexico. *J Nutr* 1993;123:1028-35.
7. Cravioto A, Reyes RE, et. al. Prospective study of diarrhoeal disease in a cohort of rural Mexican children: incidence and isolated pathogens during the first two years of life. *Epidemiol Inf* 1988;101;123-34.
8. DeWitt TG, Humphrey KF, et. al. Clinical predictors of acute bacterial diarrhea in young children. *Pediatrics* 1985; 76; 551-56.
9. Farr W, Humphreys NA. Vital statistics: a memorial volume of selections from the reports and writings of William Farr. *Bull World Health Organ* 2000;78:88-95.
10. Gordis L. Challenges to epidemiology in the next decade. *Am J Epidemiol* 1988;128;1-9.
11. Grunberg SM, Cefalu WT. The integral role of clinical research in clinical care. *N Engl J Med* 2003; 348; 1386-8.
12. Keusch GT, Thea DM, Kamenga M, Kakanda K, et al. Persistent diarrhoea associated with AIDS. *Acta Paediatr Suppl* 1992;381; 45-8.
13. Khalil K, Lindblom GB, Mazhar K, Sjogren E, Kaijser B. Frequency and enterotoxigenicity of campylobacter jejuni and C. coli in domestic animals in Pakistan as compared to Sweden. *J Trop Med Hyg* 1993 Feb;96(1):35-40.
14. Rose G. Sick individuals and sick populations. *Int J Epidemiol* 1985;14; 32-38.
15. Saleemi MA, Zaman S, et. al. Feeding patterns, diarrheal illness and linear growth in 0-24 months old children. *J Trop Pediatr* 2004;50; 164-9 .

16. Schulz KF, Grimes DA. Blinding in randomized trials: hiding who got what. *Lancet* 2002;359: 696-700.
17. Scrimshaw N. The new paradigm of public health. *Amer J Public Health* 1995;85: 622-24.
18. Wagstaff A. Socioeconomic inequalities in child mortality: comparisons across nine developing countries. *Bull World Health Organ* 2000;78:19-29.
19. Watkins PJ. Cardiovascular disease, hypertension and lipids. *Br Med J* 2003;326: 874-6.
20. Williams IT, Milton JD, et. al. Interaction of socioeconomic status and provider practices as predictors of immunization coverage in Virginian children. *Pediatrics* 1995;96: 439-446.
21. Wylie I, Griffiths S, Hunter DJ. Everywhere and nowhere: aSocratic dialogue on the new public health. *Br Med J* 1999;319: 839-40.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consists of: MCQs and short essay questions

## 04: Population Dynamics

**Course Title:** Population Dynamics

**Course Credits:**2

### **Introduction:**

Pakistan is currently going through demographic transition. This transition and the ultimate effects of the same are needed to be understood and appreciated in terms of policy, management and research. Not all health managers, policy makers and researchers know various static and dynamic measures of populations. The country's annual growth rate implies effect on its economy and resources. Poverty, population growth and disease is the vicious cycle that has to be addressed from a local perspective. Changing population pyramids of the developed world also emphasize to look into a twenty year time for our interventions in future for health.

### **Learning Goal:**

The overall goal of this course is to impart basic knowledge and bring a change in attitude of the participants towards major issues in population dynamics to enable them to do research on some of these issues.

### **Learning Objectives:**

By the end of the course, the participants must be able to:

1. Define demography, its tools and vital statistics.
2. Describe demographic transition and historical forces leading to the current situation
3. Explain population pyramid and different profiles of population pyramids
4. Interpret and compute different mortality and morbidity related measures
5. Compute and interpret different fertility related measures such as Crude Birth Rate, Total Fertility Rate, Age Specific Fertility Rate, Net Reproduction Rate and Doubling Time
6. Discuss the impact of population growth on development and health issues
7. Demonstrate knowledge and understanding of scientific, evidence based approaches to the study of population issues.
8. Identify causes and consequences of population change and relate these to underlying population dynamics.

9. Demonstrate knowledge and understanding of demographic behavior in social and policy context

**Contents:**

The contents of the course are:

1. Introduction to Population dynamics: Various static and dynamic measures of populations
2. Population and Health: An introduction to Epidemiology
3. Visit to Federal Bureau of Statistics
4. Demographic perspective and basic demographic equations
5. Sources of data including census
6. Salient features of population pyramids
7. Concepts and theories of demographic transition
8. World population growth patterns and population momentum
9. Mortality & measures of mortality
10. Global burden of diseases
11. Fertility, natural increase and reproduction rates
12. Characteristics of Pakistani population and other countries
13. Migration and urbanization
14. Population, Poverty and Politics
15. Islam and family planning
16. Population growth and aging
17. Population Policy

**Teaching Methodology:**

1. Didactic class room instruction on multimedia and white board
2. Interactive discussions and experience exchange
3. Panel discussion
4. Assignment: Library/Internet
5. Role plays

**Recommended Readings:**

1. Haupt A, Kane TT. Population handbook. Washington, DC: Population Reference Bureau; 1997. Available from: URL:[http://www.prb.org/pdf/PopHandbook\\_Eng.pdf](http://www.prb.org/pdf/PopHandbook_Eng.pdf)
2. Palmore JA, Gardner RW. Measuring mortality, fertility and natural increase: a self-teaching guide to elementary measures. Honolulu: East-West Population Institute, East-WestCenter; 1983.
3. Population Reference Bureau. World population: more than just numbers. WashingtonDC: Population Reference Bureau; 1999.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay questions

## 05: Computer Applications in Public Health

**Course Title:** Computer Applications in Public Health

**Course Credits:**1+2

### **Introduction:**

Computer skills in public health schools are a prime necessity. Not only the applications and skills are needed for the word processing for proposal writing and creating a questionnaire/proforma, but also for using statistical analysis and report writing. Currently, the available computer software are user friendly and can be easily operated by the professionals. Public health professionals are expected to have a thorough insight into the available software and be capable of producing the required results. The successful use of internet can make the communications easy and efficient. Moreover the efficient utilization of online resources for literature review and research depends on the respective skill attainment by the concerned researcher.

### **Learning Goal:**

The learning goal of the course is to provide the public health professionals with skills to operate the computers and utilize the software and related resources efficiently.

### **Learning Objectives:**

By the end of the course, the students will be able to:

1. Use internet efficiently for research purposes.
2. Use a word processor like Microsoft Word for writing their research proposal and dissertation.
3. Develop presentations using Microsoft Power point.
4. Enter and handle the data using statistical software, like Excel, Access, Epi Data, Epi Info, SPSS and Stata.
5. Analyze data and generate results by using these statistical software.
6. Present data in graphical and tabulated forms using appropriate software.
7. Use citation software like End Note

### **Contents:**

The following are the contents of the course:

1. Introduction to Computers.
2. Types of Computers
3. Computer Operating System
4. Use of Input out Devices
5. Accessing to PDF Files
6. Basics in word processing
7. Advanced functions in Word, Power point and Excel
8. Literature search using internet
9. Advance Search Tools (Google, Bing)
10. Ability to use citation software like End Note
11. Introduction to Epi Data & Epi Info:
  - Data entry and cleaning procedures
  - Data processing procedures
  - Data analysis procedures
  - Graphics in Epi Info
12. Introduction to SPSS:
  - Data entry procedures
  - Data processing procedures
  - Data analysis procedures
  - Graphics in SPSS
13. Introduction to STATA:
  - Data entry procedures
  - Data processing procedures
  - Data analysis procedures

**Recommended Readings:**

1. Stata Corporation. STATA release 8: user's guide. College Station, Texas: Stata Press; 2003.
2. SPSS for Dummies 2007
3. Other manuals for statistical software
4. Help options in the software programs



**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and individual computer-based exercises

**Summative Assessment (80%)**

Summative assessment consists of short essay questions, computer-based exercises testing the ability to utilize various software

## **06: Qualitative Research Methods**

**Course Title:** Qualitative Research Methods

**Course Credits:**3

### **Introduction:**

In this course the participants are introduced to basic concepts of social and medical anthropology. In this course the participants are introduced to basic concepts of social and medical anthropology. The students of Public Health generally lack training in designing and conducting research studies. This basic course will prove helpful to anyone working as a health worker or researcher, interested in learning the qualitative research methods. This course will equip students to better understand published research and gain an insight into different ways of designing the research trials, data collection, and data analysis. Theory behind qualitative research and a number of qualitative research methods will be discussed. On completion of the course, students should be able to understand and appreciate qualitative research and undertake this as a tool in research.

The socio-cultural dimensions and lay perceptions of health and medicine including the concepts and definitions of disease, illness and sickness from the public health's point of view are taught. The course teaches qualitative research methods, i.e. interview, observation and participative techniques, and their application to public health. Students discuss and practice methods for collecting and analyzing qualitative data.

### **Learning Goal:**

The goal of this course is to sensitize the participants to the social and cultural factors that influence health and disease including the people's perception including experiences of health and illness and to equip them with qualitative research knowledge and skills to address public health problems. This will enable participants to develop the skills to use qualitative methodology in undertaking public health and primary care research.

### **Learning Objectives:**

By the end of the course participants should be able to

1. Understand the background principles of undertaking qualitative research applied to health care sector.

2. Explain and critically discuss the principal qualitative methods that can be used to undertake research as a means of exploring a range of important public health and primary care issues.
3. Compare and contrast the ways in which qualitative data may be collected and used in primary care and public health research.
4. Identify, synthesize and conduct secondary analysis of qualitative data on topics relevant to primary care, public health or health services research.

**Course Contents:**

1. Concepts and Qualitative Research Methods Applied to Health Care Sector
2. Difference between Qualitative and Quantitative Research Methods
3. Approaches to Qualitative Research
4. Qualitative Data Collection Methods
  - Interviews
  - Focus Groups
  - Observations
  - Collection of documented Material
  - Questionnaires
5. Qualitative Sampling and Selection
6. Sampling Strategy
7. Sample structure
8. Adequacy of sample
9. Samples for focus group studies
10. Introduction to alternative data collection methodologies i.e. video, photographs, diaries
11. Sampling while interpreting data and preparing findings
12. Qualitative Analysis
13. Keeping records in organized manner
14. Transcribing qualitative data
15. Using Qualitative software
16. Conducting qualitative analysis
17. Narrative analysis and thematic analysis
18. Secondary data analysis of existing data sets

19. Ethics, politics and policy: reflecting on the use of qualitative research methods in health care settings

**Contents:**

The following areas will be covered during the course:

1. Overview of basic concepts of anthropology and medical anthropology.
2. Definition of anthropology and medical anthropology
3. Historical perspective
4. Importance and uses in public health
5. Basic concepts and terms:
  - Emic and etic perspective
  - Ethnocentrism and cultural relativism
  - Culture bound syndromes
  - Concepts and models of body, disease, illness and sickness
  - Health
  - Disease
  - Illness
  - Sickness
  - Explanatory models
  - Illness Explanations, Compliance and Social Context
  - Medical and Non-Medical Conceptions of Health and Illness
  - Patient explanations of illness
6. Medical pluralism, i.e. co-existence of different types of allopathic and non-allopathic medical systems / formal and informal sectors.
  - Pattern of resort
  - Choices of therapy and health-seeking strategies
  - Factors influencing the selection of particular forms of treatment.
  - Traditional/Alternative Medicine and Health Care Provision
7. Patients and healers in the context of culture
8. The patients' perspective
9. Application of anthropology in public health and Health Promotion.
10. Importance of study of people's concepts and behavior in health care

11. Behavioral change and changing people's beliefs.
12. Role of anthropological information in planning and implementation.
13. Qualitative research methods
  - Observational methods (participant, direct, indirect)
  - Interviews (in-depth, key informant, Focus Group Discussions)
  - Participatory methods (Free listing and pile sorting, ranking, rating, RAP and RRA)
  - Sampling methods in qualitative research
  - Validity and triangulation in qualitative research
  - Qualitative data analysis

**Teaching Methodology:**

Teaching is carried out in form of lectures, role plays, and practical exercises of different qualitative methods as part of a mini group research project.

**Recommended Reading:**

1. Annett H, Rifkin SB. Guidelines for rapid participatory appraisals to assess community health needs: a focus on health improvements for low-income urban and rural areas. Geneva: World Health Organization; 1995. Document no. WHO/SHS/DHS/95.8; Distr: General.
2. Arole M, Arole R. Jamkhed: a comprehensive rural health project. London and Basingstoke: Macmillan Education Ltd; 1994.
3. Bernard HR. Research methods in anthropology: qualitative and quantitative approaches, 2<sup>nd</sup> ed. Walnut Creek, CA: AltaMira Press; 1995.
4. Bryman A, Burgess RG (eds.). Analyzing qualitative data. London: Routledge, 1994.
5. Emerson RM, FretzRI, Shaw LL. Writing ethnographic fieldnotes. Chicago: University of Chicago Press, 1995.
6. Hahn RA, Harris KW (ed.). Anthropology in public health: bridging differences in culture and society. Oxford: OxfordUniversity Press; 1999.
7. Hardon A, et. al. Applied health research manual: anthropology of health and health care. Amsterdam: Aksant Academic Publications; 2001.
8. Helman CG. Culture, health and illness, 4<sup>th</sup> ed. New York, NY: Arnold Publishers; 2001.
9. Johnson TM, Sargent CF (eds.). Medical anthropology: contemporary theory and method. New York, NY: Praeger, 1990.

10. Kleinman, A. Patients and healers in the context of culture: an exploration of the borderland between anthropology, medicine and psychiatry. Berkeley, CA: University of California Press; 1984.
11. Maier B, Gørgen R, Kielmann AA, Diesfeld HJ, Korte R. Assessment of the district health system: using qualitative methods. London, UK: Macmillan Press Ltd; 1994.
12. Scrimshaw NS, Gleason GR (eds.). Rapid assessment procedures: qualitative methodologies for planning and evaluation of health-related programs. Boston, MA: International Foundation for Developing Countries; 1992.
13. Spradley JP. Participant observation. Fort Worth: HarcourtBraceJovanovichCollege Publishers; 1980.
14. Spradley, JP. The ethnographic interview. Fort Worth, TX: HarcourtBrace Jovanovich College Publishers; 1979.

**Students' Evaluation:**

**Formative (50%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (50%)**

Summative assessment consists of: MCQs and short essay questions

## 07: Environmental Health

**Course Title:** Environmental Health

**Course Credits:** 1.5+0.5

### **Introduction:**

The MPH programme is targeted at enabling the participants to use applied research tools and techniques applying to the study of the environment in relation to health. The course presents concepts, principles, and applications of the main natural and social science disciplines that form the basis of environmental health and describes how these disciplines and their practitioners interact in the environmental health paradigm. The course examines health issues, scientific understanding of causes, and possible future approaches to control of the major emerging environmental health problems in industrialized and developing countries.

### **Learning Goal:**

The overall goal of the course is to enable the participants to identify and describe the important current and emerging environmental problems that pose risk to public health and apply the multidisciplinary environmental health approach to their solution.

### **Learning Objectives:**

By the end of the course the participants should be able to:

1. Describe the core issues in Environmental Health
2. Define the major sources and types of environmental agents
3. Identify the carriers or vectors that promote the transfer of these agents from the environment to the human
4. Describe how these agents interact with biological systems, and the mechanisms by which they exert adverse health effects
5. Describe the existing situations and remedies in developing countries
6. Identify and define the steps in the risk-assessment and risk-management processes
7. Describe the sources, pathways of exposure and methods of control of the principal physical, chemical, biologic and psychosocial hazards that impact human health in ambient, indoor and occupational environments.
8. Explain the processes associated with the translation of scientific and health data into public health policy and environmental law.

9. Identify and describe important current and emerging environmental problems that pose a risk to public health

**Contents:**

The following areas will be covered during the course:

**Course Contents**

During this course, the following course contents will be covered in the specific environmental health areas;

**A. General Contents**

1. Introduction to Environmental Health Issues
2. Environmental Health Issues of Pakistan
3. Human Impacts on Environment
4. Environmental Impacts on Human Health
5. Sanitation Status and Options in Pakistan

**B. Water Pollution**

1. Surface and Groundwater Resources of Pakistan
2. Drinking Water Supply Sources
3. Drinking Water Quality Situation in Pakistan
4. Pesticides and Fertilizers
5. Arsenic, Fluoride and Nitrate contamination in Drinking Waters
6. Water Born Diseases in Pakistan
7. Water Supply Agencies, their Capacity and Performance
8. Present Drinking Water Treatment Practices
9. Waste Water Availability and its Treatment

**C. Air Pollution**

1. Air Pollution Sources
2. Air Quality Monitoring Network in Pakistan
3. Present Status of Air Pollution in Pakistan
4. Health Effects of Air Pollution
5. Air Pollution Control Devices
6. Legal Regulations

**D. Noise Pollution**

1. Sources of Noise Pollution
2. Effect of Noise Pollution on Health and Behavior
3. Noise Mitigation
4. Legal Requirements

**E. Solid and Hazardous Waste Management**

1. Solid Waste Sources and Quantitative Estimates
2. Methods of Disposal



3. Waste Handling and Transport
4. Waste Management Concepts
5. Technologies
6. Hazardous Waste Generation
7. Hazardous Waste Management
8. Hazardous Waste Storage
9. Common Hazardous Waste incineration Facilities

**F. Environmental Impact Assessment (EIA)**

1. Objectives of EIA
2. Types of EIA
3. Basic EIA Principals
4. Types of Environmental Impacts
5. Risk Assessment
6. Environmental Management Plan
7. Stakeholders Roles and Responsibilities

**G. Climate Change and Its Effect on Health**

1. Pakistan's Vulnerability to Climate Change
2. Effect on Floods and Droughts
3. Human Health

**H. Environment Policy and Law**

1. Air Quality and Noise
2. Waste Management
3. Water Supply and Management
4. Forestry
5. Poverty and Environment
6. Health and Environment
7. Natural Disaster Management
8. Legislation and Regulatory Framework

**I. Healthy Cities and Villages**

**Teaching Methodology:**

1. Didactic inactive class room instruction primarily through multimedia presentations
2. Practical field work with demonstration on class room-based instructions
3. Group exercises and roleplays

**Recommended Reading:**

1. Aron JL, Patz JA (eds.). Ecosystem change and public health: a global perspective. Baltimore, MD: JohnsHopkinsUniversity Press; 2001.
2. LaDou J. Current occupational and environmental medicine, 3rd ed. New York, NY: Lange Medical Books/McGraw-Hill; 2004.

3. Lippmann M, Cohen BS, Schlesinger RB. Environmental health science, 2<sup>nd</sup> ed. New York, NY: OxfordUniversity Press; 2003.
4. Moeller WD. Environmental health, 2<sup>nd</sup> ed. Cambridge, MA: Harvard University Press; 1997.
5. Moore GS. Living with the earth: concepts in environmental health science, 2<sup>nd</sup> ed. Boca Raton, FL: Lewis Publishers; 2002.
6. Nadakavukaren A. Man and environment: a health perspective, 3<sup>rd</sup> ed. Prospect Heights, IL: Waveland Press;1990.
7. Sellers CC. Hazards of the job: from industrial disease to environmental health science. Chapel Hill: University of North Carolina Press; 1997.
8. Steiner GA, Miner JR, Gray ER. Management policy and strategy. New York, NY: Macmillan Education Ltd; 1986.
9. Vesilind PA, Peirce JJ. Environmental pollution and control, 4<sup>th</sup> ed. Boston, MA: Butterworths Publishers; 1983.
10. Yassi A, Kjellström T, de Kok T, Guidotti T. Basic environmental health. New York, NY: OxfordUniversity Press; 2001.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consists of: MCQs and short essay questions

## 08: Occupational Health

**Course Title:** Occupational Health

**Course Credit:** 1.5+0.5

### **Introduction:**

Pakistan is basically an agricultural country with a population of 150 million, 65% of which lives in rural areas. Our National workforce is distributed both in formal and informal sectors. Globally, it is evident that about 45% of the world's population and 58% of the population over 10 years of age, belong to the global workforce. Recent occupational health data indicates that 40-50% of the world's population is exposed to hazardous condition in the workplace. Over 120 million occupational accidents occur worldwide each year, with 200,000 fatalities. The magnitude of the occupational diseases and injuries is not less than the reportable diseases. In Pakistan, there is a dire need to address the occupational health and safety issues as we are rapidly progressing to a middle income country and the industrialization and increase in working force demands more emphasis and concrete actions taken for the health and safety of the occupational group of both formal and informal sectors.

### **Learning Goal:**

The overall goal of the course is to improve the capacity of health managers in occupational health in terms of their knowledge, attitude and skills.

### **Learning Objectives:**

By the end of the course, the participants will be able to:

1. Define occupational health that encompasses the main aspects of problem-solving typically faced by health managers;
2. Define and describe essential concepts, principles, methods and terms in occupational health;
3. Apply certain techniques in the resolution of selected occupational health issues and
4. Describe basic methods of quantitative and qualitative analysis being used by health managers in occupational health.

### **Contents:**

The following areas will be covered during the course:

1. Workplace and Health
2. Scope of Occupational Health and Safety
3. Occupational Health Issues in Low-income Countries
4. Industrial Hygiene
5. Anticipation
6. Recognition
7. Evaluation
8. Control
9. Clinical Occupational and Environmental Medicine
10. Legal and Regulatory Issues
11. Labour Laws

**Teaching Methodology:**

Lectures, discussions, walk through examination of the industries, panel discussion and role plays and assignments.

**Recommended Readings:**

1. Jeyaratnam J, Koh D (eds.). Textbook of occupational medicine practice. Singapore: World Scientific Publishing Co; 1996.
2. Sellers CC. Hazards of the job: from industrial disease to environmental health science. Chapel Hill: University of North Carolina Press; 1997.
3. Reich MR, Okubo T (eds.). Protecting workers' health in the third world: national and international strategies. New York, NY: Auburn House.
4. Merchant JA, Boehlecke BA, Taylor G, Pickett-Harner M (eds.). Occupational respiratory diseases. Cincinnati, OH: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Institute for Occupational Safety and Health, DHHS (NIOSH); 1986. Publication No. 86-102.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay question09. Social and Behavioural Sciences in Public Health

**09: Social and Behavioural Sciences in Public Health**

**Course Title:** Social and Behavioural Sciences in Public Health

**Course Credit:** 1

**Introduction:**

Psycho-social-cultural and political structures of society affect different spheres of public health, including the type and distribution of illness and disease. They also determine modes of intervention used in the prevention of illness, disease, and injury as well as the organization of health services at the national, international, and community levels.

**Learning Goal:**

The goal of this course is to introduce the MPH participants to the various facets of the public health in light of the social determinants of health. The main emphasis is on a holistic view keeping under consideration the social, cultural, ecological, political and economic factors and their mutual interaction that influences the occurrence of disease and its management at individual and community level.

**Learning Objectives:**

By end of the course the participants should be able to:

1. Explain key concepts in the social and behavioural aspects of public health: culture, race/ethnicity, gender, poverty/disparities,
2. Describe the factors related to behavior change, community, organizational climate and family structure
3. Demonstrate understanding of the social determinants of health
4. Describe how social determinants influence population health
5. Critically assess the relevance of ethics in public health

**Contents:**

The following areas will be covered during the course:

1. Role of Social Sciences in Public Health
2. Equity in health care
3. Politics of Health
4. Gender and Health
5. Socio-cultural factors and their impact on health

6. Economics and Health
7. Health impact of rapid economic change
8. Role of Civil Society in Health Care
9. Community participation in Health Care
10. Ethics in Public Health
11. Public Health and Law
12. Social Policy and Health of Population

**Teaching Methodology:**

Teaching will be carried out in the form of didactic and interactive lectures and discussions as well as individual assignments.

**Recommended Readings:**

1. Anand S, Fabienne P, Sen A. Public health, ethics, and equity, 1<sup>st</sup> ed. London, UK: Oxford University Press; 2004.
2. Baldock J, Manning N, Miller S, Vickerstaff S (eds.). Social policy, 3<sup>rd</sup> ed. Oxford: Oxford University Press; 1999.
3. Bury M, Gabe J (eds.). The sociology of health and illness: a reader. London, UK: Routledge; 2004.
4. Danis M, Clancy CM, Churchill LR. Ethical dimensions of health policy. London, UK: OxfordUniversity Press; 2002.
5. Detels R, McEwen J, Beaglehole R, Tanaka H, (eds.). Oxford textbook of public health: the practice of public health, 4<sup>th</sup> ed. Oxford: Oxford University Press; 2002.
6. Doyal L. Gender equity in health: debates and dilemmas. Soc Sci Med. 2000;51: 931-9.
7. Evans T, Whitehead M, Diderichsen F, Bhuiya A, Wirth M. Challenging inequities in health from ethics to action. New York, NY: OxfordUniversity Press; 2001.
8. Gostin LO (ed.). Public health law and ethics: a reader. California: University of California Press; 2002.
9. Hawe P, Shiell A. Social capital and health promotion: a review. Soc Sci Med. 2000;51: 871-885.
10. Hertzman C, Siddiqi A. Health and rapid economic change in the late twentieth century. Soc Sci Med. 2000;51: 809-19.

11. Lloyd SP. Population ageing in developed and developing regions: implications for health policy. Soc Sci Med. 2000;51: 887-895.
12. Tangcharoensathien V, Harnvoravongchai P, Pitayarangarit S, Kasemsup V. Health impacts of rapid economic changes in Thailand. Soc Sci Med. 2000;51: 789-807.
13. Zakus JD, Lysack CL. Revisiting community participation. Health Policy Plan. 1998;13: 1-12.

**Students' Evaluation:**

**Formative (50%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (50%)**

Summative assessment consists of: MCQs and short essay questions.

## 10: Health Systems Analysis

**Course Title:** Health Systems Analysis

**Course Credits:**3

### **Introduction:**

This three-credit course is offered to MPH participants in the first session to familiarize them with the concepts of Health Systems. Health Systems Analysis is application of the systems approach in health. It is an approach to examine all aspects of a Health System in a systematic and organized way to learn about its strengths and find out ways to cover the gaps.

### **Learning Goal:**

The goal of this course is to enhance the participants' comprehension of the basic concepts of the health system at micro and macro level, for the purpose of ultimately improving health service delivery in Pakistan and in other countries.

### **Learning Objectives:**

At the end of the course students will be able to:

1. Understand the various concepts of Health Systems
2. Understand and enlist all essential components of the Health Systems Model
3. Understand and practice the steps of Health Systems Analysis
4. Identify indicators for each component of Health Systems Model
5. Develop a tool for Health Systems Analysis
6. Conduct Health Systems Analysis in the field
7. Analyze and interpret the findings from data collected through the Health Systems Analysis Tool

### **Contents:**

The following areas will be covered during the course:

1. Definitions of health input, output and outcomes
2. Health System: Conceptual Frameworks
3. Health System: Terms and Concepts
4. Systems Approach
5. Micro Health System: Kielmann Model



6. Health Indicators and their use
7. Situation Analysis Approach
8. Instrument for Health Systems Analysis
9. Macro Health System: WHO model
10. Health Management Information System
11. Field Visits for data collection(applied system analysis)
12. Health system functions
13. Health system outcomes
14. Primary Health Care
15. Linking the Micro and Macro Health models

**Teaching Methodology:**

Lectures, discussions, group work, presentations, assignments and supervised field trips

**Recommended Readings:**

1. Berman BA, Bossert TJ. A decade of health sector reform in developing countries: what have we learned? Boston, MA: Data for Decision Making Project, International Health Systems Group, Harvard ; 2000. Available from: URL: <http://www.hsph.harvard.edu/ihsq/publications/pdf/closeout.pdf>
2. Kemm J, Parry J, Palmer S (eds.). Health impact assessment: concepts, theory, techniques and applications. Oxford: Oxford University Press; 2004.
3. Kielmann AA, Siddiqi S, Mwadime RK. District health planning manual: toolkit for district health managers. Islamabad, Pakistan: Multi-donor Support Unit, Ministry of Health; 2002.
4. Kielmann, AA, Janovsky K, Annett H. Assessing district health needs, services and systems: protocols for rapid data collection and analysis. London, UK: Macmillan Education Ltd and AMREF, 1995.
5. Siddiqi S, Haq IU, Ghaffar A, Akhtar T, Mahaini R. Pakistan's maternal and child health policy: analysis, lessons and the way forward. Health Policy 2004;69:117-30.
6. Siddiqi S, Kielmann AA, Khan MS, Ali N, Ghaffar A, Sheikh U, et. al. The effectiveness of patient referral in Pakistan. Health Policy Plan. 2001;16: 193-198.

7. Stevens A, Raftery J, Mant J, Simpson S (eds.). Health care needs assessment: the epidemiologically-based needs assessment reviews, 2<sup>nd</sup> ed., vol. 2. Oxford: Radcliffe Medical Press; 1994.
8. World Health Organization. The world health report 2000: Health systems – improving performance. Geneva: World Health Organization; 2000. Available from: URL:[http://www.who.int/entity/whr/2000/en/whr00\\_en.pdf](http://www.who.int/entity/whr/2000/en/whr00_en.pdf)

**Students' Evaluation**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consists of: MCQs and short essay questions

## Annex 3: Courses for Session II

### 11: Research Process I and II

**Course Title:** Research Process I and II

**Course Credit:**2+2

**Introduction:**

This is a four credit hour course offered over two sessions; part one (credits 2) and part two (credits 2). This is an applied subject utilizing the knowledge and skills acquired in the first session. This includes the learning of skills of critically assessing the published articles in medical journals based on the knowledge acquired earlier. Applying the knowledge of epidemiology and biostatistics, population dynamics, qualitative research methods, computer skills and health systems analysis, the student will learn the development of a research question, giving essential background, making statements for objectives, data collection, analysis applying statistical methods using the computer skills and present their readings and research projects for the third session.

**Learning Goal:**

The goal of this course is to create a critical mass of trained persons well-oriented in writing a research proposals for the dissertations and funding purposes. It will also enable the health professionals to critically comprehend the concepts and at the same time apply the epidemiological and statistical methods to develop a research protocol making use of computer statistical softwares and information technology.

**Learning Objectives:**

The learning issues relating to the above objectives are as follows:

1. The critical analysis of the published scientific paper will be used as baseline to start with the concept of writing a proposal to enable the students to identify the scientific requirements of medical writing and the various components of the paper.
2. (This will be critical reading of a published paper in context with the background, objectives, aims, study designs, data collection tool and their validity, data presentation and interpretation, in terms of discussion and conclusions. Statistical methods will be assessed for their applications and validity. The citation and listing of references will also be examined using the guidelines for critical assessment of scientific papers).

- The definitions of research and its uses and advantages will be highlighted in context with its importance in health and disease.
  - The selection and prioritizing topic for research demands some underlying reasoning which will be dealt with in this section requiring guidelines to select a topic.
3. Hands-on-training of the students will be made possible in searching for the relevant literature using hand and web search.
    - Providing a background to the study will be worked at through exercises using several examples.
  4. Formulation of objectives needs clarity of logical thinking which can focus on the scientific principals and, at the same time, covering the language issues.
  5. Formulation of hypothesis is critical in terms of stating them in measurable terms.
  6. Through definitions of objectives and hypothesis, the identification of variables and their types will be worked at.
  7. Once the objectives and variables are identified, the design of the study will be identified based on the prior knowledge of basics in epidemiology.
  8. Sampling techniques employed will be qualified appropriate to the objectives and the study designs. Probability and non-probability techniques will be applied on different scenario to appropriate their use in research.
  9. Sample size estimation based on objectives and study designs will be done using various statistical applications.
  10. Construction of Proforma and questionnaire appropriate to the study objectives and variables.
    - Validity of the measurements will be discussed for the documented variables.
    - Importance of self- and interviewer administered questionnaire.
    - Pre-testing the methodology of data collection
  11. Outlining of the plan for data analysis will be carried out constructing dummy tables and identifying appropriate statistical analysis.
  12. Preparing of the work plan using the pattern of a Gantt chart.
  13. Preparing budget and its justification for a proposal when seeking funding.
  14. Writing the title of the study topic to include the study design, variables and statistical analysis.
  15. Abstract writing will be done according to different standards.

16. Presentation of the project will be the final step

**Contents:**

Following are the contents of the course:

1. Principles of critical reading of a scientific paper
2. Definition of research
3. Importance of research in public health
4. Selection of topic for research
5. Literature Search using internet and library
6. Preparing the background for the proposal writing.
7. Parts of proposal writing.
8. Study design, sampling techniques, inclusion and exclusion criteria.
9. Methodology
10. Choosing the statistical techniques.
11. Reference writing
12. Abstract writing
13. Title writing for the proposals

**Teaching Methodology:**

Interactive discussions, exercises, group discussions/work and hands-on training

**Recommended Reading:**

Same as the *Basic Epidemiology*, *Basic Biostatistics*, *Computer Applications in Public Health*, and *Foundations of Qualitative Research* courses. Additionally:

1. Abramson JH, Abramson ZH. Survey methods in community medicine, fifth edition. Edinburgh: Churchill Livingstone; 1999.
2. Altman DG. Practical statistics for medical research. London: Chapman and Hall; 1991.
3. Bowling A. Research methods in health: investigating health and health services, 2<sup>nd</sup> ed. Buckingham: Open University Press; 1997.
4. Campbell DT, Stanley JC. Experimental and quasi-experimental designs for research. Boston, MA: Houghton Mifflin Company; 1966.
5. Hall GM. How to write a paper, 3<sup>rd</sup> ed. London: BMJ Publishing Group; 1996.

6. Greenhalgh T. How to read a paper: the basics of evidence-based medicine, 2<sup>nd</sup> ed. London: BMJ Publishing Group; 1997.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay questions

## 12: Introduction to Reproductive Health

**Course Title:** Introduction to Reproductive Health

**Course Credit:** 1.5 + 0.5

### **Introduction:**

Although the economic condition of Pakistan is improving, the health indicators almost remain stagnant with infant mortality at 76/1000 live births and maternal mortality at 250-340/100,000 live births. One third of childbearing aged women have an unmet need for contraception. The country is faced with many problems in the social and health sectors. The social marginalization of women is reflected not only in their limited opportunities for education and income but also in the health indicators. Not only are mother and infant mortality rates very high, malnutrition and infectious diseases are particularly widespread among women. This core course provides information on the reproductive health problems of women and men and possible solutions.

### **Learning Goal:**

The goal of this course is to enable the students to have the knowledge and skills to address and provide solutions for a better reproductive health.

### **Learning Objectives:**

By the end of the course, the students will be able to:

1. Describe the current reproductive health issues for women and men
2. Identify underlying causes and cross-linkages to different reproductive health outcomes
3. Address the need for improving women's health status through a multi-dimensional and inter-sectoral approach, and
4. Construct, design and apply appropriate interventions to address these concerns.

### **Contents:**

The following areas will be covered during the course:

1. Basic concepts and landmark events related to reproductive health and its evolution
  - Introduction to the course: Historical background of RH
  - Life course perspective to RH
  - ICPD, post ICPD, Beijing + 10
  - Safe Motherhood and Continuum of Care

2. Reproductive behavior in Pakistan
3. Contraception as a preconceptional health intervention
4. Abortion as a public health issue
5. Antenatal and obstetrical care models
  - Determinants of maternal mortality
  - Measurement of maternal mortality ratio and rates.
  - Obstetrical care (EOC, EmOC, BOC)
  - Unmet obstetrical need
  - Delays in obstetrical care provision
  - Integrated approach to newborn care
6. RH needs of special populations
  - RH issues of adolescents and young adults
  - RH needs of and issues for men
  - Role of males in Safe Motherhood
7. Diseases of public health importance in RH, e.g.,
  - Cancers of reproductive tract, STIs etc
  - Cancers of breast
  - Sexually transmitted infections
  - HIV AIDS
8. Health systems issues, e.g.
  - Access to services at various levels
  - Role of the district health system in reproductive health
  - Role of the tertiary care hospital in reproductive health
  - Primary health care and reproductive health including community based interventions
9. Cross cutting themes, e.g., research, monitoring and evaluation, quality of care
  - Evidence-based reproductive health interventions
  - Quality of care in RH
  - Integrated approach to provision of reproductive health services
  - Beyond numbers: Determinants of maternal mortality
  - Socio-economics of Reproductive health care.



**10. Data sources in reproductive health:**

- Websites
- Reports, surveys and publications focusing on RH
- RH programs at the district level by UNFPA
- MIS in reproductive health

**Teaching Methodology:**

Lectures, discussions, readings, group work, assignments, field trip, plenary,

**Recommended Readings:**

1. Abou-Zahr CL, Wardlaw TM. Antenatal care in developing countries: promises achievements and missed opportunities:an analysis of trends, levels and differentials, 1990-2001.Geneva: World Health Organization; 2003. Published jointly by WHO and UNICEF. Available from: URL: [http://www.who.int/reproductive-health/docs/antenatal\\_care.pdf](http://www.who.int/reproductive-health/docs/antenatal_care.pdf)
2. Askew I, Berer M. The contribution of sexual and reproductive health services to the fight against HIV/AIDS: a review. *Reprod Health Matters*. 2003;11: 51-73.
3. Aubel J, Toure I, Diagne M.Senegalese grandmothers promote improved maternal and child nutrition practices. *Soc Sci Med*. 2004;59:945-59.
4. Bale JR, Stoll BJ, Lucas AO. Improving birth outcomes: meeting the challenge in the developing world. Washington, DC: National Academies Press; 2003.
5. Bertrand JT, Magnani RJ, Knowles JC. Handbook of indicators for family planning program evaluation. Chapel Hill, NC: The Evaluation Project; 1994. Available from: URL: <http://www.cpc.unc.edu/measure/publications/pdf/ms-94-01.pdf>
6. BlancAK, Curtis SL, Croft TN. Monitoring contraceptive continuation: links to fertility outcomes and quality of care. *Stud Fam Plann*. 2002;33: 127-40.
7. Bobadilla JL. Evaluation of maternal health programs: approaches, methods and indicators. *Int J Gynaecol Obstet*. 1992;38 (suppl.):S67-73.
8. Bruce J. Fundamental elements of quality of care: a simple framework. *Studies in Family Planning* 1990;21; 61-91.
9. Cleland J, Ali MM. Reproductive consequences of contraceptive failure in 19 developing countries. *Obstetrics & Gynecology* 2004;104:314-320. Available from: URL: <http://www.greenjournal.org/cgi/reprint/104/2/314.pdf>

10. Cleland JG, Boerma JT, Carael M, Weir SS. Monitoring sexual behavior in general populations: a synthesis of lessons of the past decade. *Sexually Transmitted Infections*, 2004;80 (2 suppl.): ii1-7.
11. Creswell JW, Fetters MD, Ivankova NV. Designing a mixed methods study in primary care. *Annals of Family Medicine* 2004;2: 7-12.
12. Davies J. The reproductive health staircase. *NGORC Journal* 2004;5: 21. Available from: URL: <http://www.ngorc.org.pk/journal/Archive/Journal-Mar2004.pdf>
13. Douthwaite M, Ward P. Increasing contraceptive use in rural Pakistan: an evaluation of the lady health worker program. *Health Policy Plan*. 2005;20: 117-123.
14. Geyoushi BE, Matthews Z, Stones RW. Pathways to evidence-based reproductive health care in developing countries. *BJOG: An International Journal of Obstetrics & Gynaecology* 2003;110: 500-507.
15. Gillespie DG. Whatever happened to family planning, and, for that matter, reproductive health? *Int Fam Plan Perspect*. 2004;30: 34-8. Available from: URL: <http://www.guttmacher.org/pubs/journals/3003404.html>
16. John Snow, Inc. Safe motherhood indicators: lessons learnt in measuring progress. *MotherCare Matters – A Quarterly Newsletter and Literature Review on Maternal and Neonatal Health and Nutrition* 1999;8: 1-26. Available from: URL: <http://mothercare.jsi.com/pubs/mcmatters/pdf/Vol8%201.pdf>
17. Johnston HB and Hill K. Induced abortion in the developing world: indirect estimates. *Inter Fam Plann Persp* 1996; 22: 108-114. Available from: URL: <http://www.guttmacher.org/pubs/journals/2210896.pdf>
18. Khalil L, Roudi-Fahimi F. Making motherhood safer in Egypt (MENA Policy Brief). Washington, DC: Population Reference Bureau; 2004. Available from: URL: [http://www.prb.org/pdf04/MakMotherSaferEgypt\\_Eng.pdf](http://www.prb.org/pdf04/MakMotherSaferEgypt_Eng.pdf)
19. Koblinsky M. Essential obstetric care and subsets - basic and emergency obstetric care: what's the difference? *MotherCare Policy Brief #1*. Arlington, VA: John Snow, Inc.; 1999. Document no. M750. Available from: URL: [http://www.jsi.com/intl/mothercare/pubs/PolicyBriefs/policy\\_brief1.htm](http://www.jsi.com/intl/mothercare/pubs/PolicyBriefs/policy_brief1.htm)
20. Koblinsky M. Safe motherhood indicators - measuring progress. *MotherCare Policy Brief #2*. Arlington, VA: John Snow, Inc.; 1999. Document no. M751. Available from: URL: [http://www.jsi.com/intl/mothercare/pubs/PolicyBriefs/policy\\_brief2.htm](http://www.jsi.com/intl/mothercare/pubs/PolicyBriefs/policy_brief2.htm)

21. Koblinsky MA, Campbell O, Heichelheim J. Organizing delivery care: what works for safe motherhood? *Bull World Health Organ.* 1999;77: 399-406.
22. Koenig MA, Fauveau V, Chowdhury AI, Chakraborty J, Khan MA. Maternal mortality in Matlab, Bangladesh: 1976-1985. *Studies in Family Planning* 1988;19: 69-80.
23. Lush L. Service integration: an overview of policy developments. *International Family Planning Perspectives*, 2002;28: 71-76.
24. Marston C, Cleland J. The effects of contraception on obstetric outcomes. Geneva: Department of Reproductive Health and Research, World Health Organization; 2004. Available from: URL: <http://whqlibdoc.who.int/publications/2004/9241592257.pdf>
25. McCarthy J, Maine D. A framework for analyzing the determinants of maternal mortality. *Studies in Family Planning* 1992;23: 23-33.
26. Medicam. Technologies appropriate and inappropriate. *Safe Motherhood – A newsletter of worldwide activity* 1995;18.
27. Rashida G. Unwanted pregnancy and post-abortion complications in Pakistan: findings from a national study. Islamabad, Pakistan: Population Council. Available from URL: [http://bvs.insp.mx/temas/aborto/unwanted\\_pregnancy\\_and\\_postabortion\\_complications\\_in\\_pakistan.pdf](http://bvs.insp.mx/temas/aborto/unwanted_pregnancy_and_postabortion_complications_in_pakistan.pdf)
28. Seltzer JR. The origins and evolution of family planning programs in developing countries. Santa Monica: RAND; 2002.
29. Senlet P, Curtis SL, Mathis J, Raggars H. The role of changes in contraceptive use in the decline of induced abortion in Turkey. *Stud Fam Plann.* 2001 Mar;32: 41-52.
30. Shelton JD, Fuchs N. Opportunities and pitfalls in integration of family planning and HIV prevention efforts in developing countries. *Public Health Rep.* 2004;119: 12-5.
31. Sibley L, Sipe TA, Koblinsky M. Does traditional birth attendant training improve referral of women with obstetric complications: a review of the evidence. *Soc Sci Med.* 2004;59:1757-68.
32. Siddiqi S, Haq IU, Ghaffar A, Akhtar T, Mahaini R. Pakistan's maternal and child health policy: analysis, lessons and the way forward. *Health Policy.* 2004 Jul;69:117-30.
33. Sullivan TM, Bertrand JT (eds.). *Monitoring quality of care in family planning by the quick investigation of quality (QIQ) country reports.* Chapel Hill:

- CarolinaPopulationCenter, University of North Carolina; 2000. MEASURE Evaluation and Technical Report Series, No. 5. Available from: URL: <http://www.cpc.unc.edu/measure/publications/pdf/tr-00-05.pdf>
34. Thaddeus S, Maine D. Too far to walk: maternal mortality in context. *Soc Sci Med.* 1994;38: 1091-110.
  35. The MEASURE Program. Investing in population, health and nutrition monitoring and evaluation: lessons learned. *MEASURE Evaluation Bulletin* 2003;5. Available from: URL: <http://www.cpc.unc.edu/measure/publications/pdf/bu-03-05.pdf>
  36. TobinGA, Begley CM. Methodological rigor within a qualitative framework. *Journal of Advanced Nursing* 2004;48: 388-396. Available from: URL: <http://www.ruralhealth.utas.edu.au/gr/resources/docs/tobin-and-begley-rigour.pdf>
  37. Trussell J, Ellertson C, Stewart F, Raymond EG, Shochet T. The role of emergency contraception. *Am J Obstet Gynecol* 2004;190(4 suppl.): S30-8.
  38. UNAIDS. The public health approach to STD control: UNAID technical update (UNAID best practices collection). Geneva: World Health Organization; 1998. Available from: URL: [http://www.who.int/entity/hiv/pub/sti/en/stdcontrol\\_en.pdf](http://www.who.int/entity/hiv/pub/sti/en/stdcontrol_en.pdf)
  39. UNDP, UNFPA, WHO, World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP). WHO's work in reproductive health: the role of the Special Programme. *Progress in Human Reproductive Research* 1997;(42): 1-8. Available from: URL: <http://www.who.int/reproductive-health/hrp/progress/42/prog42.pdf>
  40. Varga CA. Pregnancy termination among south African adolescents. *Studies in Family Planning* 2002;33: 283-98.
  41. World Health Organization. Care in normal birth: a practical guide – report of a technical working group. Geneva: Division of Reproductive Health, World Health Organization; 1997. Document no. WHO/FRH/MSM/96.24. Available from: URL: [http://www.who.int/reproductivehealth/publications/MSM\\_96\\_24/care\\_in\\_normal\\_birth\\_practical\\_guide.pdf](http://www.who.int/reproductivehealth/publications/MSM_96_24/care_in_normal_birth_practical_guide.pdf)
  42. World Health Organization. Reproductive health strategy: to accelerate progress toward the attainment of international development goals and targets. Geneva: World Health Organization; 2004. Available from: URL: <http://www.who.int/reproductive-health/publications/strategy.pdf>

43. World Health Organization. Syndromic case management of sexually transmitted diseases: a guide for decision-makers, health care workers, and communicators. Manila, Philippines: WHO Regional Office for the Western Pacific; 1997. Available from: URL: [http://www.cadre.org.za/BAC/BACpdf/WHO\\_STD.pdf](http://www.cadre.org.za/BAC/BACpdf/WHO_STD.pdf)

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment may consist of: MCQs and Short essay questions

### 13: Child Health Programmes and Interventions

**Course Title:** Child Health Programs and Interventions

**Course Credit:** 1.5 + 0.5

**Introduction:**

This course focuses on the integration and building upon the basic concepts as well as to allow them to use their quantitative and qualitative skills to enhance their understanding of child health issues. The course will equip them to promote optimal health for the fetus, newborn and the child in the context of underlying determinants of ill health, trends in survival, morbidity, nutritional and environmental factors, immunizations, access to health care and health policies. Injuries and disability will also be discussed.

**Learning Goal:**

The learning goal of the course is to equip the participants with the skills, knowledge and principles to explore the risk factors for poor child health outcomes and manage and evaluate effectively the child health programs at the national, provincial and district levels.

**Learning Objectives:**

At the end of the course, the participants should be able to:

1. Establish the Public Health perspective on Child Health, primarily focusing on preventive aspects.
2. Describe the historical and current situation of fetal and child health in the country and the region..
3. Understand the health problems among children using the framework emphasizing the analysis of underlying principles and theories.
4. Use analytical tools of epidemiology, paediatrics, health services, developmental and social sciences, demography and policy analysis in identifying problems and solutions in child health.
5. Establish the current best practices in Child Health in light of the recent developments, i.e. Millennium Development Goals, Bellagio Child Survival Study Group's recommendations, Lancet Neonatal Survival Program etc.

**Contents:**

The following areas will be covered during the course:

1. Introduction to Child Health
2. Child Health: The Public Health Perspective
3. Assessing newborn health: The Neonatal Survival
4. Assessment of child health using different tools in Epidemiology, Biostatistics and Paediatrics.
5. Child Health: The Programmatic Issues in the contextual framework.
6. Strengthening The Health Systems For Child Health
7. Child Health: Global Issues

**Teaching Methodology:**

The teaching methodology will include Lectures, interactive discussions, group works and assignments.

**Recommended Readings:**

1. Black RE, Morris SS, Bryce J. Where and why are 10 million children dying every year? Lancet. 2003;361:2226-34. Available from: URL: [http://www.who.int/child-adolescent-health/New\\_Publications/CHILD\\_HEALTH/CS/CS\\_paper\\_1.pdf](http://www.who.int/child-adolescent-health/New_Publications/CHILD_HEALTH/CS/CS_paper_1.pdf)
2. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS; Bellagio Child Survival Study Group. How many child deaths can we prevent this year? Lancet. 2003;362: 65-71.
3. Bryce J, el Arifeen S, Pariyo G, Lanata C, Gwatkin D, Habicht JP; Multi-Country Evaluation of IMCI Study Group. Reducing child mortality: can public health deliver? Lancet. 2003;362: 159-64.
4. Victora CG, Wagstaff A, Schellenberg JA, Gwatkin D, Claeson M, Habicht JP. Applying an equity lens to child health and mortality: more of the same is not enough. Lancet. 2003;362: 233-41.
5. Claeson M, Gillespie D, Mshinda H, Troedsson H, Victora CG; Bellagio Study Group on Child Survival. Knowledge into action for child survival. Lancet. 2003;362: 323-7. Available from: URL: [http://www.who.int/child-adolescent-health/New\\_Publications/CHILD\\_HEALTH/CS/CS\\_paper\\_5.pdf](http://www.who.int/child-adolescent-health/New_Publications/CHILD_HEALTH/CS/CS_paper_5.pdf)
6. Bawaskar HS. The world's forgotten children [editorial]. Lancet. 2003;361: 1224-5.
7. Lawn JE, Cousens S, Zupan J; Lancet Neonatal Survival Steering Team. 4 million neonatal deaths: when? Where? Why? Lancet. 2005;365: 891-900.

8. Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, de Bernis L; Lancet Neonatal Survival Steering Team. Evidence-based, cost-effective interventions: how many newborn babies can we save? *Lancet*. 2005;365: 977-88.
9. Knippenberg R, Lawn JE, Darmstadt GL, Begkoyian G, Fogstad H, Walelign N, Paul VK; Lancet Neonatal Survival Steering Team. Systematic scaling up of neonatal care in countries. *Lancet*. 2005;365: 1087-98.
10. Martines J, Paul VK, Bhutta ZA, Koblinsky M, Soucat A, Walker N, Bahl R, Fogstad H, Costello A; Lancet Neonatal Survival Steering Team. Neonatal survival: a call for action. *Lancet*. 2005;365: 1189-97. Available from: URL:[http://www.who.int/child-adolescent-health/New\\_Publications/NEONATAL/The\\_Lancet/Neonatal\\_paper\\_4.pdf](http://www.who.int/child-adolescent-health/New_Publications/NEONATAL/The_Lancet/Neonatal_paper_4.pdf)
11. Tinker A, ten Hoope-Bender P, Azfar S, Bustreo F, Bell R. A continuum of care to save newborn lives [comment]. *Lancet*. 2005;365: 822-5. Available from: URL:[http://www.who.int/child-adolescent-health/New\\_Publications/NEONATAL/The\\_Lancet/2\\_The\\_Partnerships.pdf](http://www.who.int/child-adolescent-health/New_Publications/NEONATAL/The_Lancet/2_The_Partnerships.pdf)
12. Zaidi A, Khan T, Akram D. Early child health and survival strategies in Pakistan: a situational analysis. In: Bhutta ZA (ed.). *Maternal and child health in Pakistan: challenges and opportunities*. Karachi: OxfordUniversity Press; 2004.
13. Bhutta ZA, Ali N, Hyder A, Wajid A. Perinatal and newborn care in Pakistan: seeing the unseen. In: Bhutta ZA (ed.). *Maternal and child health in Pakistan: challenges and opportunities*. Karachi: OxfordUniversity Press; 2004.
14. Siddiqi S, Haq IU, Ghaffar A, Akhtar T, Mahaini R. Pakistan's maternal and child health policy: analysis, lessons and the way forward. *Health Policy* 2004;69:117-30.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay questions



## 14: Applied Epidemiology and Biostatistics

**Course Title:** Applied Epidemiology and Biostatistics

**Course Credit:**2+1

### **Introduction:**

This is a core course offered after the students have attended the basic courses in epidemiology and biostatistics in the first term. This deals with the application of their concepts and numerical skills to different public health issues. Some new concepts are introduced and students are given datasets to work on with the help of statistical software. The skill of interpretation of the applications is inbuilt.

### **Learning Goal:**

The goal of the course is to improve the epidemiological and statistical skills for use in research and evaluation in public health and to enable the students to understand and apply the basic epidemiological and statistical knowledge and skills in addressing and solving health and public health issues and developing research strategies using advanced statistical methods and statistical software/s.

### **Learning Objectives:**

At the end of the course, the student should be able to:

1. Apply measures of disease frequency in Public Health.
2. Describe further statistical procedures in Cohort and case-control studies.
3. Interpret the results of a study investigating the effects of Confounding and Interaction
4. Describe the methods adopted to control for Bias, Chance and Effect Modification in a study
5. Apply screening in disease control.
6. Analysis of survival times
7. Applications of Standardization
8. Use the tests of significance for parametric data: three or more independent groups of observations (ANOVA).
9. Use the tests of significance for categorical data:
  - several proportions,
  - analyzing frequency tables ( $2 \times 2$ ,  $n \times k$  tables),
  - large tables with ordered categories.

10. Use non-parametric tests for a single or more than one samples e.g. Wilcoxon's Rank sum tests, Mann-Whitney U-tests etc.
11. Investigate the relationship of two or more continuous variables using correlation – partial correlation coefficients, coefficient of determination, interpretation and presentation of correlation.
12. Investigate the relationship between several variables using:
  - Multiple regression and
  - Logistic regression.
13. Evaluation of interventions or programmes using appropriate epidemiological and statistical methods.

**Contents:**

The contents of the course are as follows:

1. Disease frequency: Incidence and Prevalence
2. Proportional Morbidity and mortality
3. Details of measures of association and inference in cohort and case control studies
4. Further applications of Chance, confounding and bias in studies.
5. Interaction and effect modification.
6. Issues in screening.
7. Survival time analysis.
8. Standardization techniques in epidemiological studies.
9. Parametric test: ANOVA
10. Non Parametric tests: Chi square test for several proportions,  $n \times k$  tables and tables with ordered data, Fisher's exact test, non-parametric tests for a single or more than one samples e.g. Wilcoxon's Rank sum tests, Mann-Whitney U-tests.
11. Partial correlation coefficients, coefficient of determination.
12. Multiple regression and
13. Logistic regression

**Teaching Methodology:**

1. Interactive discussions
2. Exercises
3. Group discussions

**Recommended Readings:**

Same as for Basic Epidemiology and Basic Biostatistics plus:

1. Baumgartner TA, Strong CH. Conducting and reading research in health and human performance, 2<sup>nd</sup> ed. Boston, MA: Edward E. Bartell publishers; 1997.
2. Bennet J, Azhar N, Rahim F, Kamil S. Further observations on ghee as a risk factor for neonatal tetanus. *International Journal of Epidemiology* 1998; 24: 643-47.
3. BhargavaSK, Sachdev HS, Fall CHD, et. al. Relation of serial changes in childhood body mass index to impaired glucose tolerance in young adulthood. *N Eng J Med* 2004;350: 865-75.
4. Brown KH, Black RE. Infant feeding practices and their relationship with diarrhoeal and other diseases in Huascar (Lima) Peru. *Pediatrics* 1989;83:31-40.
5. Clemens JD, Stanton S, Stoll B. Breast feeding as a determinant of severity in shigellosis. Evidence for protection throughout the first three years of life in Bangladeshi children. *American Journal of Epidemiology* 1986;123: 710-720.
6. Cochran WG. Sampling techniques, 3rd ed. New York, NY: Singapore: John Wiley & Sons; 1909.
7. Deitz WH, Robinson TN. Overweight children and adolescents. *N Eng J Med* 2005;352: 2100-09.
8. Furness S, Connor J, Robinson E, Norton R. Car colour and risk of car crash injury: population based case control study. *British Medical Journal* 2003;327: 1455-56
9. Jousilahti P, Toumilehto J, Vartiainen, Eriksson J and Puska P. Relation of adult height to cause-specific and total mortality: A prospective follow up study of 31,199 middle-aged men and women in Finland. *Amer J Epidemiol* 2000;151: 1112-20.
10. Khan SR, Zaman S, Jalil F, Lindblad BS, Karlberg J. Early child health in Lahore: X. Mortality. *Acta Paediatr Suppl* 1993;390: 109-17.
11. Kruijshaar ME, Barendregt JJ, Hoeymans N. The use of models in the estimation of disease epidemiology. *Bull WHO* 2002; 80: 622-28.
12. Lindblad BS, Patel M, Zaman S. Age and Sex are important factors in determining normal retinol levels. *J Trop Paediatr* 1998;44: 96-99.
13. Mahalanabis D, Alam AN, Rahman N, Hasnat A. Prognostic indicators and risk factors for increased duration of acute diarrhea and for persistent diarrhea in children. *Int J Epidemiol* 1991;20: 1064-72.

14. Petro R, Darby S, Deo H, Silcocks P, Whitley E, Doll R. Smoking, Smoking cessation and lung cancer in the UK since 1950: combination of national statistics with two case-control studies. *British Medical Journal* 2000; 321: 323-329.
15. Stevens A, Raftery J (eds.). *Health care needs assessment, Vol. 1: the epidemiologically based needs assessment reviews*. Oxford: Radcliffe Medical Press; 1994.
16. Vella V, Tomkins A. et al. Determinants of Stunting and Recovery from stunting in Northwest Uganda. *Int J Epidemiol* 1994; 782-86.
17. Yaqoob M, Cnattingius S, Jalil F, Zaman S. Risk factors for mortality in young children living under various socio-economic conditions in Lahore, Pakistan: with particular reference to inbreeding. *Clin Gen* 1998;54: 426-34.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay questions

## 15: Communicable and Non-communicable Disease Control

**Course Title:** Communicable and Non-communicable Disease Control

**Course Credit:**3

### **Introduction:**

Communicable diseases continue to be major problem in Pakistan and its surrounding region. However, non-communicable diseases are on the rise at the same time and thus constitute a double burden for these countries undergoing transition. Injuries and disability add to the burden on health systems to mount a response through inter-sectoral collaborations. Effective control programmes and projects need to be in place to reduce the burden of disease. In this context the economic, social science and policy aspects of the disease need to be explored and discussed.

### **Learning Goal:**

The goal of this course is to equip the students with knowledge and skills to prevent and control communicable and non-communicable diseases including injury prevention.

### **Learning Objectives:**

By the end of the course, the participants will be able to:

1. Describe key concepts of communicable and chronic non-communicable disease (NCD) epidemiology with reference to developing countries in general and Pakistan in particular.
2. Conduct an outbreak investigation with a relation to microbiological information.
3. Conduct surveillance for communicable and non-communicable diseases and injuries.
4. Design and conduct a disease control programme for any disease /injury.

### **Contents:**

The following areas will be covered during the course:

1. Introduction to Communicable and Non-communicable Diseases: concepts and strategies
2. Epidemiology of communicable diseases: Basic Concepts
3. Surveillance
4. Outbreak Investigation
5. Polio Eradication: New challenges and strategies

6. Biological principles to development of disease prevention and control or management programmes, including immunology and microbiology
7. Burden of Diseases
8. Communicable and Non-Communicable Diseases Trends and Policies
9. Injury and injury prevention.
10. Private Public Partnership in disease control: Integration of non-communicable disease prevention and control within the context of primary and secondary health care
11. Role of NGOs in disease control
12. Disease Early Warning System
13. Epidemiology of Genetics and its role in Communicable and Non-communicable diseases
14. Epidemiology of NCDs in Pakistan
15. The National Action Plan for NCD prevention, control and health promotion: concepts, theory and practice

**Teaching Methodology:**

Interactive discussions, individual assignment, exercises and group discussions

**Recommended Readings:**

1. Bender AP, Williams AN, Johnson RA, Jagger HG. Appropriate public health responses to clusters: the art of being responsibly responsive. *Am J Epidemiol* 1990;132:S48-52.
2. Benenson AS. Control of communicable diseases in man, 15<sup>th</sup> ed. Washington DC: American Public Health Association; 1990.
3. Caldwell GG. Twenty-two years of cancer cluster investigations at the Centers for Disease Control. *Am J Epidemiol* 1990;132:S43-7.
4. Dicker RC, et. al. Principles of epidemiology: an introduction to applied epidemiology and biostatistics, 2nd ed. Atlanta, GA, USA: Centers for Disease Control and Prevention, 1992. Self-study course 3030-G. Available from: URL: [http://www.phppo.cdc.gov/PHTN//catalog/pdf-file/Epi\\_Course.pdf](http://www.phppo.cdc.gov/PHTN//catalog/pdf-file/Epi_Course.pdf)
5. Fiore BJ, Hanrahan LP, Anderson HA. State health department response to disease cluster reports: a protocol for investigation. *Am J Epidemiol* 1990;132:S14-22.
6. Fraser DW, Tsai TY, Orenstein W. Legionnaires' disease: description of an epidemic of pneumonia. *N Engl J Med* 1977;297: 1189-97.

7. Gross M. Oswego Country revisited. *Public Health Rep* 1976;91:168-70.
8. Hertzman PA, Blevins WL, Mayer J, Greenfield B,ting M,Gleich GJ.Association of the eosinophilia-myalgia syndrome with the ingestion of tryptophan. *N Engl J Med* 1990;322:869-73.
9. Hutchins SS, Markowitz LE, Mead P. A school-based measles outbreak:the effect of a selective revaccination policy and risk factors for vaccine failure. *Am J Epidemiol* 1990;132:157-68.
10. Jamison DT, Mosley HW, Measham AR, Bobadilla JL. Disease control priorities in developing countries. New York, NY: OxfordUniversity Press; 1993.
11. Khan OA, Hyder AA. Research report-Responses to an emerging threat: HIV/AIDS policy in Pakistan. *Health Policy Plan.* 2001;16(2):214-218
12. Kuh D, Ben-Shlomo Y, editors. *A Life Course Approach to Chronic Disease Epidemiology.* Oxford: Oxford Medical Publications; 1997.
13. MacDonald KL, Spengler RF, Hatheway CL. Type A botulism from sautéed onions. *J Am Med Assoc.* 1985;253:1275-8.
14. Ministry of Health, Government of Pakistan, World Health Organization, Heartfile. National action plan for prevention and control of non-communicable diseases and health promotion in Pakistan: a public-private partnership in health. Islamabad, Pakistan: tripartite collaboration of the Ministry of Health, Government ofPakistan; WHO, Pakistan office, and Heartfile; 2004. Available from: URL: <http://www.heartfile.org/pdf/NAPmain.pdf>
15. Murray CJL, Lopez AD. Mortality by cause for eight regions of the world:Global Burden of Disease Study. *Lancet* 1997; 349:1269-76
16. Murray CJL, Lopez AD. Regional patterns of disability-free life expectancy and disability-adjusted life expectancy: Global Burden of Disease Study. *Lancet* 1997;349:1347-52.
17. Neutra RR. Counterpoint from a cluster buster. *Am J Epidemiol* 1990;132:1-8.
18. Nishtar S. Cardiovascular disease prevention in low resource settings: lessons from the Heartfile experience in Pakistan. *Ethn Dis.* 2003 Summer;13(2 suppl. 2):S138-48.
19. Nishtar S. Prevention of coronary heart disease in South Asia. *Lancet* 2002 Sep;360: 1015-18.

20. Nishtar S. Public-private partnerships in health: a global call to action. *Health Res Poliy Syst* 2004 Jul;2(1): 5.
21. OmranAR. The epidemiology transition theory revisited thirty years later. *Wld hlth statist.quart.* 1998;99-119.
22. RosenbergMD, Hazlet KK, Schaefer J, Wells JG , Pruneda RC. Shigellosis from swimming. *J Am Med Assoc.* 1976;236:1849-52.
23. Ryan CA , Nickels MK, Hargrett-Bean NT.Massive outbreak of antimicrobial-resistant salmonellosis traced to pasteurized milk. *J Am Med Assoc.* 1987;258:3269-74.
24. Schulte PA, Ehrenberg RL, Singal M. Investigation of occupational cancer clusters: theory and practice. *Am J Public Health* 1987;77:52-6.
25. Taylor DN, Wachsmuth IK, Shangkuan Y-H. Salmonellosis associated with marijuana: a multistate outbreak traced by plasmid fingerprinting. *New Engl J Med* 1982;306:1249-53.
26. Webber R. *Communicable disease epidemiology and control: a global perspective*, 2<sup>nd</sup> ed. Wallingford: CABI Publishing; 1996.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay questions



## 16: Health Education and Health Promotion

**Course Title:** Health Education and Health Promotion

**Course Credit:**3

### **Introduction:**

Pakistan is in the transitional phase of development with the issues of the fast changing paradigms in the face of small expenditure on health. Faced with the fact that the health problems are immense, health promotion is an important intervention to change behaviours and attitudes of people to deal with largely preventable health problems. It needs the input in the form of proper planning, implementation and evaluation of Health Promotion Programmes and projects. Health Promotion is considered as the continuation of the skills already learnt in the earlier courses.

### **Learning Goal:**

Reorient the students to turn them into health promotion specialists and communicators.

### **Learning Objectives:**

By the end of the course participants should be able to

1. Describe the major approaches to the promotion of health, including the underlying theories and procedures used in evaluating them.
2. Design a health promotion campaign.
3. Describe the basic principles of behavior change and management, the scientific, social, cultural and economic bases of health promotion, as well as the political and ethical issues that affect health promotion activities.
4. Demonstrate the communication skills which public health specialists be called upon to play in Health Promotion

### **Contents:**

The following areas will be covered during the course:

1. Introduction to Health Promotion and Education
  - Health promotion
  - Risk transition
  - Ottawa Charter
  - Adelaide, Sundsval, Jakarta and Mexico, Bangkok conferences

- Life course perspective
  - World Health Report 2002
2. Health perspectives and reflections
    - Health as a continuum
    - Approaches to Health Education
    - Orientations for health education
  3. Evidence-based Health Promotion and Planning
    - Principles of Health Promotion
    - Hierarchy of evidence
    - Outcome model of Health Promotion
    - A new evidence paradigm
    - Health A new evidence paradigm
  4. Health Promotion theoretical perspectives
    - Ecological Models
    - Community theories
    - Diffusion of innovations
    - Community organization theory
    - Organizational change theory
    - Interpersonal
    - Social learning theory
    - Social cognitive theory
    - Individual
    - Trans theoretical model / Stages of change model
    - Health belief model
    - Consumer information processing Model
  5. Models of Health Promotion
    - Aims of Health Promotion
    - Towards a more integrated model
    - Tanahills Model
  6. Models of Health Promotion Planning
    - PRECEDE-PROCEDE

- Social Marketing
  - Logic Model
7. Health Communication
    - Types and levels
    - Principles of effective communication
    - Message
    - Audience
    - HEALTHCOMS 5 step methodology
    - CDC's Health Communication Wheel
    - "A" frame of advocacy
    - 7 C's of effective communication
    - "P" process
    - Health Communication campaign
    - Planning a comprehensive health communication campaign
  8. Steps of the comprehensive health communication campaign
    - Steps of the comprehensive health communication campaign
  9. Social Marketing
  10. Evaluating Health Promotion Programs
    - Stages of research and evaluations for Health Promotion programs
    - Best practices in health promotion
    - Skills for evaluation
    - Steps off evaluation process

**Teaching Methodology:**

Teaching is carried out in form of didactic and participative lectures and individual and group exercises. The participants are supposed to complete a supervised class assignment i.e. a mini project based on the PRECEDE-PROCEDE framework which entails fieldwork.

**Recommended Readings:**

1. Elder JP. Behavior change and public health in the developing world. Thousand Oaks, CA; SAGE; 2001.
2. Ewles L, Simmet I. Promoting health: a practical guide, third edition. London: Scutari Press; 1995.

3. Green LW, Kreuter MW. Health promotion planning: an educational and environmental approach, second edition. Mountain View, CA: Mayfield Publishing Company; 1991.
4. Naidoo J, Wills J. Health promotion: foundations for practice, 2<sup>nd</sup> ed. London: Bailliere Tindall; 1994.
5. Rogers EM, Kincaid DL. Communication networks: towards a new paradigm for research. New York, NY: The Free Press; 1981.
6. Rogers EM. Diffusion of innovations, third edition. New York, NY: The Free Press; 1983.
7. Valente TW. Evaluating health promotion programs. New York, NY: OxfordUniversity Press; 2002.
8. World Health Organization. Education for health: a manual on health education in primary health care. Geneva: World Health Organization; 1988.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation, class exercises and individual assignments, i.e. developing a health promotion programme using PRECEDE-PROCEDE framework.

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay questions

## 17: Health Systems Management

**Course Title:** Health Systems Management

**Course Credits:**3

### **Introduction:**

Pakistan has one of the best knitted network health care facilities in public sector. These facilities mostly, face the problems of underutilization and under functioning along with the technical and allocative inefficiency. The management of private sector has also been considered inefficient and not very effective. Specific Management tools and techniques, such as strategic management, management by objectives, quality assurance methods, monitoring and evaluation of the health systems outputs and outcomes, and economic appraisal are not practiced. Insufficient management knowledge, in appropriate attitude and skills are reducing the capacity to improve the system.

### **Learning Goal:**

The overall goal of the course is to enable the participants to describe the principal concerns in Health Systems management in order to improve the management capacity of health managers in terms of their knowledge, attitude and skills.

### **Learning Objectives:**

By the end of the course, the participants will be able to:

1. Define management that encompasses the main aspects of problem-solving typically faced by health managers;
2. Define and describe essential concepts, principles, methods and terms in management;
3. Apply certain techniques in the resolution of selected management issues and
4. Describe basic methods of quantitative analysis being used by health managers.
5. Demonstrate change management, communication and leadership skills.
6. Define what quality means from the standpoint of the variety of stakeholders.
7. Explain the relationship of cost and quality.

### **Contents:**

The following areas will be covered during the course:

1. Introduction to Health System and Scope of Health Systems
2. Managing Health System for Better Outcomes, Global Issues and Priorities for Pakistan

3. Management: Traditional and Contemporary Issues and Challenge
4. Management and the Manager's Job
5. An Introduction to Systems, Client Orientation, Process Analysis, Problem Identification
6. Evidence-based decision making
7. Use of HMIS in HSM
8. Supportive supervision & leadership
9. Capacity building in human resource management
10. Introduction to Human Resource Management: Competencies and Job Description
11. Challenges resolution techniques, staff motivation and performance appraisal
12. Functional and Task Analysis
13. Functional and Task Analysis: Exercise
14. Monitoring and Evaluation
15. Introduction to Financial Management
16. Performance Budgeting and Analysis in HSM
17. Financial Management in HSM
18. Financial Management in HSM: Exercise
19. Logistics Cycle in HSM
20. Quality Management
21. Quality Management: Exercise
22. Tools for Quality Assessment / improvement
23. Tools for Quality Assessment / improvement: Exercise

**Teaching Methodology:**

Lectures, discussions, assigned individual and group exercises, Role plays

**Recommended Readings:**

1. Amonoo-Lartson R, Ebrahim GJ, Lovel HJ. District health care: challenges for planning, organization and evaluation in developing countries, 2<sup>nd</sup> ed. Hong Kong: Macmillan Press; 1985.
2. Chanawongse K. Understanding primary health care management: from theory to practical reality. Bangkok: Buraphasilp Press; 1990.

3. Gourlay R. Training manual on health manpower management (8 volumes). Geneva: Division of Health Manpower Development, World Health Organization; 1988. Document no. WHO/EDUC/88.195.
4. McMahon R, Barton E, Ross F. On being in charge: a guide to management in primary health care, 2<sup>nd</sup> ed. Geneva: World Health Organization; 1992.
5. Reinke WA. Health planning for effective management (HPEM). New York, NY: Oxford University Press; 1988.
6. Shortell SM, Kaluzny AD. Health care management, 3<sup>rd</sup> ed. Albany, NY: Thompson Delmar Learning; 2000.
7. World Health Organization. The world health report 2000: Health systems – improving performance. Geneva: World Health Organization; 2000. Available from: URL: [http://www.who.int/entity/whr/2000/en/whr00\\_en.pdf](http://www.who.int/entity/whr/2000/en/whr00_en.pdf)

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessments, group works and exercises and an end of course test.

**Summative Assessment (80%)**

Session examination

## 18: Health Planning

**Course Title:** Health Planning

**Course Credit:**3

### **Introduction:**

This course is offered to MPH participants to build upon their existing Health Systems concepts. Health planning is major task of public health professionals working in the government and the private sector in positions of programme and project managers, district officers or hospital managers. Especially after many countries have decentralized their administration to the districts and below public health professionals are required to have sound knowledge and skills to plan and budget for health. The focus of this course is on the tools and techniques of operational planning, whereas strategic planning is dealt with in the elective course on health policy.

### **Learning Goal:**

The goal of this course is to enhance the participants' comprehension of the planning process including budgeting, specifically at district and sub-district level leading to an improvement in planning capacities of health care providers and professionals for the purpose of ultimately improving health service delivery.

### **Learning Objectives:**

At the end of the course students will be able to:

1. List the sequential steps of the micro planning cycle
2. Explain the difference and relationship between different types of planning
3. Apply certain Tools and Techniques for District Health and Project Planning
4. Develop a district health plan/programme implementation plan with an adequate budget.

### **Contents:**

The following areas will be covered during the course:

1. District Health System and Devolution
2. Introduction to Health Planning and Budgeting
3. The Planning Cycle and its steps
4. Essential Content of a district Health Plan Document



5. Glossary of Terms used in district Health Planning

**Teaching Methodology:**

Lectures, discussions, assigned individual and group exercises

**Recommended Readings:**

1. Green A. An introduction to health planning in developing countries, 2<sup>nd</sup> edition. Oxford: Oxford University Press; 1999.
2. Kielmann AA, Siddiqi S, Mwadime RK. District health planning manual: toolkit for district health managers. Islamabad, Pakistan: Multi-donor Support Unit, Ministry of Health; 2002.
3. Kielmann, AA, Janovsky K, Annett H. Assessing district health needs, services and systems: protocols for rapid data collection and analysis. London, UK: Macmillan Education Ltd and AMREF, 1995.
4. Newell K. The way ahead for district health systems. World Health Forum. 1989;10: 80-7.
5. Reinke WA. Health planning for effective management. New York, NY: Oxford University Press; 1988.
6. Van Lerberge W, Lafort Y. The role of the hospital in the district. Deliverin or supporting primary health care? Current concerns. WHO SHS Paper 1990;2: 1-36.
7. World Health Organization. Making it work: organization and management of district health systems based on primary health care. Geneva: World Health Organization; 1988. Document no. WHO/SHS/DHS/88.1.
8. World Health Organization. The challenge of implementation: district health systems for primary health care. Geneva: World Health Organization; 1988. Document no. WHO/SHS/DHS/88.1/rev 1. Available from: URL: [http://whqlibdoc.who.int/hq/1988/who\\_shs\\_DHS\\_88.1\\_Rev.1.pdf](http://whqlibdoc.who.int/hq/1988/who_shs_DHS_88.1_Rev.1.pdf)
9. World Health Organization. The health centre in district health systems. Geneva: World Health Organization; 1994. Document no. WHO/SHS/DHS/94.3.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessments, group works and exercises and an end of course test.

**Summative Assessment (80%), Session examination**

## Annex 4: Courses for Session III

### 19: Health Care Financing

**Course Title:** Health Care Financing

**Course Credits:**3

**Introduction:**

This course is an introduction to the field of health care financing and health economics. In the past decade, some of the most controversial policies considered by governments have involved issues that have been analyzed by health economists. For this reason, public health professionals need to have a sound basis to understand economic and financing mechanisms underlying changes occurring in the health sector.

**Learning Goal:**

The goal of this course is to improve the participants' knowledge and skills to deal with health economics and financing.

**Learning Objectives**

At the end of the course students will be able to:

1. Describe the basic microeconomic concepts
2. Apply these concepts to health and health care;
3. Explain the financing flows underpinning access to and delivery of health care services.
4. State the differences in financing the health care services among countries at different levels of income and development.
5. Analyse health care financing options in a variety of countries and settings and making informed recommendations on how to improve health financing.

**Contents:**

The following are the contents of the course:

1. Basic Economic concepts and tools.
  - Definitions: Economics, Macro & Microeconomics, economic systems,
  - Goals of an economic system,
  - Efficiency (technical, allocative)
  - Equity

- Demand & Supply
  - Price, Market forces, Price equilibrium
  - Types of Goods, Public, Private, Externalities, Opportunity cost
  - Production Theory
  - Markets, Competition, perfect, oligopoly, monopoly
2. Health & Economic Development
- GNP, GDP;
  - Inflation,
  - Health & economic Indicators
3. Cost Concepts
- Unit Cost Analysis (Step down approach)
  - Costing for Intervention Package for Health Care
4. Economic Analysis of Health Sector Projects
- Cost Benefit,
  - Cost Utility,
  - Cost Effectiveness;
  - Summary Measures for Health
  - Average and Marginal Cost analysis
5. Health Care Financing
- Overview of Health Care Financing Concepts in Developing Countries
  - Equity and Financial Fairness/HCF for Poor
  - Economic development and resource allocation: Out of Pocket vs. Government: Development- Non Development; Health Sector Reforms
  - Social Health Insurance
  - Private Health Insurance
  - Community Financing
  - User fees
  - Provider Payment Method
  - Health Insurance Implementation In Pakistan
  - Health Insurance & Islam
  - National Health Accounts

6. Health and Markets

- Health and Markets: Application of market concepts to Health
- Why Health is a Case of Market Failure
- Government and Health Care
- Managed Care

7. Globalization of Health

- The International Health Market: Providers, Purchasers, Pharmaceuticals
- Priority Setting in Developing countries
- International Resource flows: Developing countries & Health

**Teaching Methodology:**

The teaching methodology for this course will consist of lectures, classroom exercises, assignments, presentations, role play and discussions

**Recommended Readings:**

1. Creese A, Parker D (eds.). Cost analysis in primary health care: a training manual for programme managers. Geneva: World Health Organization in collaboration with the United Nations Children's Fund and the Aga Khan Foundation; 1994.
2. Donaldson C, Gerard K. Economics of health care financing: the visible hand, 2<sup>nd</sup> edition. Basingstoke, UK: Palgrave Macmillan; 2004.
3. Drummond M, McGuire A. Economic evaluation in health care: merging theory with practice. New York, NY: OxfordUniversity Press; 2001.
4. Drummond MF, O'Brien B, Stoddart GL, Torrance GW. Methods for the economic evaluation of health care programmes, 2<sup>nd</sup> ed. Oxford: Oxford University Press; 1997.
5. Feldstein PJ. Health care economics. New York, NY: John Wiley & Sons, Inc; 1979.
6. Gold MR, Siegel JE, Russel LB, Weinstein MC (eds.). Cost effectiveness in health and medicine. New York, NY: OxfordUniversity Press; 1996.
7. Government of Pakistan. Economic survey of Pakistan 2005-2006. Islamabad, Pakistan: Government of Pakistan, Finance Division; 2006. Available from: URL: <http://www.finance.gov.pk/survey/home.htm>
8. McDonald R. Using health economics in health services: rationing rationally? Buckingham: Open University Press; 2002.

9. McPake B, Kumaranayake L, Normand C. Health economics: an international perspective. London, UK: Routledge Publishers; 1997.
10. Mills A, Lee K. Health economics research in developing countries. Oxford: OxfordUniversity Press; 1993.
11. Mishan EJ. Cost-benefit analysis: an informal introduction, 4th ed. London, UK: Unwin Hyman Ltd; 1988.
12. PrekerAS, Carrin G. Health financing for poor people: resource mobilization and risk sharing. WashingtonDC: The World Bank; 2004.
13. Spasoff RA. Epidemiologic methods for health policy. New York, NY: OxfordUniversity Press; 1999.
14. Witter S, Ensor T, Jowett M, Thompson R. Health economics for developing countries: a practical guide. London, UK: Macmillan Education Ltd; 2000.
15. World Health Organization. Macroeconomics and health: investing in health for economic development – reportof the Commission on Macroeconomics and Health, World Health Organization. Geneva: World Health Organization; 2001. Available from: URL: <http://whqlibdoc.who.int/publications/2001/924154550X.pdf>
16. Zaidi SA. Issues in Pakistan’s economy. Karachi, Pakistan: OxfordUniversity Press; 1998.
17. Zaidi SA. The political economy of health care in Pakistan. Karachi, Pakistan: Vanguard Books (Pvt.) Ltd; 1988.

**Students’ Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay questions

## 20: Applied Nutrition

**Course Title:** Applied Nutrition

**Course Credit:**3

### **Introduction:**

It is essential that the students of Public Health understand the importance of absence of good nutrition as a measure of physical, social and economic indicators of health and development of a country. There is a need to comprehend the role of good nutrition in development and maintenance of a healthy body. This will help in the identification of common nutritional disorders at individual levels and also in advising mothers in matters related to nutrition during periods of stress and for the optimal growth of the young children.

### **Learning Goal:**

The goal of this course is to create a group of trainees well-equipped in handling nutritional problems at community and hospital level, enabling them to understand the fundamentals of nutrition, nutritional deficiencies, preventing and managing nutritional problems in the community and hospital.

### **Learning Objectives:**

At the end of the module, the trainee should be able to:

1. List the types of foods and the nutritional requirements of the children, mothers and people of old age.
2. Write a nutritional prescription for a child at different ages and the mothers.
3. Describe the nutritional requirements of the infants and young children.
4. List the nutritional requirements of Mothers during pregnancy and lactation.
5. Describe the nutritional aspects of human milk.
6. Define and Perform nutritional assessment of young children
7. Describe the nutritional effects on growth
8. Examine the development of growth charts and define their uses
9. Plan and perform nutritional surveillance using various indicators.
10. Define nutritional surveillance, indicators and methods.
11. Analyze nutritional data using EPINUT/Nutrisurvey.
12. Counsel mothers on infant feeding

13. Counsel mothers with malnourished child in problem solving in the community and the hospital.
14. Identify common micronutrient deficiencies, management and prevention
15. Describe common nutritional problems (deficiency or excess of nutrients) and their management and their prevention.
16. Carry out field visit to a restaurant and describe the food sanitation etc.
17. Write a report on field work and make a presentation of their work for critical appraisal.

**Contents:**

The following are the contents of the course:

**A. Normal nutrition**

1. Fundamental elements of human nutrition
2. Nutrition during growth and health
3. Nutritional requirements of neonates and infants 0-6 months
4. Nutrition requirements of infants 6-12 months
5. Nutrition requirements of children 1-5 years
6. Nutrition requirements of children 5-12 years
7. Nutrition requirements during physiological stress
8. Nutrition requirements of Adolescents
9. Nutrition requirements during Pregnancy
10. Nutrition requirements during Lactation
11. Household food safety

**B. Assessment of Growth and Nutritional status of children:**

1. Nutritional status: its assessment by field techniques
2. Nutritional status: Its assessment through anthropometry
3. Using Growth Charts as primary health care tool
4. Nutritional Prescription for children
5. 6-12 months of age
6. 12 months - 5 years of age
7. 5 - 12 years of age
8. Nutritional prescription of the mothers during normal health, pregnancy and lactation

**C. Human Milk and its importance:**

1. Optimal Breastfeeding Practices
2. Advantages of breastfeeding and dangers of bottlefeeding
3. Exclusive breastfeeding
4. Complementary feeding
5. Perceived insufficiency of breastmilk/Lactation failure
6. Promotion and support of breastfeeding
7. Management of lactation problems

**D. Malnutrition**

1. Classification of Malnutrition
2. Causes of Malnutrition
3. Risk factors and their assessment
4. Management of Malnutrition
5. Clinical Assessment of Malnutrition
6. Protein energy malnutrition: Marasmus, PEM, Kwashiorkor
7. Micronutrient Deficiencies
8. Nutrition during special circumstances
9. Establishing a Lactation Management clinic

**E. Health Education in Nutrition**

1. Communication skills
2. Nutritional counselling
3. Nutritional and social rehabilitation

**F. Monitoring and Evaluation of nutrition intervention programmes**

1. National Nutrition Programmes
2. National Nutrition Surveys
3. Nutrition in IMCI
4. Breastfeeding Policy (International Code for Breastfeeding)
5. Expanded Programme for childhood illnesses and Nutrition
6. IDD control programme

**G. Nutrition for children living in special situation:**

1. Poverty
2. War



3. Natural calamities
4. HIV/AIDS
5. Food safety
6. Storage and Preservation of Foods at local and industrial level

**Teaching Methodology:**

Lectures, interactive teaching using problem-based learning/discussions, tutorials, seminars and discussions, assignments and field work, using computer softwares, Practical Skills in the community and hospital, Clinical Ward assignments.

**Recommended Reading:**

1. Allen LH. Nutritional influences on linear growth: a general review, Eur J Clin Nutr 1994;48(suppl 1): 75-89.
2. Ashraf RN, Jalil F, Khan SR, Zaman S, Karlberg S, Lindblad BS, HansonLÅ. Early child health in Lahore, Pakistan: V. Feeding patterns. Acta Paediatr 1993;390(suppl.): S48-62.
3. Ashraf RN, Jalil F, Zaman S, Karlberg J, Khan SR, Lindblad BS, Hanson LÅ. Breast feeding and protection against neonatal sepsis in a high risk population. Arch Dis Child 1991;66:488-90.
4. Atkinson SA, Hanson LA, Chanrdra RK (eds.). Breastfeeding, nutrition, infection and infant growth in developed and emerging countries. Newfoundland, Canada: ARTS Biomedical Publishers and Distributors; 1990.
5. Brown KH, Black RE, Lopez de Romana G, Creed de Kanashiro H. Infant feeding practices and their relationship with diarrhoeal and other diseases in Huascar (Lima), Peru. Pediatr 1989;83:31-40.
6. Cohen RJ, Brown KH, Canahuati J, Rivera LL, DeweyKG. Determinants of growth from birth to 12 months among breast fed Honduran infants in relation to age of introduction of complementary foods, J Pediatr 1995;96:504-10.
7. de Onis M, Blössner M. World Health Organization Global Database on Child Growth and Malnutrition. Geneva: Programme of Nutrition, World Health Organization; 1997. Available from: URL: <http://www.who.int/nutgrowthdb/database/en>

8. Dewey KG, Heinig MJ, Nommsen LA, Peerson JM, Lonnerdal B. Breastfed infants are leaner than formula-fed infants at 1 year of age: the DARLING study. *Am J Clin Nutr* 1993;57: 140-5.
9. Dewey KG. Infant nutrition in developing countries: what works [comment]? *Lancet*, 2005 28-Jun 3;365: 1832-4.
10. Diaz S, Herreros C, Aravena R, Casado ME, Reyes MV, Schiappacasse V. Breast feeding duration and growth of fully breast fed infants in a poor urban Chilean population. *Am J Clin Nutr* 1995;62:371-6.
11. Gross R, Kielmann A, Korte R, Schoeneberger H, Schultink W. Guidelines for nutrition baseline surveys in communities. Jakarta: SEAMEO, TROPMED, GTZ; 1997.
12. Hanson L, Ashraf R, Zaman S, Karlberg J, Khan SR, Lindblad B, et al. Breastfeeding is a natural contraceptive and prevents disease and death in infants, linking infant mortality and birth rates. *Acta Paediatr* 1994 Jan;83:3-6.
13. Hanson LÅ, Ashraf R, Zaman S, Karlberg J, Lindblad BS, Jalil F. Breast feeding is a natural contraceptive and prevents disease and death in infants, linking infant mortality and birth rates. *Acta Paediatr* 1994;83:3-6.
14. Hanson LÅ, Carlsson B, Jalil F, Hahn-Zoric M, Karlberg J, Mellander L, Khan SR, Murtaza A, Thiringer K, Zaman S. Antiviral and antibacterial factors in human milk. In: Hanson LÅ (ed.). *The biology of human milk*, vol. 15. New York, NY: Nestlé Nutrition Workshop Series, Raven Press; 1989. p. 141-157.
15. Hanson LÅ, Carlsson B, Zaman S, Adlerberth I, Mattsby Baltzer I, Jalil F. The importance of breastfeeding in host defense: production of the milk antibodies and the anti-inflammatory function of human milk. *Pak Paed J* 1992;XV: 155-164.
16. Hanson LÅ, Silfverdal SA, Stromback L, Erling V, Zaman S, Olcen P, Telemo E. The immunological role of breast feeding. *Pediatr Allergy Immunol* 2001;12 Suppl 14:15-9.
17. Hanson LÅ. *Immunobiology of human milk: how breastfeeding protects babies*. Amarillo, TX, USA: Pharmasoft Publ; 2004.
18. Karlberg J, Ashraf RN, Saleemi MA, Yaqoob M, Jalil F. Early child health in Lahore, Pakistan: XI. Growth. *Acta Paediatr* 1993;390 (suppl):119-49.
19. Karlberg J, Zaman S, Hanson LÅ, Khan SR, Lindblad BS, Jalil F. Aspects of infantile growth and the impact of breastfeeding: a case control study of the infants from four socioeconomically different areas in Pakistan. *Hum Lactat* 1990;4: 219-47.

20. Pakistan Demographic and Household Survey, 1990-1994. Pakistan Institute of Population studies and Govt of Pakistan, 1994.
21. Pelto GH, Santos I, Goncalves H, Victora CG, Martines J, Habicht JP. Nutrition counseling training changes physician behavior and improves caregiver knowledge acquisition. *J Nutr* 2004; 134: 357-362.
22. Penny ME, Creed-Kanashiro HG, Robert RC, Narro MR, Caulfield LE, Black RE. Effectiveness of an educational intervention delivered through the health services to improve nutrition in young children: a cluster-randomised controlled trial. *Lancet* 2005 28-Jun 3;365: 1863-72.
23. Saleemi MA, Ashraf RN, Mellander L, Zaman S. Determinants of stunting at 6, 12, 24 and 60 months and postnatal linear growth in Pakistani children. *Acta Paediatr* 2001;90:1304-8.
24. Tulchinsky TH, El Ebweini S, Ginsberg G, Abed Y, Montano-Cuellar D, Schoenbaum M, et al. Growth and nutrition patterns of infants associated with a nutrition education and supplementation program in Gaza, 1987-92. *Bull WHO* 1994;72:869-75.
25. Victora CG, Smith PG, Vaughan JP, Nobre LC, Lombardi C, Teixeira AM, et. al. Evidence for protection by breast-feeding against infant deaths from infectious diseases in Brazil. *Lancet* 1987 8;2:319-22.
26. Victora CG, Smith PG, Vaughan JP, Nobre LC, Lombardi C, Teixeira AMB, et. al. Evidence for protection by breastfeeding against infant deaths from infectious diseases in Brazil. *Lancet* 1987;2:319-21.
27. WHO Collaborative Study Team. Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis, *Lancet* 2000;355:451-55.
28. World Health Organization, UNICEF. Global strategy for infant and young child feeding. Geneva: World Health Organization; 2003. Available from: URL: [http://www.who.int/child-adolescent-health/New\\_Publications/NUTRITION/gs\\_iycf.pdf](http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/gs_iycf.pdf)
29. World Health Organization. Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis. WHO Collaborative Study Team on the Role of Breastfeeding on the Prevention of Infant Mortality. *Lancet* 2000 5;355:451-5.

30. World Health Organization. Management of severe malnutrition: a manual for physicians and other senior health workers. Geneva: World Health Organization; 1999. Available from: URL:  
<http://whqlibdoc.who.int/hq/1999/a57361.pdf>
31. World Health Organization. Management of the child with a serious infection or severe malnutrition: guidelines for care at the first-referral level in developing countries. Geneva: Department of child and adolescent health and development, World Health Organization;2000. WHO document WHO/FCH/CAH/00.1. Available from: URL:  
[http://www.who.int/child-adolescent-health/publications/referral\\_care/Referral\\_Care\\_en.pdf](http://www.who.int/child-adolescent-health/publications/referral_care/Referral_Care_en.pdf)
32. World Health Organization. Measuring change in nutritional impact of supplementary feeding programme for vulnerable groups. Geneva: World Health Organization; 1983.
33. Zaman S, Jalil F, Saleemi MA, Mellander L, Ashraf RN, Hanson LÅ. Changes in feeding patterns affect growth in children 0-24 months of age living in socioeconomically different areas of Lahore, Pakistan. Adv Exp Med Biol 2002;503:49-56.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay questions

## 21: Hospital Management

**Course Title:** Hospital Management

**Course Credit:**3

### **Introduction:**

In the developing countries, the situation becomes even more intimidating as the hospitals have lesser space, equipment, hospital staff and are frequently overwhelmed and overcrowded. A more sensitive delivery of care in a more therapeutic environment can benefit patients and have a positive bottom-line impact on healthcare institutions. Poor Quality of Hospital Services has been a major problem for Public sector hospitals in Pakistan. One of the main contributors of the poor quality of hospital services, apparent to patients and staff alike, is the inefficiency of hospitals' management and its operations. Ninth five plan of Pakistan (1999-2003) has documented that there are large variations in the utilization of hospital services and that at present there are no quality control mechanisms in place within hospital sector, as a result, the public hospitals are generally perceived to be of low quality.

### **Learning Goal:**

The goal of the course is to enhance the participants' knowledge regarding management and other issues faced by hospital managers and to develop their skills to address the managerial and administrative issues of Public and Private sector hospitals at all levels.

### **Learning Objectives:**

By the end of the course the participants will be able to:

1. Describe the management of hospitals in public and private sectors.
2. Describe the functional departments of a hospital.
3. Apply the management functions such as planning, organizing, staffing and controlling in hospitals.
4. List out the problems that are being faced by hospitals in implementing effectively these management functions.
5. Describe the expected role of hospital in the community.
6. Apply the principles and practice of Hospital Management.
7. Construct budgets, financial costing and cost effectiveness of the hospital services.

8. List the requirements for efficient management of hospital services and utilities like x-rays, laboratory and indoor facilities.
9. Establish the concept of total quality management in health services.
10. Describe the dynamics of a Hospital as an Organization and the Corporate nature of a Hospital.
11. Address efficiency issues in the management of a hospital through its resources.
12. Explore possible options for Cost Containment and profitability.

**Contents:**

The contents of the course are as follows:

1. Hospital System and its Role, Components of a Hospital System & Role of Hospitals in PHC
2. Vision, Mission, Goals and Values of a Hospital
3. Role and Functions of Hospital Managers
4. Hospital Services Management
  - Nursing Management
  - Change Management
  - Infrastructure Management
5. Inventory Management
6. Drugs Management in Hospitals-I and II
7. Human Resource Management
8. Financial Management
  - Accounting rules and practices in a public & Private Hospital
  - Financial Management
  - Hospital Financing for Sustainability
  - Cost Containment, cost effectiveness and profitability
  - Costing and Cost implications of Hospital Services
9. RAP Tool
  - Introduction to Rapid Appraisal Tool for assessment of Emergency of a Hospital
  - Data Collection in Hospitals using RAP Tool
10. Preparing a Hospital Budget
11. Hospital Waste Management and infection control

- Hospital Environment & Hospital Waste Management
  - Hospital Environment-related issues: lighting, ventilation, Cleanliness and tidiness, horticulture and greenery, Clean, regular and safe water supply, standards of personal hygiene, Control measures for hospital associated infections
12. Accident & Emergency /Trauma Management Services
13. Human Resource Management
- Human Resource Development: current status and future challenges
14. Infrastructure Management
- Hospital Planning and Design
  - TQM and Medical Audit of the Hospital.
  - Total Quality Management: key concepts and Introduction to some basic tools of TQM
  - Hospital Purchasing Process
  - Hospital Purchase, Tendering and Processing
15. Hospital Ethical Concerns

**Teaching Methodology:**

A combination of various teaching methods such as lectures, individual and group exercises, group presentations, Field visits to Private and Public Hospitals will be used.

**Recommended Readings:**

1. Barnum H, Kutzin J. Public hospitals in developing countries: resource use, cost, financing. Baltimore, MD: JohnsHopkinsUniversity Press; 1993.
2. Blanchet KD, Switlik MM. The handbook of hospital admitting management. USA: Aspen Publications; 1985.
3. Goel SL, Kumar R. Management of hospitals. New Dehli, India: Deep and Deep Publications; 2002.
4. King M, Lapsley I, Mitchell F, Moyes J. Activity based costing in hospitals: a case study investigation. London, UK: Chartered Institute of Management Accountants; 1994.
5. McMahon R, Barton E, Piot M, Gelina N, Rose F. On being in charge. Geneva: World Health Organization; 1992.
6. PrekerAS, Harding A (eds.). Innovations in health service delivery: the corporatization of public hospitals, vol. 1. WashingtonDC: World Bank; 2002.

7. Shepard DS, Hodgkin D, Anthony Y. Analysis of hospital costs in developing countries: a manual for managers. Waltham, MA: Institute for Health Policy, BrandeisUniversity; 1997.
8. Willan JA. Hospital management in the tropics and subtropics. London, UK: Macmillan Education Ltd, 1990.
9. World Health Organization. The hospital in rural and urban districts: report of a WHO study group on the functions of hospitals at the first referral level. World Health Organ Tech Rep Ser. 1992;819:1-74.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay question



## 22: Advanced Epidemiology and Biostatistics

**Course Title:** Advanced Epidemiology and Biostatistics

**Course Credits = 3**

### **Introduction**

In Biological sciences, sometimes the complexity of data collected is such that there is very little choice left for the researcher to conduct simple analyses and assure the reader about the authenticity of the data and the conclusions that are drawn. However, applications of some advanced techniques to the complex data can be useful to learn and interpret supporting the conclusions. This course is designed to answer the more complex questions that a researcher raises. This will also enable the students to further their research for a higher degree.

Learning advanced methods in Epidemiological and Biostatistical applications in Research sometimes required for a more comprehensive and detailed presentation of data bases. Statistical softwares like STATA and SAS are available for such analyses. This course is designed to provide learning opportunities to students who are interested in such advanced applications.

### **Learning Goal:**

The learning goal of this particular course is to provide skills in understanding data and developing analysis which may be useful in their applications in a wider scenario and successfully using the statistical softwares as a form of help in analysis.

### **Learning Objectives:**

At the end of the course, the student should be able to:

1. Apply statistical measures in the analysis of Cohort and Case control studies.
2. Analyse Disease Frequency in a wider perspective keeping the population dynamics in view.
3. Effectively apply statistical modeling techniques in different study Designs.
4. Apply comparisons in several exposure groups.
5. Describe statistical applications in survival analysis using STATA and SAS

6. Apply the analysis for interaction when studying confounding etc.

**Contents:**

1. Measures of disease frequency and exposure effects
2. Rates and Risk measurements
3. Odds ratios as an estimate of Relative Risk
4. Confidence intervals for rates and rate ratio
5. Test for heterogeneity of Rate Ratios
6. Person-year Analysis : Cohort studies
7. Comparison of several exposure groups using different statistical techniques.
8. Exposed cohort compared to an external standard
9. Survival Analysis
10. Analysis of unmatched case-control studies
11. Selection Bias
12. Analysis of matched Case-control studies
13. Estimating Risk ratios and Rate Ratios in case-Control studies
14. Logistic regression I
15. Logistic Regression II
16. Likelihood Inference
17. Conditional Logistic Regression
18. Poisson Regression
19. Regression models for proportions
20. Strategies for Data Analysis
21. Proportional Hazards regression for Cohort studies.
22. Multiplicative and Additive Models
23. Clustering of cases of disease
24. Analysis of data with multiple episodes as outcome
25. Sample Surveys
26. Regression Analysis and analysis of variance

27. Laws of probability and Binomial Distribution
28. Conditional probability
29. Comparison of survivorship curves
30. Several Straight lines
31. Further analysis of Frequency data
32. Multiple comparisons and sequential trials
33. Time series
34. Non Parametric application on data of different nature.
35. Choice of a statistical technique based on study designs.

**Recommended Readings:**

1. Gordis L. Epidemiology. Philadelphia, PA: WB Saunders Company; 2008.
2. Hennekens CH, Buring JE. Epidemiology in medicine. Boston, MA: Little Brown and Company; 1987.
3. Holford TR. Multivariate methods in epidemiology. New York, NY: Oxford University Press; 2002.
4. MacMahon B, Thomas FP. Epidemiology: principles and methods, 1st ed. Boston, MA: Little, Brown and Company; 1970.
5. Fletcher RH, Fletcher SW, Wagner EH. Clinical epidemiology: the essentials, 3rd ed. Philadelphia, PA: Williams & Wilkins Publishers; 1996.
6. Szklo M, Nieto FJ. Epidemiology: beyond the basics. Boston, MA: Jones and Bartlett Publishers; 2000.
7. Korkwood BR Sterne JAC. Essential Medical Statistics. 2nd edition. Blackwell Science Ltd. Blackwell Publishing Company, 2003.
8. Dupont WD. Statistical Modelling for Biomedical Researchers. A simple introduction to the analysis of a complex data. 2nd edition. Cambridge University Press; 2008.
9. Altman DG. Practical statistics for medical research, 3rd ed. London, UK: Chapman & Hall; 1991.
10. Colton T. Statistics in medicine, 1st ed. Boston, MA: Little Brown and Company ; 1994.

11. Selvin S (ed.). Statistical analysis of epidemiologic data, 3<sup>rd</sup> edition. New York, NY: Oxford University Press; 1991.
12. Katz MH. Multivariable Analysis. A practical guide for Clinicians. Cambridge University Press; 1999.
13. Schlesselman JJ. Case Control studies. Design, conduct, analysis. Oxford University Press, New York, 1982.

**Teaching Methodology:**

Interactive (scenario-based learning), assignments, discussions and practical exercises, lectures. Hands-on training using STATA and SAS.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class assignments/exercises

**Summative Assessment (80%)**

Summative assessment consists of: MCQs and short essay questions. Problem solving.

## 23. Health Policy

**Course Title:** Health Policy

**Course Credit:**3

**Introduction:**

Over the past 60 years, Pakistan has developed a health system which includes a number of programmes aiming at promoting health recognized as the developmental need, based on a set of policies and with increasing financial support over the years. However, there are a number of gaps in the implementation of policies for a number of reasons not leading to a translation into desired outcomes.

**Learning Goal:**

The overall goal of the course is to provide the participants a basis on how to critically analyze, develop and improve health policies.

**Learning Objectives:**

By the end of the course, the participants will be able to:

1. Describe concepts and tools used in health policy.
2. Conduct a stakeholder analysis in the process of policy development.
3. Comprehend the inter-relationship between policy, plan, program and project as well as planning at macro and micro levels.
4. Understand the implementation modalities of macro-level and micro-level policy decisions at micro-levels (translation of policies into actions).
5. Appreciate extra-health-policy factors that influence health policies and their desired outcomes.
6. Describe the policy procedures that exist in Pakistan and in other countries and critique their strengths and weaknesses.
7. Understand methods and importance of monitoring, evaluation and research for health policies.
8. Advocate health sector reform agenda effectively.

**Contents:**

The following are the contents of the course:

1. Introduction to Health Policy and Planning, what and why?

2. Policy Perspectives (I) Macro Policy
3. Policy Perspectives (II) Macro Policy
4. Policy Perspectives (III) Micro Level
5. Policy Perspectives: A comparison between Macro and Micro Level Policies
6. Impact of other National Policies on Health System
7. Devolution Plan: Past to Present (I)
8. Devolution Plan: Past to Present (II)
9. Health Sector Reforms: What and why?
10. Health Sector Reforms: Role of stakeholders and stakeholder analysis
11. Policy versus Planning
12. Role of International Commitments on Health Policies (MDGs,)
13. Research and Policy
14. National Policies and their implications and National Health Outcomes: Sustainability Issues
15. National Policies and their implications and National Health Outcomes: Sustainability Issues
16. Health Sector Performance as a determinant of National Health Policy
17. Evidence-based Policy Making
18. Advocacy
19. Policy and Politics
20. Leadership and Policy

**Teaching Methodology:**

Lectures, discussions, group work, simulations and role plays, individual assignments, and presentations.

**Recommended Readings:**

1. Abel-Smith B. An introduction to health: policy, planning and financing. London: Longman Group Ltd; 1994.
2. Bennett S, McPake B, Mills A. Private health providers in developing countries: serving the public interest? London, UK: Zed Books; 1997.
3. Berman P (ed.). Health sector reform in developing countries: making health development sustainable. Boston, MA: Harvard University Press; 1995.

4. Danis M, Clancy C, Churchill LR. Ethical dimensions of health policy. New York, NY:OxfordUniversity Press; 2002.
5. de Weil C, Alicibusan AP, Wilson JF, Reich MR and Bradley DJ. The impact of development policies on health: areview of literature. Geneva: World Health Organization; 1990.
6. Grindle MS (ed.). Getting good government: capacity building in the public sectors of developing countries. Boston, MA: HarvardUniversity Press; 1997.
7. Harding A, PrekerAS. Private participation in health services. WashingtonDC: The World Bank; 2003.
8. Hunter, DJ. Public health policy. Cambridge, MA: Polity Press; 2003.
9. Intersectoral linkages and health development:case studies in India (KeralaState), Jamaica, Norway, Sri Lanka, and Thailand.WHO Offset Publ. 1984;(83): 4-53.
10. Lashari, T. Pakistan's national health policy: quest for a vision. Islamabad, Pakistan: Health Policy Unit, The Network for Consumer Protection; September 2004.
11. Ministry of Health, Government of Pakistan. National health policy: the way forward – agenda for health sector reform. Islamabad, Pakistan: Ministry of Health, Government of Pakistan; December 2001. Available from: URL:  
[http://Inweb18.worldbank.org/sar/sa.nsf/Attachments/Pak-NHP/\\$File/Pak-NHP.pdf](http://Inweb18.worldbank.org/sar/sa.nsf/Attachments/Pak-NHP/$File/Pak-NHP.pdf)
12. Ministry of Health, Government of Pakistan. National health policy. Islamabad, Pakistan: Ministry of Health, Government of Pakistan; 1997.
13. Nishtar, S. The gateway paper: health systems in Pakistan – a way forward. IslamabadPakistan: Pakistan's Healthy Policy Forum and Heartfile; 2006.
14. Steiner GA, Miner JR, Gray ER. Management policy and strategy. New York, NY: Macmillan Education Ltd; 1986.
15. Townsend P, Whitehead M, Davidson N (eds.). Inequalities in health: the black report and the health divide, 2nd ed. London: Penguin Group, 1992.
16. Lin V, Gibson B. Evidence-based health policy: problems and possibilities. Melbourne, Australia: OxfordUniversity Press; 2003.
17. Walt G. Health policy: an introduction to process and power. London: Zed Books; 1994.
18. Williamson C. Whose standards? Consumer and professional standards in health care. Buckingham: Open University Press; 1992.

19. World Bank. World development report 1993: investing in health. WashingtonDC: OxfordUniversity Press; 1993.
20. World Health Organization. Alma-Ata 1978: Primary health care. Geneva: World Health Organization; 1978. HFA Sr. No. 1.
21. World Health Organization. Macroeconomics and health: investing in health for economic development. Geneva: World Health Organization; 2001.
22. World Health Organization. The Adelaide recommendations on healthy public policy. Geneva: World Health Organization; 1988. Document no. WHO/HPR/HEP/95.2. Available from: URL:  
[http://www.who.int/hpr/NPH/docs/adelaide\\_recommendations.pdf](http://www.who.int/hpr/NPH/docs/adelaide_recommendations.pdf)

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class exercises

**Summative Assessment (80%)**

Summative assessment consist of: MCQs and Short essay questions



## 24: Community-based Reproductive Health Interventions

**Course Title:** Community-based Reproductive Health Interventions

**Course Credit:**3

### **Introduction:**

This elective course is offered in the third session to integrate and build upon courses offered in the MPH programme, particularly courses numbers: 11, 12 and 08 , employing qualitative and quantitative research skills gained in courses numbers: 10, 06, 02, 03, and 13, as well as planning concepts (09 and 17). This acquired knowledge and skills are applied to assessing appropriate community-based interventions. Students spend the first part of the course preparing the community-level assessment tools and the second part collecting the information in the field. Assessments are conducted at volunteer tehsil health centres where local health officials and community providers can guide the types of information needed. Course participants analyze the collected data and prepare written and oral reports which are shared with the local health unit. Appropriate community-based interventions are then suggested from the needs assessment.

### **Learning Goal:**

The goal of this course is to equip the participants with the skills, knowledge and principles to design and manage effective community-based reproductive health programmes at the national, provincial and district levels.

### **Learning Objectives:**

By the end of the course, the participants will be able to:

1. Identify types of community-level interventions effective in improving individual and family-level health outcomes
2. Describe elements of effective community-based reproductive health interventions
3. Design, conduct and present a needs assessment for community-level RH interventions, working with information from the health facilities, providers and community leaders garnered through qualitative and quantitative data collection
4. Critically evaluate the effectiveness of community-based interventions in producing reproductive health at the household and individual levels

**Contents:**

The following are the contents of the course:

1. RH at the community, household and individual levels
2. Overview of effective community-level interventions for RH
3. Planning community needs assessment to cover:
  - Significance of reproductive health needs in the community
  - Background of community
  - Specific aims
4. Selecting data collection methods, including
  - Focus group discussions
  - In-depth/key informant interviews
  - Record review
  - Facility assessment
  - Client exit interview
  - Community-level rapid assessment survey
5. Design of a community-based RH intervention to respond to identified needs
  - Rationale for expected effectiveness
  - Targeted beneficiaries
  - Types of intervention activities
  - Implementation plan and schedule, including budget
  - Expected outcomes and measures
  - Potential barriers to implementation
  - Monitoring and evaluation plans

**Teaching Methodology:**

Students are provided with guidelines for conducting an RH needs assessment and taken through skill-building exercises at needs assessment design, data collection protocols, execution, data review, analysis and interpretation, and dissemination. Students develop the final tools that they administer in a local community working with the government health centre, collect, analyze and interpret the data, and report their findings back to centre health officials. Community-based interventions appropriate for development, based on the

needs assessment, are identified and discussed at the final presentation. A written report is collectively prepared by course participants.

**Recommended Readings:**

1. Abel-Smith B. An introduction to health: policy, planning and financing. London: Longman Group Ltd; 1994.
2. Afsar HA, Younus M, Gul A. Outcome of patient referral made by the lady health workers in Karachi, Pakistan. *J Pak. Med Ass* 2005;55; 209-11.
3. Ali M, Hotta M, Kuroiwa C, Ushijima H. Emergency obstetric care in Pakistan: potential for reduced maternal mortality through basic EmOC facilities, services and access. *International Journal of Gynecology and Obstetrics* (in press).
4. Chhetry S, Clapham S, Basnett I. Community-based maternal and child health care in Nepal: self-reported performance of maternal and child health workers. *Journal of Nepal Medical Association* 1005:44; 1-7.
5. Clift E. IEC interventions for health: a 20 year retrospective on dichotomies and directions. *Journal of Health Communication* 1998;3; 367-375.
6. Douthwaite M, Ward P. Increasing contraceptive use in rural Pakistan: an evaluation of the Lady Health Worker Programme. *Health Policy Plan.* 2005;20; 117-23.
7. Jokhio AH, Winter HR, Cheng KK. An intervention involving traditional birth attendants and perinatal and maternal mortality in Pakistan. *New England Journal of Medicine* 2005;352; 2091-9.
8. Kironde S, Klaasen S. What motivates lay volunteers in high burden but resource-limited tuberculosis control programmes? Perceptions from the Northern Cape province, South Africa. *The International Journal of Tuberculosis and Lung Disease* 2002;6; 104-110.
9. Nsutebu EF, Walley JD, Mataka E, Simon CF. Scaling-up HIV/AIDS and TB home-based care: lessons from Zambia. *Health Policy Plan.* 2001;16; 240-7.
10. Nyonator FK, Awoonor-Williams JK, Phillips JF, Jones TC, Miller RA. The Ghana community-based health planning and services initiative for scaling up service delivery innovation. *Health Policy Plan.* 2005;20; 25-34.
11. Stoebenau K, Valente TW. Using network analysis to understand community-based programs: a case study from highland Madagascar. *International Family Planning Perspectives* 2003;29; 167-73.

12. Sultan M, Cleland JG, Ali MM. Assessment of a new approach to family planning services in rural Pakistan. *American Journal of Public Health* 2002;92; 1168-72.
13. Supratiko G, Wirth M, Achadi E, Cohen S, Ronsmans, C. A district-based audit of the causes and consequences of maternal deaths in South Kalimantan, Indonesia. *Bull World Health Organ.* 2002;80; 228-234.
14. Upvall MJ, Sochael S, Gonsalves A. Behind the mud walls: the role and practice of lady health visitors in Pakistan. *Health Care for Women International* 2002;23; 432-41.
15. Weisman C, Grason H, Strobina D. Quality management in public and community health: examples from Women's Health. *Quality Management in Health Care* 2001;10; 54-64.

**Students' Evaluation:**

**Formative (20%)**

Ongoing assessment through class participation and class and field assignments (individual/group)

**Summative Assessment (80%)**

Summative assessment may consist of: MCQs and short essay questions

## Annex 5: Dissertation Guidelines (Session III)

### 25: Dissertation

**Course Title:** Dissertation

**Course Credit:** 2+8

**Introduction:**

The exposure to community-based and health systems research is an essential element that the current MPH programme supports to fulfill. This helps in the conceptualization of this research experience and converting it into a scientific write-up to complete the requirements for the third session of MPH programme.

The document serves to assist students in understanding the section of the topics for research, write the proposal for approval by 's Institutional Review Board (IRB) and the funding agencies. Dissertation writing is required from each student of MPH to generate a meaningful academic product that demonstrates the student's application of crucial knowledge and skills including:

- Aspects of relevant disciplines like epidemiology, biostatistics, qualitative research methods etc.
- Conceptual framework for the working hypothesis or research question.
- Research objectives, hypotheses and research questions formulation in measurable terms.
- Study design, study population and selection processes correctly according to the objectives.
- Interpretation and analysis of data in support of a decision or conclusion.
- Correctly written bibliography.
- Oral and written communication and presentation of the product.
- Development of and adherence to a schedule/time frame.
- Formulation of a realistic budget and its defense.

Every student is required to show substantial work done under the supervision of the academic advisor.

The following sections provide detailed guidelines for dissertation writing.

**1. Dissertation:**

The dissertation requires the generation of new applied knowledge through the comprehensive application of the research process. The thesis option is a better choice for students who desire to gain confidence in their ability to plan, conduct, and write a research work and wish to gain confidence in their ability to critically apply existing knowledge and methods to the solution of a problem in public health.

Given the inherent complexity of activities and time demands, 10 credit hours of research are allocated for a dissertation.

The topic for research will be chosen in consultation with the academic advisor.

**2. Overview:**

By completing their dissertations MPH students are able to demonstrate their understanding of core competencies through the successful application of core knowledge and principles, critical thinking and analytic reasoning skills.

The student is advised to select a topic for research consistent with his/her professional requirements while going through the course on Research Process Part I during the first and second session. In the beginning of third session, the student will be guided to complete the research tools and complete the proposal in light of the training during the classwork.

Students are advised to plan ahead for each step. The proposal formulated has to be critically appraised by the Academic Council of the and simultaneously the Institutional Research Board (IRB) within 3 weeks of the third session which is before the student is allowed to start with the data collection. The committee can suggest changes which will be communicated to the student at the time of critical appraisal.

The students will carry out data collection, data analysis, interpretation and presentation of the results leading to conclusions from the study under the dissertation writing guidelines during the third session (see below).

The Examiners (one internal and one external) for the viva voce examination will be approved by the University's Controller of Examinations. This process has to be started at

least 6 weeks before the exams are scheduled. The examiners should be provided the written dissertation at least 15 days in advance of the scheduled defense.

It is the institutional responsibility to identify the examiners, coordinate a time that is acceptable to all members; to arrange for any needed audio-visual support, and to ensure that the examiners are notified of the location of the defense.

### **3. Proposal Format:**

**Proposal for the Dissertation:** The proposal submitted for a dissertation should follow the outline listed below. The outline corresponds to the major chapters expected in a thesis. Deviations from the content in this outline should be discussed and approved by the advisor (and committee in advance of submitting the proposal for the defense).

#### **3.1 Introduction**

- (a) Establish importance of topic
- (b) Conceptual model/relationship of independent and dependent variables
- (c) Summary of what is/is not known
- (d) What gap the study is filling
- (e) Statement of research purpose(s)

#### **3.2 Aims and Objectives/Hypotheses or research questions including operational definitions**

#### **3.3 Material and Methods**

- (a) Study design
- (b) Duration of study
- (c) Study population
  - Sampling methods
  - Sample size/power
  - Sample recruitment: Inclusion and Exclusion criteria
- (d) Data Collection Procedure: Identify the recruitment of the population to the collection of :
  - Variables
  - Measurements

- i. instruments (include copies of relevant instruments (surveys, etc) as appendices)
  - ii. standards
  - iii. reliability
  - iv. validity
- (e) Data analysis plan (including software to be used and tables if applicable)

### **3.4 Rationale of the study**

### **3.5 Human Subject Protection\***

- i. Informed Consent Procedures
- ii. Confidentiality
- iii. Risks
- iv. Benefits
- v. Permission to access data (if applicable)

\*should also attach an approval by the IRB.

### **3.6 References listing**

Reference listing is to be done at the end of the proposal. (The references should consist of at least 6 references from not older than last 5 year; preferably from the published articles and only occasionally from the books).

### **3.7 Timeline**

A timeline should be attached as an annexure.

### **3.8 Proposed budget**

A proposed budget should be given at the end of the proposal.

## **4. Outlines for the Dissertation:**

**Part I:** Consisting of:

- (a) Title page with the name of the student and the programme they are working under, i.e. name and MPH with year.
- (b) Declaration duly signed by the Advisors/Supervisors



- (c) Acknowledgements
- (d) Table of Contents
- (e) List of Tables/Figures with page numbers
- (f) List of Abbreviations used

All pages are to be given Roman numerals before the summary.

#### Summary

A structured summary should be the first part of the dissertation write up. Introduction, Objectives, material and methods: Study design, duration, sample population including sampling techniques, sample size and sample selection and statistical analysis. Brief results and conclusions. Key words: 3-5 words best describing the study.

### Part II

#### 4.1 Introduction

It shall cover:

- (a) Establish importance of topic
- (b) Conceptual model/relationship of independent and dependent variables
- (c) Summary of what is/is not known
- (d) What gap the study is filling
- (e) Statement of research purpose(s)

#### 4.2 Literature Review

It shall cover:

- (a) General overview
- (b) Theoretical models/conceptual frameworks
- (c) Relationships among variables
- (d) Other relevant literature

#### 4.3a. Aims and

#### 4.3b. Objectives (or research questions)

#### 4.4 Material and Methods

- (a) Study design
- (b) Duration of study

- (c) Conceptual models/conceptual frameworks
- (d) Study population
  - i. Sampling techniques
  - ii. Sample size/power
  - iii. Sample recruitment: Inclusion and Exclusion criteria

#### **4.5 Data Collection Procedure\***

Identify the recruitment of the population to the collection of:

- i. Variables: how measured
- ii. Measurements: how performed?
- iii. instruments\*: questionnaires etc.
- iv. reliability
- v. validity

\*include copies of relevant instruments (surveys, etc) as appendices.

#### **4.6 Data analysis plan**

How was the data analyzed? Procedures for statistical application and statistical software/s used should be outlined in sufficient details

#### **4.7 Ethical Considerations**

Consent form must be attached as an Annexure. Ethical clearance should be attached from the IRB. Informed Consent Procedures: Consent Form.

#### **4.8 Results**

This chapter includes presentation of results as tables, figures etc. based on the statistical applications and not as computer outputs. The results should be described in adequate details indicating the major findings. The results should be in line with the objectives of the study. The results should be on separate pages; one table/figure on one page. Some tables cannot be replicated as figures.

#### **4.9 Discussion**

In this chapter a detailed discussion of the results and comparisons with other study reaching to a conclusion in accordance will be made.

#### **4.10 Conclusions**

The conclusions should be in line with the objectives and the results.

#### 4.11 References

The reference list consists of published articles not older than 5 years unless required for the work. References from books are not the preferred method. The number of references should not be less than 30. Vancouver style is the recommended method of referencing.

The pages should be numbered from (Introduction to references) in **Arabic numerals**.

#### 5. Defense Process:

The defense begins with administrative/introductory remarks by the Chair who will review the process and procedures for the defense, including any ground rules set forth for the specific defense with the internal and external examiners. The student will then make a prepared 10-15 minute (proposal) or 20-25 minute (dissertation) presentation which summarizes the proposal/dissertation.

The Chair will announce in advance whether questions may be asked during the presentation or held to the end. Normally, clarifying questions will be permitted during the presentation with probing/analytic questions following the presentation.

Following the formal presentation and clarifying questions, questioning/critiquing by the Examiners then begins. For the proposal defense, emphasis is on the suitability of the proposed research/project and the design/methods/analytic plan/approach. For the final defense, emphasis is on the results, lessons learned, and implications.

In both cases, questions related to application of core competencies may be asked, even if they are per or in relation to the proposal/dissertation under review. The session concludes when the examiners have finished questioning or the allotted time has elapsed. Fifteen minutes at the end of the session are reserved for the Examiners' deliberations and finalizing of their results. The student may be excused from the room while the Examiners deliberate. The students will be informed of the formal results after approved by the University, Controller of Examinations.

#### 6. Presentation Evaluation:

Effective presentation and oral communication skills are core competencies expected of MPH graduates. Consequently, separate from the content assessment of the proposal/dissertation, the Examiners will evaluate the student's presentation skills. During

the proposal defense, the assessment will be used to advise the student of perceived strengths and weaknesses and recommended actions to ensure a strong presentation during the final defense (diagnostic). For the dissertation defense, the examiners will formally assess the student's presentation/oral communication skills (evaluative). Successful mastery of the communication skills is a requisite for passing the defense.

#### **7. Outcomes:**

There are 3 possible outcomes for a defense (be it proposal, thesis, or project): unconditional pass, and conditional pass, and fail.

- **Unconditional Pass** is associated with consensus scores of 3 or more in all areas. It may, however, include requests for minor revisions which are reviewed and accepted by the advisor on behalf of the Committee.
- **Conditional Pass (Result Later On)** is associated with a score of 2 or less in one or more areas where the shortcomings may range from being technical in nature, easily corrected, and/or for which the student demonstrates understanding during the defense to more substantive issues ranging from general weakness to a critical weakness in a specific area. The student works with the advisor to correct the deficiencies identified by the examiners. The revisions will be accepted by the examiners and notified to the University.
- **Fail** is associated with poor performance and evidence of gaps in knowledge and critical reasoning skills during the defense. The deficiencies are such that the Examiners wish to see a re-defense of the revised dissertation/proposal. (Students are permitted only one re-defense of the Dissertation. Students work with their advisor and committee to correct any deficiencies in the proposal/manuscript and other areas as needed prior to scheduling a re-defense. The date of re-defense will be notified in one month's time to the student.

#### **Proposal Critique and Evaluation Guidelines**

The Proposal manuscript (synopsis) is evaluated to ensure it adequately demonstrates core competencies and the correct application of a specific set of competencies to the research of a public health problem.

### **1. Demonstration of Core Competencies: Evaluation Guidelines**

The primary educational objective of the dissertation is to demonstrate appropriate consideration and application of core concepts, skills, and knowledge in analyzing a public health problem within any of the proscribed frameworks. The core area competencies must be addressed in each project.

These competency areas cut across the domains identified for each specific framework. For example, quantitative competence may be demonstrated in the literature review and/or methodology section and/or results and/or discussion section of a publication framework. All papers are required to demonstrate minimum competence, but are held accountable to a level of competence consistent with the problem and framework as defined by the student. An example of this is when a student refers to an advanced statistical analysis in his/her design. Although the statistical test may exceed the competence expected of a graduate, by virtue of having introduced it, that student is accountable to correctly describe and apply it.

1. **History:** Appropriate and sufficiently thorough consideration of relevant historical information surrounding the problem ranging from trend information to assessments of previous efforts and related research
2. **Quantitative Sciences (assessment/analysis):** Appropriate and sufficiently thorough consideration of epidemiology, demography, vital statistics, and biostatistics (analytical planning, sample size, etc.)
3. **Biological considerations (determinants):** Appropriate and sufficiently thorough consideration of biologic concepts (genetics, physiology, immune response, life cycles, processes such as aging, growth, and development, and physiologic measurements)
4. **Social/cultural/behavioral considerations (determinants):** Appropriate and sufficiently thorough consideration of socio-cultural and behavioral factors which directly or indirectly impact on the problem under consideration
5. **Environmental and/or occupational considerations (determinants/impacts):** Appropriate and sufficiently thorough consideration of the role and interaction of the physical environment – which can include both the physical and natural environment.

- 6. Management and/or policy and/or resource utilization considerations:** Appropriate and sufficiently thorough consideration of management precepts ranging from the domains of administration to leadership to financial planning (budgeting) to policy setting to implementation and planning (logistics).

## **2. Dissertation Competency: Evaluation Guidelines**

The following are some guidelines for evaluating dissertations.

1. Importance of the problem to public health
  - has the magnitude of the problem been characterized?
  - is a case made for its importance?
2. Organization/ Presentation
  - easy to read/understand
  - quality of tables and figures
  - logical progression of ideas
  - conformity with guidelines of target publication/standard format
3. Abstract appropriately structured and an adequate reflection of paper's content
4. Introduction places the current study in the context of current knowledge
  - quality/thoroughness of literature review
  - demonstrates where this project fits in
5. Design appropriate to answer the question
  - consideration given to options
  - rationale given for choosing design
  - strengths and limitations inherent in design discussed (validity)
  - strengths and weaknesses of measurements (reliability)
6. Population appropriate to answer the research question
  - considerations/advantages/disadvantages of choice
7. Analysis appropriate to answer the question
  - methods described; limitations noted
  - plan sufficient to address research question
  - level of data collection/coding sufficient
  - confounding/interaction/bias/design limitations accounted for
  - issues of power sample size addressed

8. Plausibility of results appropriately addressed
9. Public health implications appropriately addressed
10. References complete and adequately reflecting current literature on the topic; peer-reviewed sources provide adequate support for assumptions or background information.
11. Overall scientific merit
  - is the study design appropriate to the stated objectives?
  - is the appropriate level of data used?
  - has an appropriate literature review been included?
  - does the project increase our understanding or to replicate inconclusive/controversial findings?

## **Dissertation Critique and Evaluation Guidelines**

### **1. Executive Summary**

Briefly summarizes problem, magnitude, key determinants, recommended course of action

### **2. Statement of Problem**

- Was the problem clearly identified and defined?
- Is it an appropriate/relevant public health problem?
- Is the group/organization/agency selected to hear the argument appropriate?

### **3. Magnitude of the problem**

- Is the magnitude of the problem clearly identified?
- Are the strengths and limitations of the measures/estimates discussed?
- Does the paper make a compelling case that the problem is significant enough to warrant attention?

### **4. Key Determinants**

Are the appropriate biological, behavioral, and environmental determinants of the problem addressed?

### **5. Prevention/Intervention Strategies**

- Are current efforts summarized?
- Are a sufficient breadth of options/strategies considered?
- Do the options follow from the key determinants discussed?

**6. Policy & Priority Setting**

- Are the relative advantages and disadvantages of each option/strategy considered?
- Are the benefits/risks compared at individual, community, and societal levels?
- Are political, economic, and technical feasibility considered?

**7. Recommendations**

Are the recommendations consistent with the analysis of the problem?

**8. Implementation and Practice**

- Are the likely barriers to implementation addressed?
- Are logistical/technical/resource concerns addressed?

**9. Evaluation**

- Is the impact of the proposed intervention measurable?
- Is 'success' defined?
- Are provisions made for evaluating the impact of the recommended course of action?

**10. Overall Impression**

Is a compelling argument made that would convince you to adopt the recommended strategy? Is the argument presented succinctly and effectively?



**ORAL PRESENTATION CRITIQUE SCORE SHEET**

**Student Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Grade (4=exceptional; 3=fully met; 2=partially met; 1=not met/missing):

<b>Area</b>	<b>Grade</b>
<b>1. Content</b>	
• Was the target audience identified?	<input type="text"/>
• Was the appropriate content presented?	<input type="text"/>
• Was the issue clearly identified and defined?	<input type="text"/>
• Was the presentation appropriate to the target audience?	<input type="text"/>
• Was sufficient supporting detail provided?	<input type="text"/>
• Were the recommendations/assertions supported	<input type="text"/>
<b>2. Organization</b>	
• Was the content organized and presented in a coherent manner?	<input type="text"/>
• Were new or unfamiliar terms explained?	<input type="text"/>
• Did the presentation of ideas flow smoothly?	<input type="text"/>
<b>3. Style</b>	
• Did the speaker(s) hold your interest?	<input type="text"/>
• Was the speaker convincing/effective?	<input type="text"/>
• Was the speakers' voice loud enough? understandable?	<input type="text"/>
• Did the speaker make eye contact with the audience?	<input type="text"/>
<b>4. Audio-visuals</b>	
• Were visuals (graphics, transparencies/slides) used effectively?	<input type="text"/>
• Was the quality of the slides appropriate (readable, not cluttered)?	<input type="text"/>
• Was an appropriate number of visual aids used?	<input type="text"/>
• Were visuals clearly explained?	<input type="text"/>
• Did the visuals add to the presentation?	<input type="text"/>
<b>5. Time Utilization</b>	
• Was time appropriately allocated to parts of the presentation?	<input type="text"/>
• Were the time constraints followed?	<input type="text"/>
• Did it appear that the presentation had been rehearsed?	<input type="text"/>
<b>6. Questioning</b>	
	<input type="text"/>

- Were questions addressed with confidence and knowledge?
- Did the speaker interact with the audience?


**7. Overall Impression**

- Was the target audience identified?
- Was the appropriate content presented?
- Was the issue clearly identified and defined?
- Was the presentation appropriate to the target audience?
- Was sufficient supporting detail provided?
- Were the recommendations/assertions supported?


**Result:**  Unconditional Pass  Conditional Pass

**Comments/specific instructions:**

---

---

---

**Signature of evaluator:** \_\_\_\_\_

## **Annex 6: Practicum for Session IV**

### **26: Practicum (On-the-job Assignment)**

**Course Title:** Practicum (On-the-job Assignment)

**Course Credit:**2

**Introduction:**

Public health focuses on monitoring, achieving and improving the health of a population and is practiced in a variety of settings. The public health professional applies knowledge and skill from the core content areas of public health (biostatistics, epidemiology, environmental health, health services management, and social and behavioural sciences) to design, manage and evaluate solutions to public health problems. Using the practicum (on-the-job assignment) as the “organizational laboratory,” the Master of Public Health (MPH) student begins to develop the necessary skill sets for becoming a successful public health professional. The practicum is intended to develop direct understanding and experience in public health or health promotion organizations, thereby exposing the student to organizational cultures, management systems, operations and resources, programs and services and target populations. Such knowledge, skills, abilities, and experiences will continue to develop and grow as each student graduates and becomes a life-long learner and practitioner of public health.

**Learning Goal:**

The goal of the practicum is to provide a structured and supervised opportunity for the student to apply the theories, principles, knowledge and skills of public health and health promotion, as learned in the classroom, in a practice setting. The practice experience occurs in a carefully-selected health services organization approved by the MPH Program Coordinator and is supervised by faculty and an immediate supervisor/mentor. This takes into account the transition from education to professional practice.

**Learning Objectives:**

The objectives of the practicum (on-the-job assignment) are to:

- Provide a practice setting for the student’s application and integration of the core public health knowledge.

- Prepare the student with inter-disciplinary skills and competencies, including leadership, communication, professionalism, cultural proficiency, program planning and assessment and systems thinking.

Upon successful completion of this course, each student will be able to:

***Leadership***

- Create and communicate mutually-established project goals and objectives.

***Communication***

- Demonstrate the ability to give, solicit, and receive oral and written information.
- Prepare relevant, integrated, and comprehensive written project report(s).
- Use various communication methods and media to complete project activities.

***Professionalism and Cultural Proficiency***

- Demonstrate the ability to manage time and prioritize workload.
- Display professionalism, sensitivity, and tact in an organizational/community setting.
- Interact productively with supervisors, colleagues, and community stakeholders.

***Program Planning and Assessment***

- Plan, manage, and monitor a project plan in order to meet established goals and deadlines.
- Prepare a written proposal for project approval from internal and external sources.
- Identify, collect, and analyze data for a practical public health issue or concern.

***Systems Thinking***

- Assess the roles and responsibilities within a public health organization.
- Describe the interactions and inter-dependencies among various public health organizations.
- Demonstrate and integrate knowledge of core public health concepts into a practice setting.
- Evaluate methods of instruction and learning.

**Prerequisites and Requirements:**

- Students must have completed all the course work and defended the dissertation before registering for the practicum.
- In consultation with the practice site or organization, the student must develop a short, formal proposal of the work or project to be accomplished by the student during the assignment.
- The student will complete 160 hours of public health practicum experience with the selected organization.
- The student will write a well-constructed report (10 – 15 pages, excluding appendices) detailing their experience, referencing and integrating core public health knowledge.
- The student will be evaluated by an immediate supervisor/mentor of the participating organization.

**Role of Immediate Supervisor/Mentor**

- The immediate Supervisor/Mentor is responsible for the student's learning during the practicum.
- The immediate Supervisor/Mentor serves as a role model for the student and advises the student routinely.
- The immediate Supervisor/Mentor periodically consults with responsible faculty on the student's progress.
- The immediate Supervisor/Mentor completes a student evaluation form at the end of the practicum.

**Role of MPH Program Coordinator**

The MPH Program Coordinator serves as the liaison between the student, the immediate supervisor/Mentor, and the University. He/she assists in the selection of participating organizations and maintains communication with the student and immediate Supervisor/Mentor throughout the practicum. The MPH Program Coordinator determines the completeness of assignments and assigns the course grade.

Course Evaluation

The course is graded on a Pass/Fail basis; the final grade will be determined by the MPH Program Coordinator and will be based on each student's performance on the following criteria:

Evaluation Criteria	Relative Weight
Immediate supervisor/Mentor/ Mentor Evaluation	40%
Student Executive Summary and Internship Report	60%

To demonstrate application of public health knowledge and skills, summarize accomplishment of established goals, and assure accountability during the field experience, each student intern is required to prepare and submit a report based on the following format.

**PRACTICUM (ON-THE-JOB ASSIGNMENT) REPORT**

**TITLE PAGE**

**EXECUTIVE SUMMARY**

**Concise**ly describes the practicum and the salient results and conclusions.

**TABLE OF CONTENTS**

**1.0 INTRODUCTION**

- 1.1 Problem or Issue (Statement of the public health problem(s) or issue(s))
- 1.2 Objectives (Learning/outcome Objectives)
- 1.3 Literature review/background (Review of the relevant literature (if any), organizational context)

**2.0 METHODS**

- 2.1 Setting (Description of the site at which you did the practicum)
- 2.2 Oversight (The role(s) of your immediate Supervisor/Mentor(s))
- 2.3 Methods (methods used to achieve each project objective in 1.2)

2.4 Timeline (outline of key project activities/dates)

### **3.0 RESULTS**

### **4.0 DISCUSSION AND CONCLUSIONS**

*(Feel free to add any other relevant items or issues in any section of your report.)*

**IMMEDIATE SUPERVISOR/MENTOR EVALUATION OF STUDENT  
 MASTER IN PUBLIC HEALTH PROGRAMME  
 PRACTICUM (ON-THE-JOB ASSIGNMENT) EVALUATION BY IMMEDIATE  
 SUPERVISOR/MENTOR**

Thank you for your sponsorship of this student. Please complete this evaluation form. The information will be useful in preparing this student for future work and help us enhance the MPH Program.

**STUDENT'S NAME:** \_\_\_\_\_

**IMMEDIATE SUPERVISOR'S/ MENTOR'S NAME:** \_\_\_\_\_

**TITLE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**ORGANIZATION:** \_\_\_\_\_

Using the rating scale below, please circle the student's level of performance during the practicum on the criteria listed below:

- 1 = Exceeded expected performance level
- 2 = Met expected performance level
- 3 = Failed to meet the expected performance level
- NA = Not applicable

<b>CRITERIA</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>NA</b>
Student met agreed-upon time commitment.	1	2	3	NA
Student was dependable and responsible in carrying out assignments and duties.	1	2	3	NA
Student functioned well within the organization.	1	2	3	NA
Student functioned well with community stakeholders and/or clients.	1	2	3	NA



Student was able to identify sources of data and information required for the practicum.

1	2	3	NA
---	---	---	----

Student was able to analyze and/or synthesize data and information.

1	2	3	NA
---	---	---	----

Student completed the necessary background research.

1	2	3	NA
---	---	---	----

Student completed assignments/projects in the agreed-upon time frame.

1	2	3	NA
---	---	---	----

**CRITERIA**

**RATING**

Student's written work was completed and well prepared.

1	2	3	NA
---	---	---	----

Student had the necessary knowledge and skills for this practicum.

1	2	3	NA
---	---	---	----

Student conducted him/herself in a professional manner.

1	2	3	NA
---	---	---	----

Student worked well with others.

1	2	3	NA
---	---	---	----

**COMMENTS**

Please provide comments on the following items.

1. Any of the previous criteria on which the student was rated as 3 (Failed to meet expected performance level):

2. Your overall impression of the student's work on this practicum.
-

3. Any areas where the student's academic preparation for assigned work could be improved.

4. How useful the practicum was for your organization.

5. Would you be willing to sponsor another student of the 's MPH Program?

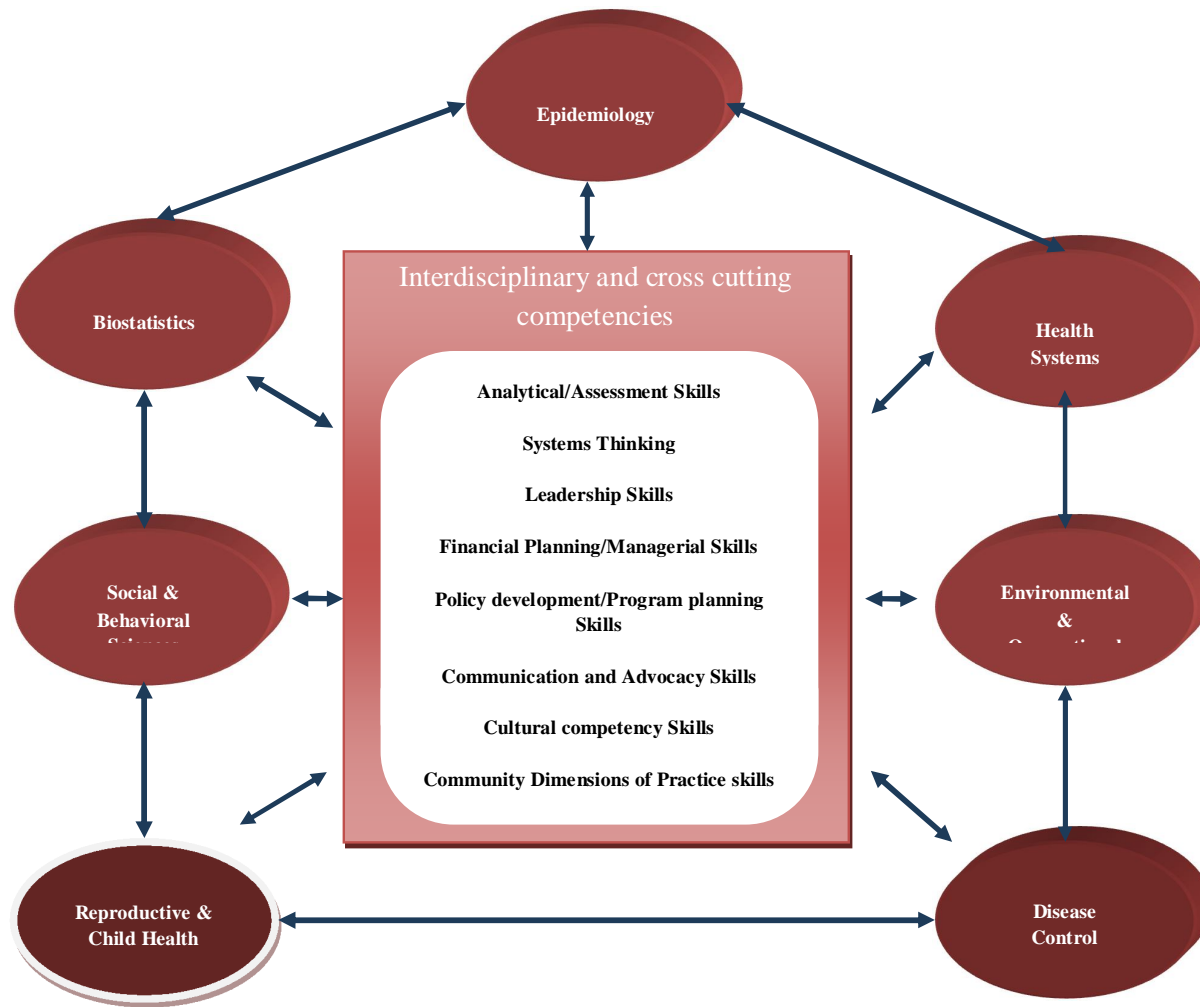
**IMMEDIATE SUPERVISOR'S/MENTOR'S SIGNATURE:**

---

**DATE:**

---

## Annex 7: Core Competency Model



## **Annex 8: Admission Criteria and Procedures**

### **Introduction**

The institutions must abide strict merit-based criteria with absolute transparency to select its students for the MPH programme. Every year, the number of Pakistani and foreign students may be increased to more than 30 depending on the requirement.

### **Eligibility Criteria**

- **Basic Qualifications**

The candidate should possess one of the following qualifications or an equivalent degree from a recognized university or accrediting body.

  - (a) MBBS (Bachelor of Medicine & Bachelor of Surgery)
  - (b) BDS (Bachelor of Dental Surgery)
  - (c) M Pharmacy (Master's in Pharmacy)
  - (d) BSc Nursing (Bachelor of Sciences in Nursing)
  - (e) DVM (Doctor of Veterinary Medicine)
  - (f) Master's Degree in a relevant subject such as Anthropology, Business Administration, Economics, Human Nutrition, Microbiology, Physiology, Psychology, Public Health Engineering, Sociology, Statistics/Biostatistics and Zoology.
  
- **Experience**

The candidate should minimally have three years of full-time work experience (in the case of medical doctors, after the house job) in public health-related fields in either the private sector or the public sector, including the armed forces, such as:

  - (a) Primary health care settings (public, private or semi-private);
  - (b) Recognized training and research institutions, such as departments of community medicine/school of nursing/public;
  - (c) Public health related vertical programmes/planning/management and policy positions at the federal and provincial level.

- **Age Limit**  
Candidates should preferably be not over 45 years of age at the time of the beginning of the course although there will be no age limit. In case of a tie in the process of fulfillment of selection criteria, preference shall be given to those of younger age.
- **Quotas**  
All Pakistani students shall be selected on the basis of merit, out of which:
  - a minimum of 35% of seats are reserved for women;
  - a minimum of 10% of the seats are reserved for non-physicians;
  - a minimum of 20% of the seats are reserved for candidates from other provinces, disabilities and foreigners.

In addition to Pakistani students, a limited number of seats is available for foreign students. Applicants with disabilities will be given due consideration within the prescribed merit-based system.

- **English Language Requirements**  
Applicants should have an appropriate level of English language proficiency. Foreign applicants from non-English speaking countries who submit results for English proficiency tests such as TOEFL or IELTS will be given preference. A minimum TOEFL score of 450 on the paper-based test or 200 on the computer-based test is recommended; a minimum IELTS score of 6 is recommended.
- **Computer Skills Requirements**  
Additionally, given that most assignments will be computer-based, all applicants are required to have basic computer skills, including word processing, spreadsheet processing and using basic Internet services such as the world wide web and e-mail. Following admission to the MPH programme but before the start of the course on computer applications in public health, applicants without the required computer skills will not be allowed to attend this course without either taking an on-credit course in

basic computer skills offered at the institution, or a similar course offered at a reputed training institute.

### **Application Procedures**

Applications *must* be made on the prescribed original application form available in the prospectus of the institution. The prospectus may be obtained after payment in the following ways:

- directly from the office;
- by sending a written request and postal order in favour of the institution for delivery by mail. The envelope, containing the request and postal order should be sealed and marked 'MPH Prospectus'.
- A non-refundable entrance examination fee will have to be paid as well.

Completed applications should enclose the following:

- |  |   |
|--|---|
| • Domicile certificate   | • Attested photocopy of                             |
| • Final degree/s, certificate /s, along with transcripts   | National identity card                              |
| • Attested photocopies of any language proficiency tests taken such as TOEFL (foreign students only) | • 4 passport-sized photographs                      |
|  | • Professional resume (one page)                    |
|  | • Attested photocopies of experience certificate(s) |
|  | • Two-stamped envelopes                             |

Completed applications must reach the Office of the institution on the address given by the closing date. Incomplete applications and applications received after the closing date will not be entertained.

The final decision regarding appropriateness of a candidate's public health experience rests with the MPH Admissions Committee, .

## Admissions Procedures

### MPH Admissions Committee

Each training institution would have its own MPH Admissions Committee, constituted by the Principal. The MPH Admissions Committee has the responsibility for the selection of applicants to be admitted to the MPH Programme. It establishes procedures for the timely review of applications to the Programme. Deferrals of admission are at the discretion of the MPH Admissions Committee.

### Final Selection

The applicant's acceptance is contingent upon the receipt of all required documents including official transcripts. The MPH Admissions Committee is responsible for identifying those students with missing documents and/or credentials which do not meet eligibility standards.

Candidates fulfilling the eligibility criteria will take a written screening exam. Based on the performance in the screening test, the candidates will be short-listed for an interview.

The final selection shall be done on the basis of the following distribution of marks:

Criteria	Maximum Weightage%
Previous academic record score*	10
Previous public health experience score, scored as follows out of the total	10
Screening examination score	50
Interview score	30
<b>Total score</b>	<b>100</b>

\* The marks obtained in the final examination of the qualifying degree as mentioned in the eligibility criteria.

The final decision regarding the selection of the candidates rests with the MPH Admissions Committee.



