The curriculum of the MPH program in School of Public Health Tehran University of Medical Sciences

Core courses (15 credits)

- Principles of Epidemiology and Preparation of Research Grant Applications (3)
- Biostatistics and Applied Data Analysis (3)
- Public Health Nutrition (2)
- Health Systems (2)
- Environmental Health (2)
- Health Economics (2)
- International Health (1)

Major courses (11 credits)

- NCDs Epidemiology (2)
- Health Promotion and Life Style (2)
- Social Determinants of Health (2)
- Management and planning for NCDs (2)
- Policy Analysis for NCDs (2)
- Surveillance of NCDs (1)

Complementary courses (6 credits)

- Internship (2)
- Thesis dissertation (4)

Course Descriptions

- **C1. Principles of Epidemiology Preparation of Research Grant Applications**

3 credits

Aim

To provide basic concepts of epidemiologic methods and their application in public health practice. In addition, students should provide a proposal for a problem related to NCDs in this course.

Description

This course introduces principles and methods of epidemiologic investigations. In addition, application of epidemiologic methods to screening of diseases and health services are briefly described. The major topics are epidemiological measures, study design, investigation of outbreaks, natural history of diseases, study designs, and validity and reliability.

Course content

- Definition and history of epidemiology
- Epidemiologic approach to public approach Diseases occurrence measurements Epidemiologic methods, including:

o Descriptive o Cross sectional o Case control o Cohort o Interventional

- Interpretation of epidemiologic findings
- Screening tests, performance assessment
- Steps for developing a research proposal from selection of topic to budget estimates

References

Gordis, L. (2005), Epidemiology (3rd edition) Saunders

Methods of assessment

Final exam; assignments; in-class activities

Development of proposal in group and individually

- C2. Biostatistics and Applied Data Analysis

3 credits

Aim
To learn the application of basic statistical techniques in public health practice and give practical skills for data analysis with simple statistical computer packages.

Description
This introductory course intends to provide the students with a broad overview of Biostatistics and statistical concepts used in the medical and public health sciences. The emphasis is on the application of the statistical methods rather than on mathematical details. Basic concepts of statistical inference including hypothesis testing and confidence intervals are introduced.

Course content
- Definition of statistical testing, confidence interval, types one and two of errors and statistical power.
- Point and interval estimates of quantitative and qualitative variables.
- Sample size calculation for common study designs.
- Statistical tests for comparison of two means (dependent and independent).
- Statistical tests for comparison of two proportions (dependent and independent).
- Concepts for analysis of the variance and linear regression.
- Introducing to rate, proportion, relative risk and odds ratio.
- Odds ratio estimation and testing.
- Estimation of common odds ratio and its confidence interval.

References
Jewell, P.N. (2004), Statistics for Epidemiology, CRC press, Philadelphia

Methods of assessment
Final exam; assignments; in-class activities

- **C3. Public Health Nutrition**

2 credits

Aim

At the end of the course, the student is expected to demonstrate his skills in designing, management and evaluation of food and nutrition programs. Especially the student should be able to:

a. To discuss on national and international initiatives and considerations that could impact on food and nutrition programs

b. To discuss on different approaches to food and nutrition programs aimed at improving the nutritional status

c. To explain the basics and stages of design and management cycle

d. To develop a food and nutrition program

Course content

- Principles, application of methods / approaches and theories of planning, management and evaluation in food and nutrition programs at macro and micro levels
- International and national initiatives related to food and nutrition
- National action plan for nutrition
- Role of nutrition in national development
- Definition of concepts
- Principles and approaches to planning and management of food and nutrition programs
- Planning and management of food and nutrition programs o Situation analysis o Goal setting
    - Selection of nutritional interventions and strategies
    - Implementation o Follow up and evaluation
- Planning and management issues of food and nutrition programs
- Food and nutrition assessment in a community
- Developing of the community's nutrition action plan

Methods of Assessment

Exams (50%), training (30%), case study: nutritional situation and practical programs in selected communities (20%)

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□ The main sources

References

Allen, L.H. and S.R. Gillspie. 2001. What Works? A review of Efficacy and Effectiveness of Nutrition Interventions. SCN Policy No. 20, ACC/SCN Geneva and ADB Nutrition and Development Series NO. 5. Manila: Asian Development Bank.

Gillespie, S. and Haddad, L.J. 2003. The Double Burden of Malnutrition in Asia: Causes, Consequences and Solutions. New Delhi: Sage Publications.

Gillespie, S. and Mason, J. 1991. Nutrition Relevant Actions. Some Experiences from the Eighties and Lessons for the Nineties. ACC/SCN State-of-the-Art Series Nutrition Policy Discussion Paper No. 10.

Ismail, S., Immink, M. and G. Nantel. 2002. Improving Nutrition Programmes. An Assessment Tool for action. Rome: FAO-UN.

Jennings, J., Gillespie, S. R., Mason, J.B., Lofti, M and Scialfa, T. 1991. Managing Successful Nutrition Programs. ACC/SCN State-of-the-Art Nutrition Policy Discussion Paper No. 8. Geneva: ACC/SCN.

- **C4. Health Systems**

2 credits

Aim

This course will cover the basic functions of health systems and examine the main challenges to health systems in different countries.

Description

The course covers discuss needs, demand and use of health care; lay and formal care; different levels of health services; health professionals; financing health systems; processes of health services; professional-patient relationship; organizing health systems; primary care systems; health systems at national levels; assessing quality and quality improvement.

Course content

- Introduction to health care systems
- Disease, illness and knowledge
- Need, demand and use of health care
- Health care professionals
- Patients and carers
- Financing health systems
- Provider incentives in health care
- Health sector reform
- Primary care systems
- Decentralization, autonomy and accountability
- Public and private sectors in health systems
- Health systems at national levels
- Improving quality of health services

References

World Health Organization (2000). The world health report 2000. Health systems: improving performance. World Health Organization.

Black N and Gruen R (2005). Understanding health services. Open University, Maidenhead.

Methods of assessment

Final exam; a critique of a health system of choice (assignment); in-class activities

- **C5. Environmental Health**

Credits 2

Aim

1- Introduction to a broad range of environmental science and public health factors that affect the health of a community.

2-Understand the impact of exposures from air, water and land by biological, chemical and physical agents on environmental and public health.

3-Acquaint students with the scope and magnitude of the interaction between human health and the environment.

4- Emphasize interrelationships between various environmental elements, and how those interrelationships must be recognized in designing environmental controls. 5- Familiarize the student with the concepts utilized in environmental intervention Strategies to protect human health.

Description

The course offers a broad background introduction to the analysis of the health consequences of exposure to air, contaminated water, wastewater, municipal and industrial solid wastes, and other special environments contaminated by biological, chemical, and physical agents.

Course Content

Introduction, Overview & Structure of Environmental Health

Water Pollution: Water quality and quantity, Water and health, Water born diseases, Sources, pollutants

- Field Trip: Water Intake

Water quality guidelines and standards

Introduction to water treatment processes

- Field Trip: Water Treatment Plant

Wastewater Treatment: Definitions, pollutants, general aspects of treatment

Introduction to biological wastewater treatment

- Field Trip: Wastewater Treatment Plant

Air pollution: general definitions, pollutants, health effects

Air pollution control strategies and technologies

- Field Trip: Air pollution monitoring system

Global aspects of air pollution (Ozone layer depletion, acid rain, global warming)

Solid Waste: general definitions, heath implications, sources and classifications

Solid Waste collection and disposal systems

- Field Trip: Composting factory, Landfill site

References

Koren H. (1991), "Handbook of Environmental Health and Safety", Lewis Publisher. Salvato J. A. (1992), "Environmental Engineering and Sanitation", John Wiley & Sons,Inc.

WHO, WMO, UNEP, (2000) "Global UV Index", WHO

USEPA, (1995),"Air Quality Index", EPA
Web Based Documents Published by EPA
Web Based Documents Published by WHO

Methods of assessment

10% Reports of field trips; 10% Individual Paper (6-8 pages) based on a group project; 20% assignments using web-based resources and case-studies; 40% comprehensive final exam.

C6. Health Economics

This course introduces basic concepts of health economics and their contribution to our understanding of health systems at different levels.

Description
It covers topics such as determinants of demand, supply and costs of production; concepts of elasticity, basic market model, market failure, arranged and internal markets in health care; models of financing health systems through insurance, social insurance, taxing, out-of-pocket etc.; theories of equity in health; role of incentives in health systems, and its relationship with efficiency and equity.

Course content
- Introduction to health economics
- Supply and demand for health
- Agency relationship, provider induced demand, moral hazard
- Efficiency in health care
- Markets and quasi-markets in health
- Market failure
- Equity
- Remuneration methods and incentives
- Financing health systems
- Insurance, DRGs and HRGs
- National health accounts
- Resource allocation
- Priority setting
- Challenges to health economics

References:
Folland,S; Goodman,AC; Stano,M. (2004). The economics of health and health care. Pearson Prentice Hall: New Jersey.

McPake,B; Kumaranayake,L; Normand,C (2002). Health economics: an international perspective. Routledge: London.

Fuchs VR (2000). The future of health economics. Journal of Health Economics, 19, 141-157.

Methods of assessment
Final exam; assignments; in-class activities

C7

International Health 1 Credit

Aim

- Familiarity with the principles, rules and regulations at the international level
- Investigation of criteria for classification of health systems in the world (the degree of economic development - the geographical criteria – geopolitics and regional divisions of WHO)
- International organizations and health
- International Health Regulations
- Methods of providing health care in the world, with an emphasis on the political – economic systems of the countries
- Proposed models for dealing with basic health needs of developing countries
- Adapting to different care models with varying degrees of development
- WHO policies and recommendations
- Experiences in Iranian health system
- Health system performance assessment at the international level
- Millennium Development Goals (MDGs) and Post MDGs

References

1- World Health Organization (2000). The world health report 2000. Health systems: improving performance. World Health Organization.

2- Lassey L. Marrie and Lassey R. William and Jinks, J. martin. Health Care systems around the world. Characteristics, Issues, Reforms. Newjersy 1997.

3- 3-Djukanovic V. Mach E. P

4- Alternative Approaches to Meeting Basic Health Needs in Developing Countries. Ajoint UNICEF / WHO study WHO 1976

Methods of assessment

Written examination at the end of the semester

Situation Analysis of a non-communicable disease at the international level, regulations and programs underway and related challenges and opportunities

M1. Non-communicable Disease Epidemiology and Control

Familiarity of students with the epidemiology of non-communicable diseases

Description
This course covers the major NCDs (e.g. Heart disease, Cancer, Diabetes, etc.); and their impact, methods of prevention, and special problems that are associated with them.

Course content
- Introduction to principles of NCDs epidemiology
- The impact of NCDs on global burden of diseases
- The role of screening programs on prevention of NCDs Evaluation of NCDs
- Epidemiology and control of:

Accidents and injuries
Cardio vascular diseases
Cancer
Diabetes
Mental health
Iodine deficiency disorders
Addiction

- Occupational epidemiology
- Environmental epidemiology
- Nutrients as risk factor for NCDs
- World Health Organization's approach to NCDs control

Methods of assessment
Final exam; assignments; in-class activities

M2. Health Promotion and Life Style

To understand the basic theories of health, health behavior and health promotion and how they can be utilized for improving public health

Description

This course covers health promotion theories; definitions of health; individual, social and structural determinants of health. Lectures will cover topics such motivational interviewing, peer education, mass media campaigns, social marketing, media advocacy, community development, and settings-based health promotion. It will discuss different models of facilitating individual behavior change including health psychology theories.

Course content

- Introduction to health promotion
- Health promotion theories
- Theories of behavior change
- Theory of Planned Behavior
- Health Belief Model
- Stages of Change Model
- Designing health promotion interventions
- Role of health promotion targets
- Sexual health
- Smoking and other addictive behaviors
- Healthy lifestyles
- Physical activity
- Ethics of health promotion
- Putting health promotion evidence into practice

References

Naidoo J and Wills J (2005). Public health and health promotion, developing practice. Bailliere Tindall, Edinburgh.

Glanz K, Rimer BK and Lewis FM (2002). Health behavior and health education, theory, research and practice. Jossey-Bass, San Francisco

Michie S and Newman S (2000). Preface to models and methods in health psychology. Psychology and Health, 15, i-iii.

Methods of assessment

Final exam; planning a health promotion intervention (group activity); in-class activities

M3. Social Determinants of Health

The learner is expected to obtain following competencies at the end of the course:

- To explain the concepts and importance of equity in health
- To describe philosophy, history and origin, basic concepts and definitions underlying social determinants of health and state its relevance to equity in health
- To be familiar with the Commission on Social Determinants of Health in World Health Organization and describe its goals
- To explain and criticize experiences and activities of other countries and WHO partner countries in SDH
- To describe national and international (for example, city plan, healthy village and goals of the millennium) macro programs and explain their relevance to equity in health and approach of social determinants of health
- To identify inequalities in the health of individuals and communities and specify their social factors through various methods including data analysis and measurement of indices
- To enumerate major social determinants of health
- To state principles of action for reducing inequity in health
- To investigate and criticize national policies, programs, interventions and experiences from the perspective of equity in health

M4. NCDs Planning and Management

Designing and management of programs aiming at promoting community health, especially for improving various health indices (indices of death, disease and access and utilization) are the main activities of the health systems. This course introduces the basics for designing a successful health program in control of NCDs

Course content

- Planning principles
- Analysis of current situation
- Classification of problems and issues
- Classification of resources, capabilities and capacities
- Identifying evidence-based interventions and effective tools for solving problems
- Developing and defining goals and objectives
- Analyzing the successes and failures of current interventions
- Developing the operational objectives and indicators of success
- Program budgeting
- Designing implementation plan
- Classification of operational, organizational structure
- Determination of specific interventions
- Empowerment of human resources
- Resource management
- Supervision and monitoring and data systems
- Program Evaluation

Methods of assessment

Final exam (50%), class presentation, group work in planning for solving a health problem (50%)

References

Iles V and Sutherland K (2001). Managing change in the NHS. Organizational change: a review for health care managers, professionals and researchers. London: National Co-coordinating Centre for Service Delivery and Organization.

Shaw RP (1999). New trends in public sector management in health: applications in developed and developing countries. Washington: World Bank Institute.

Griffin RW (2005). Management. 7th ed. Texas A&M University.

Ferlie E (1997). Large scale organizational and managerial change in health care: a review of the literature. Journal of Health Services Research and Policy, 2, 180-188.

Methods of assessment

Final exam; critical appraisal of literature; in-class activities

M5 Policy Analysis for NCDs

Aim

Health policy making has a considerable impact on the costs and successes and failures of health systems, and thus Scientific and systematic analysis of the policies is critical. Health policy analysis is a broad term for a group of methods which are used in this regard. The ultimate goal of the course is introducing major methods of policy making analysis, identification of weaknesses and strengths of different methods, decision making based on these methods and preparing students for analyzing health policy makings. Given the complexity of the issue in terms of content and concept, it is attempting to provide all contents with factual examples from the real world and evidence in the world and Iran (if possible)

Course content

- Health policy and health politics, characteristics of policy making in NCDs
- Content and methods of policy making and the range of methods to analyze policy making
- The role of theory in policy analysis: theories of health policy and theories of policy implementation
- Linear models of policy analysis (stakeholder analysis, situation analysis, policy mapping and policy matrix)
- Qualitative methods and consulting methods of policy analysis
- Quantitative methods of policy analysis (Statistical Process Modelling)
- Models of decision making (policy making among multiple choices)
- Political analysis of health policy and analysis based on paradigms
- Common errors in policy analysis: methodology, content and concept errors
- How to learn from results of policies in other countries
- Analysis of national policies
- Macro changes in policies and structures of health system for improvement of health systems

Methods of assessment

Scientific review of selected articles (40%), providing a protocol for implementing health policy analysis in the context of NCDs (30%), classroom activities (30%)

References

Buse K, Mays N, Walt G (2005). Making health policy. London: Open University.
Fulop N, Allen P, Clarke A, and Black NA (2001). Studying the organization and delivery of health services: research methods. London: Routledge. Hill M, Hupe P (2002). Implementing public policy. London: Sage.
Collins T (2005). Health policy analysis: a simple tool for policy makers. Public Health, 119, 192-196.
Cheek J and Gibson T (1997). Policy matters: critical policy analysis and nursing.
Journal of Advanced Nursing, 25, 668-672.
Oliver A, Mossialos E, and Maynard A (2005). The contestable nature of health policy analysis. Health Economics, 14, S3-6.

Surveillance of NCDs

Credit 1

Aim

The aim of this course is to familiarize with principles, design methods and evaluation of NCDs and its risk factors. To this end, concepts discussed in Summary Measure of population health such as estimation of burden of diseases, risk factors and injuries are discussed. Then students will learn design principles of care systems including diseases, disabilities and risk factors. Care systems for different disease including cancer registries are explained. Students will be familiar with the problems, research methods, risk factor and analysis and presenting care system data including STEPS. The major part of the course is evaluation methods of NCDs care system.

Methods of assessment

One of the care systems at town level related to NCDs is investigated and students should criticize it and provide strategies for its improvement.

- **Internship**

Credits 2 (136 hours)

AIM

At the end of the course, the student is expected to be able to promote his knowledge, have more real perspective toward real world state, and improve his competency in the application of the available knowledge regarding NCDs. Especially student should be able to investigate and identify important issues in public health in NCDs, have a proper analysis of the current status of respective organizations' program in this regard and considering intervention approaches in global literature, he should propose appropriate recommendations for stakeholders. He should be able to work as a team member and identify ways of strengthening cooperation among team members, community and governmental and non-governmental organizations.

Course content

This course is comprised of two parts: 1. Visit to NCDs- related service delivery centers in Iran from health house, urban and rural health center to Headquarters of Department of Health, 2. Learners as a group consider a population and identify their problems, prioritize, design study of data collection and design related intervention.

Methods of assessment
Practical work report (60%)
Presentation in presence of representatives from stakeholder organizations (40%)

At the end of the course, training team should provide a 30-page report including a one-page summary of the major findings, a three-page administrative summary and a twenty five-page report for stakeholders.
Presentation session in the presence of representatives from stakeholder organizations is considered for promoting transfer skills of the students (knowledge transfer) and the content appropriate for the target group should be provided, and their ideas should be taken.
The content of the report may be as below:

1. Description of the issue tasks in terms of the impact on integrated health
2. Analysis of stakeholders
3. Analysis of current situation
4. Practical and specific recommendations for problem solving
5. Recommendations for other students who are going to be trained in the center in the future
6. Report appendixes including documents and additional information, working scheduled

Thesis dissertation
Credits 4

By definition "the public health refers to all organized measures (whether public or private) to prevent disease, promote health, and prolong life among the population as a whole. Its activities aim to provide the conditions in which people can be healthy and focus on entire populations, not on individual patients or diseases. Thus, public health is concerned with the total system and not only the eradication of a particular disease. The three main public health functions are:

- The assessment and monitoring of the health of communities and populations at risk to identify health problems and priorities.
- The formulation of public policies designed to solve identified local and national health problems and priorities.
- To assure that all populations have access to appropriate and cost-effective care, including health promotion and disease prevention services."

At the end of the course, the student is expected to present a thesis according to its definition in NCD area. The thesis topic may be in Iran or any other country, and there is no necessity of presence in Iran during the thesis writing period. Thus, the student is bound to send his proposal to thesis council since termination of 14 courses until one month after termination of training period, which should be approved by supervisor. In case of failure to present final report within maximum 9 months after approval of the thesis (if there is no acceptable reason for the council), the student would receive certificates for passing courses instead of MPH certificate. It is not expected the student is present in the faculty for defending the thesis in case it is not done in Iran, and the Jury will assess the thesis in a meeting within one month.