



Kingdom of Saudi Arabia

المملكة العربية السعودية

Ministry of Higher Education

وزارة التعليم العالي

Majmaah University

جامعة المجمعة

College of Medicine

كلية الطب

Principles of Health & Disease Module

Path -110

STUDY GUIDE

Phase -2, Second Year, First Semester

Academic Year: 1432~1433 H (2011~2012 G)

A Message from the Dean

It is my pleasure to welcome you once again, now being for the second module of the first semester. As you have seen that the first module has been quite interesting and it has led to a good foundation for your further Medical education. The second module basically deals with Principles of Health and Disease.

Faculty members are continually striving to update and improve the curriculum and teaching methodologies, along with assessment tools. Like in the previous module the curriculum involves classroom didactics; problem based small group learning sessions, interactive classroom technology, small group tutorials, and structured self-study modules. Our purpose is to make learning not only timely, effective and efficient, but also enjoyable.

Your interest, involvement and feedback would reflect on our processes and successes in medical education, and will help us in our continuing effort for improving the system.

I hope that this module too would be interesting and would lay a solid foundation for further medical education and future goals in medicine.

Dr. Mohammed O. Al-Rukban

Dean of the College of Medicine

Majmaah University

Dear student.....

We are delighted to welcome you in your second exciting and important module "Principles of Health & Diseases" that will inform and update you about the concepts of health & disease and how the human body and its systems are affected.

We have a big list of interesting and involving teaching and learning materials & methods to complement the highly relevant line up of content topics that will be introduced to you during this module.

Best wishes from

***Your module committee
members***

Table of Contents

<i>Contents</i>	<i>Page Number</i>
<i>A Message from the Dean</i>	2
<i>A Message from the Members of the Module Committee</i>	3
<i>Table of Contents</i>	4
<i>General Module Information</i>	5
<i>Module Description</i>	6
<i>General Module Objectives</i>	6
<i>List of Teaching & Learning Contents</i>	7
<i>Detailed Objectives of the Learning Contents</i>	10
<i>Problem-based Learning (PBL)</i>	22
<i>Field Visits</i>	23
<i>Seminars</i>	24
<i>Case- Discussion</i>	26
<i>Practical Sessions Objectives</i>	30
<i>Weekly Time Table</i>	31
<i>Distribution of tasks for Faculty</i>	40
<i>Teaching & Learning Methods in Details</i>	41
<i>Assessment</i>	45
<i>Evaluation & Quality Assurance Process</i>	46
<i>Resource Material</i>	47
<i>Tutors Emails</i>	48

General Module Information

Module Title	: Principles of Health & Disease
Module Code & Number	: PATH 110
Credit Hour	: 6 hours
Module Duration	: 8 Weeks
Module Starting Dates	:4th Dhul-Hijjah, 1432 H (30th October, 2011G)
Module Coordinator	: Dr. Mohammed Alimullah Fawaz

Module Committee Members

- **Prof. Mazin Al-Qato**
- **Dr. Fahim Haider Jafari**
- **Dr. Sherif Aly Saleh**
- **Dr. Mohammed Ashraf**

Module Tutors

- **Prof. Mazen Al-Qato**
- **Dr. Fahim Haider Jafari**
- **Dr. Qazi Imtiaz Rasool**
- **Dr. Mohammed Alimullah Fawaz**
- **Dr. Sherif Aly Saleh**
- **Dr. Mohammed Ashraf**
- **Dr. Mohammed Rehan Asad**
- **Dr. Mohammed Elenazy**
- **Dr. Raed Alzahrani**

Module Description

The course focuses on the principle of health and diseases. It starts with an orientation to the concepts of health and disease with an emphasis that these two entities are a continuum rather than distinct entities. It also illustrates role of prevention and concept of bio-psychosocial model of illness and disease.

The course is divided into four main themes:

1. Concepts of health and diseases
2. Mechanism of disease
3. Human and microorganism
4. Body's Immune Response.

General Module Objectives

By the end of this course, students are expected to:

- Recognize the current concepts of health and disease.
- Recognize the basic mechanisms of disease.
- Identify how the structural alterations of disease correlate with the clinical manifestations of disease and with the psychosocial effects of disease.
- Recognize the natural body defense mechanism.
- Identify how to gather clinical and laboratory data to make clinical decisions regarding diagnosis and treatment.
- Evaluate clinical decision making in the framework of the multi-disciplinary team and to know the roles of other members of the healthcare team.
- Explain the concepts behind the optimum use of laboratory testing in health and disease.
- Analyze the preventive system, how disease may be prevented and how programs of prevention can be implemented in a way that can have maximal benefit.
- Describe the Saudi Health system

List of Teaching & Learning Contents

Theme 1: Concepts of Health & Diseases (week 1 & 2)

1. Concepts of health and disease
2. Social determinants of health
3. Common health problems in Saudi Arabia
4. Health system in Saudi Arabia
5. National & International Health Organizations
6. Health beliefs of individuals
7. Utilization and barriers to health care
8. Bio-psychosocial approach to health and disease
9. Overview of epidemiology
10. Introduction to health education and health promotion

Theme 2: Mechanisms of Diseases (Weeks 3 & 4)

1. Overview of mechanism of diseases
2. Genetic basis of disease (and inborn errors of metabolism)
3. Cell injury and cell response
4. Cell adaptation
5. Cell-growth
6. Environmental factors that cause cell injury (heat, dehydration, chemical injury)
7. Pathology of Tumors
8. Effects of cancer on host
9. Cancer: definition, classification, and overview
10. Oncogenes
11. Mechanism of cancer: Genetic
12. Mechanism of cancer: Environmental
13. Mechanisms of cancer: Microorganisms
14. Medical Errors and patient safety

Theme 3: Human and Microorganism (Weeks 5 & 6)

1. Introduction to microorganisms
2. Classification and structures of bacteria
3. Growth and replication of bacteria
4. Normal microbial Flora of human body.
5. How microorganisms cause diseases (virulence)
6. Survival and spread of bacteria
7. Combating the bacteria (e.g., sterilization, prophylaxis and curative)
8. Overview of antibacterials (major classes of antibacterials and their mechanism)
9. Mechanism of antibacterial resistance
10. Structure and classification of viruses
11. Overview of anti-viral (major classes and mechanism)
12. Major Fungi
13. Major parasites
14. Nosocomial infection
15. Detection of pathogens (diagnostic bacteriology and virology)
16. Bio-Medical waste management

Theme 4: Body's Immune Response (Weeks 7 & 8)

1. Innate versus adaptive Immunity
2. Immune organs
3. Antigens and antibody
4. Antigen-antibody Interactions
5. Complement
6. Antigen Processing and presentation / T-cell Function
7. Acute inflammation
8. Chronic inflammation
9. Healing and repair
10. Autoimmunity
11. Body response to microorganisms

12. Vaccination

13. Immunodeficiency

14. Hypersensitivity

15. Foetal maternal immunological barrier, interactions

16. Immunity in vulnerable age-groups (neonates & elderly)

17. Transplantation Immunology

Details of Objectives of the Learning Contents

Theme 1: Concepts of Health & Disease

1. Concepts of health and disease:

- Define health, dimensions of health, holistic concepts of health including determinants of health.
- Define disease, illness, and related concept
- Recognize that health and disease states are not dichotomous they exist in a continuum
- Describe multi-factorial etiologies of diseases including biomedical and social, environmental factors
- Explain the natural history common disease and application of principles of interventions and prevention
- Determine the health profile in Saudi Arabia

2. Social determinants of health:

- Discuss the social determinants of health
- Identify modifiable and non-modifiable factors in social determinants
- Explain how social determinants of health can be modified to improve the health of the individual and community
- Describe the action on the social determinants of health to improve overall population health, improve the distribution of health,

3. Common health problems in Saudi Arabia:

- Define the common communicable and non communicable diseases in Saudi Arabia
- Predict the future trends of common health problems with special reference to life-style related diseases in Saudi Arabia.
- Explain how the burden of diseases in Saudi Arabia affects the health care delivery in Saudi Arabia.

4. Health system in Saudi Arabia:

- Explain the Primary Health Care and Comprehensive Health Care in the country
- Discuss the health care delivery system in the country and infrastructure at peripheral, primary, secondary and tertiary care level
- Describe the roles of different components of health systems in Saudi Arabia

5. National and international health organizations:

- Describe the national and international health organizations and their programmes
- Cite examples of specific roles of national and international health organization in the country
- Recognize the relationship of different organizations and how they interact together to improve country's health

6. Health beliefs of an individual:

- Explain the concept of health belief model, individual perception and its modifying factors
- Describe how the health beliefs of an individual can affect the management of health and disease
- Describe how the health beliefs of an individual can be changed to improve health

7. Utilizations and barriers to health care:

- Explain the concept of universal health coverage for the entire population
- Explain the reasons for delaying care, perceptions and experiences of services, and health-care expenditure.
- Explain the factors (such as socio-economic status, health beliefs, perceptions) that can be modified to improve health.

8. Bio-psychosocial approach to health and diseases:

- Explain the concept of holistic or bio-psychosocial model of health care
- Recognize the importance of basic needs such as nutrition, sleep, exercise, social, emotional, education, community life, and equal opportunity in maintenance of health
- Explain how biological, psychological and social factors can be integrated in the assessment, prevention and treatment of diseases.

9. Overview of epidemiology, prevention and control:

- Define epidemiology, prevention and control
- Define the terms used in describing disease transmission and control.
- Cite examples of the basic epidemiological tools to make a community diagnosis of the diseases
- Briefly describe the common modes of transmission of communicable diseases
- Briefly describe the principles of prevention and control of communicable and non-communicable disease

10. Introduction to health education and health promotion

- Describe the concepts of health education and health promotion
- Recognize the importance of health education and health promotion in holistic management of health and disease
- Integrate features of health education and health promotion in daily patient management
- Develop a model of health education and health promotion in the local community

Theme 2: Mechanisms of Disease

1. Overview of mechanism of disease:

- Explain the etiology of disease
- Discuss the various mechanism of the disease
- Cite illustrative examples from each major category of mechanisms of diseases

2. Genetic basis of disease:

- Discuss the role of genetics in causing of disease
- Describe common modes of genetic disorders such as single gene defect, polygenic inheritance
- Describe how gene-gene interaction, gene-environment interactions, and complex traits and diseases predispose and modify common diseases
- Define inborn errors of metabolism
- Describe the common characteristic features of inborn errors of metabolism
- Correlate the pathophysiological basis of prototypical and common inborn errors of metabolism with biochemical abnormalities

3. Cell injury and response:

- Describe cell injury
- Cite examples of common types of cell injuries
- Describe the pathology of injury

4. Cell adaptation:

- Define and classify adaptation
- Discuss the basic mechanism
- Explain the clinical significance of cell adaptation

5. Cell Growth:

- Discuss cellular and molecular events in growth of cell
- Identify growth promoting and inhibiting factors

6. Environmental factors causing cell injury:

- Describe the common environmental factors causing cell injury
- Discuss their underlying mechanisms

7. Pathology of tumors:

- Define and classify neoplasms
- Identify the methods of cell differentiation
- Discuss local spread and metastasis

8. Cancer:

- Define cancer
- Identify the features of cancers
- Discuss the etiology and epidemiology of cancer including top five commonest cancers in male and female in Saudi Arabia

9. Oncogenes:

- Discuss the concept of oncogenes and their role in cancer biology
- Explain the role of cancer suppressor genes in the prevention of cancer

10. Mechanism of cancer—Genetic:

- Describe the role of genetics in the etiology of cancers
- Cite examples of prototypical genetic cancer including mechanism of cancer in these vulnerable groups

11. Mechanism of cancer -Environmental:

- Discuss the common environmental factors in causing cancer
- List common carcinogens with special emphasis of smoking
- Explain how smoking causes cancer
- Discuss the mechanism of action of common carcinogens

12. Mechanism of cancer—Microorganism:

- Discuss the etiology ,
- Discuss the mechanism of viral oncogenesis
- Discuss prevention strategies against cancers caused by microorganism

13. Effect of cancer on host:

- Discuss the effects of cancer on host

14. Medical error and patient safety:

- Recognize medical error is one of the commonest cause of preventable morbidity and mortality
- Discuss, with help of illustrative real-life examples, various types of medical errors
- Analyze the role of human factors in prevention of medical errors
- Discuss the strategies to prevent medical error

Theme 3: Human and Microorganisms:

1.Introduction to microorganisms:

- Explain the fundamentals of microbiology and its medical importance
- Describe the basic characteristics of bacteria, viruses, fungi and parasites
- Describe the microorganisms of medical importance.
- Recall the contributions of Robert Koch and Louis Pasteur in development of microbiology

2.Classification and structure of bacteria:

- Classify bacteria
- Identify the unicellular nature of bacterial cell
- Review the selective toxicity of antibiotics

3.Growth and replication of bacteria:

- Explain the growth requirements of bacteria
- Relate the bacterial growth curve to survival and spread of bacteria
- Identify the bacterial method of replication and its clinical significance

4.Normal microbial flora:

- Define and classify normal microbial flora of human body
- Explain the beneficial role of microbial flora
- Explain the disease causing ability and clinical importance of microbial flora.

5.How microorganisms cause diseases (virulence):

- Name the methods of transmission of infection
- Describe the process of infection
- List the bacterial virulence factors.
- Cite examples of instances where bacterial virulence factors play important role in virulence, antibiotic susceptibility and host defense

6.Survival and spread of bacteria:

- Identify the methods of bacterial spread
- Discuss the mechanism of bacterial pathogenicity for survival and spread
- Explain factors influencing microbial pathogenicity

7. Combating bacteria—Sterilization:

- Define the process of sterilization
- Classify the methods of sterilization
- Validate the methods of sterilization

8. Overview of antibacterials:

- Classify the antibacterials
- Identify the mechanism of action
- Recall the use of common/routine antibacterials

9. Mechanism of antibacterial resistance:

- Define drug resistance
- Classify drug resistance
- Discuss the mechanism of drug resistance
- Explain the clinical importance of drug resistance

10. Structure and classification of viruses:

- Classify viruses
- Describe the structure and shape of viruses

11. Overview of anti- virals:

- Classify anti virals
- Describe the mechanism of action of antivirals
- List the uses and side effects of common anti-virals

12. Major fungi:

- Classify fungi
- Identify the clinical significance of fungal infections
- List the common diseases caused by fungi
- Explain the importance of opportunistic fungal infections in human

13. Major parasites:

- Define parasitism
- Classify parasites
- Describe the concept of life cycle of a parasite
- List the common parasitic diseases

14.Nosocomial infections:

- Define nosocomial infections
- Identify the epidemiology of nosocomial infections
- Explain the causes and importance of nosocomial infection
- List the common pathogens in hospital environment
- Identify the methods of prevention

15.Detection of pathogens (bacteriology and virology):

- Explain the basic concepts of diagnostic microbiology including classical bacteriology and newer techniques
- Identify the available diagnostic methods.

16.Biochemical waste management:

- Define and classify biochemical waste
- List the methods of segregation of waste
- Identify the methods to manage the biomedical waste

Theme 4: Body's Immune Response

1. Innate versus adaptive immunity:

- Define and classify immunity
- Distinguish innate and adaptive immunity
- Explain the mechanism of innate and adaptive immunity
- Discuss the clinical importance of immunity

2. Immune organs:

- Name the basic immune organs
- Describe the basic role of these organs in immunity
- Discuss the production of lymphocytes

3. Antigens and antibody:

- Define antigen and antibody
- Explain the structure of antigen and antibody
- Discuss the factors determining antibody production
- Define monoclonal antibody and give its clinical uses

4. Antigen -Antibody interactions:

- Explain the basis of immunoserological reactions
- Define and compare the clinical application of various antigen antibody reactions---immunoserological reactions

5. Complement:

- Define complement and give its clinical importance
- Explain the biological effects of complement
- Review the diseases due to complement deficiency

6. Antigen processing and presentation/T- cell function:

- Explain the process of antigen presentation
- Discuss the significance and importance of antigen processing

7. Acute inflammation:

- Define and classify inflammation
- Explain the causes of acute inflammation
- Discuss the mechanism of inflammation
- List the features of acute inflammation

8. Chronic inflammation:

- Define the chronic inflammation
- Identify causes of inflammation
- Discuss the basic mechanism involved
- List the features of chronic inflammation

9. Healing and repair:

- Review of cell proliferation, cell growth, cell “cycle”, and cell differentiation
- Describe the basic factors of tissue regeneration
- Identify factors promoting healing

10. Autoimmunity:

- Define and classify auto-immunity
- Discuss causes and mechanism
- Describe pathogenesis of common auto-immune disorders.

11. Body response:

- Define immune response
- Explain the concept of cell mediated and antibody mediated immune response
- Identify the mechanism of tolerance
- Describe the clinical importance

12. Vaccination:

- Explain passive and active immunity
- Define and explain basic concept of vaccination
- Classify common vaccines and describe the features of common vaccines category
- List common vaccine preventable diseases.

13. Immunodeficiency:

- Define immunodeficiency
- Classify various immunodeficiency disorders such as congenital and acquired immunodeficiency.
- Explain briefly the mechanism of prototypical and common immunodeficiency diseases.

14. Hypersensitivity:

- Define and classify hypersensitivity.
- Discuss mechanism and clinical importance of hypersensitivity.
- Describe the clinical significance of anaphylaxis.

15. Foetal maternal immunological barrier, interactions:

- Define foetomaternal immunological barrier.
- Describe interaction between the antibodies in the mother and fetus.
- Explain the mechanism of erythroblastosis fetalis.

16. Immunity in vulnerable age-groups (neonates & elderly):

- Discuss the immune status of a neonate and elderly.
- Identify the common infections in these two age groups.
- Describe some of the preventive strategies

17. Transplantation immunology

- Discuss the concept of transplantation
- Classify the different types of transplant
- Explain histocompatibility antigens
- Explain the Importance of histocompatibility testing in transplantation immunology
- Explain the graft versus host reaction

Problem-Based Learning (PBL)

1- PBL-1:

A student from the Sharia College.

2- PBL-2:

A health conscious lady wants to maintain healthy life

3- PBL-3:

Elementary school pupils who developed skin rash .

Field Visits

I. Guidelines for field visits:

- 1- Students should follow instruction given to them prior to the visit.
- 2- A handout is given to students before every visit illustrating program, objectives and other details concerning the visit. Students are required to read handouts carefully.
- 3- Students are encouraged to go to hospital utilizing transportation which is secured by the College Administration. Transportation will be available half an hour prior to visit.
- 4- Students are expected to behave as future doctors.
However, any misconduct by any student will be reported to the College Administration for appropriate measures according to University Rules.
- 5- At the end of each field visit, students are required to give their feedback regarding fulfillment of the objectives of the visit and clarify any comments and suggestions they may have. Feedback will be discussed in a scheduled session that will be held after the visit in the College.

II. Objectives of field visits:

1. Primary Health Centre:

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

- Discuss the primary health care system in Saudi Arabia
- Discuss the role of medical, paramedical and supporting staff in PHCs
- Identify different services provided at PHC level
- Discuss the process of utilization of health care services available in PHCs
- Report on the quality of health care services delivered by PHC

2. Visit to King Khaled Hospital, Majmaah:

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

- Discuss the common medical errors in the hospital.
- Discuss the strategies for prevention of medical errors.
- Discuss the related issues with hospital staff.

Seminars

I. Guidelines for Seminar Sessions:

- 1- **Three seminars** are scheduled during the block. Duration of each seminar is 2 hours.
- 2- The whole batch of year-2 students of the College of Medicine are divided into **four groups, A, B, C & D** (11-12 students for each group).
- 3- Groups are recommended to assign a **group leader** chosen by students. Each group leader will be in charge for contacting the Module Coordinator, **Dr. M. A. Fawaz**.
- 4- **A staff member will be assigned as a Seminar Supervisor for each group.**
The **Seminar Supervisor** will be take care of his group regarding:
 - assigning students for giving presentations in coordination with the group leader.
 - assigning of topics of seminars in coordination with group leader.
 - direct helping and advising students during preparation of presentations
 - leading and supervising of seminars regarding securing convenient venue, managing timing for each presentations and keeping order during seminars sessions.
 - facilitating group discussion after each presentation.
 - Assessing students (those who give presentations and also who do not give presentations).
- 5- **Three to four students are assigned for giving presentations in each seminar.**
- 6- **Each of the assigned students has to prepare a presentation for his assigned topic.**
 - The presentation should be formatted by **Microsoft office PowerPoint program**.
 - *Only 5-8 slides* are required for each presentation.
 - Presentation should last for **7-10 minutes only**. **5 minutes** will be allowed for whole group discussion.
 - **5-10 minutes** are devoted for the tutor for giving feedback and comments.

- 7- **Other students** (not giving presentations) have to properly prepare themselves for active collaboration & discussion by reading topics related to seminars prior to attending (NOT JUST PASSIVE LISTENING).
- 8- **All students should consider that they are assessed by the assigned tutor (not only presenters of the seminar)**
- 9- **Topics discussed during seminars can be examined in the module written exams in the form of scenario based questions and/or SEQs.**

II. Topics & Objectives of Seminars:

1- Medical errors & patient safety

(4 presenters):

- A. Discuss the frequency and severity of medical errors
- B. Discuss the impact of medical errors on patient safety
- C. Identify situations and processes that impact the incidence of medical errors
- D. Define the processes for analysis of medical errors
- E. Identify special safety needs of specific patient populations
- F. Identify the role of healthcare providers in the prevention of medical errors

2. Human immunodeficiency virus (HIV)/ AIDS

(3 presenters)

- A. Define the mode of transmission for HIV
- B. Describe the response of the immune system to viral infections
- C. Identify means of infection control for HIV
- D. Discuss specific HIV testing
- E. Discuss the ethical issues related to HIV patients

3. Reactive Oxygen Species (ROS) (Free Radicals)

(3 presenters):

- A. Concept of ROS & mechanisms of their production in cells.
- B. Pathological effects of ROS on human body.
- C. Important anti oxidants and their role in combating ROS

Case- Discussion

I. Guidelines for Case Discussion Sessions:

1- **Three scheduled sessions** will be held during the module of the Principle of Health & Disease.

2- **Instructional method:** Team based learning

3- **Students preparation for the sessions:**

One week before each scheduled Case discussion session, students will be given the full scenario of the case to be discussed. All students are asked and highly encouraged to read the scenario carefully and try to prepare themselves for the team-based learning discussion by trying to answer questions provided. Utilizing textbooks in the Medical Library and useful websites are of profound help in achieving convenient preparation in advance.

4- **Case discussion Sessions:**

On the day of every session, the whole batch of students will gather with a few number of faculty in the Main Lecture Hall. During each session, the case will be presented and discussed by the students in collaboration with the faculty. The faculty will be in charge for facilitating discussions and clarifying points issued by students. The faculty also may give some critical questions related to the topic during the discussion. Active collaboration of all the students in discussion and response to faculty questions is highly motivated.

5. **Assessment of students for Case Discussion sessions:**

Topics discussed during sessions can be examined in the module written exams in the form of scenario based questions and/or SEQs.

II. Cases for Discussion:

Case 1:

On April 19, 2011, the Local Health Supervisor in the village in Jazan Province, reported the occurrence of an outbreak of acute gastrointestinal illness to the District Health Manager. Dr. Mohammed, epidemiologist-in-training, was assigned to conduct an investigation. When Dr. Mohammed, arrived in the field, he learned from the health Supervisor that all persons known to be ill had attended a marriage party held on the previous evening. Family members who did not attend the event did not become ill. Accordingly, Dr. Mohammed focused the investigation on the marriage dinner suspecting a case of mass food poisoning. He completed Interviews with 75 of the 80 persons known to have attended, collecting information about the occurrence, time of onset of symptoms and foods consumed. Of the 75 persons interviewed, 46 persons reported gastrointestinal illness. The onset of illness in all cases was acute, characterized chiefly by nausea, vomiting, diarrhea, and abdominal pain. None of the ill persons reported an elevation in temperature and all showed marked disappearance of symptoms within 24 to 30 hours. No fecal specimens were obtained for bacteriologic examination.

Questions for discussion:

1. Would you call this an epidemic? Would you call it an outbreak?
2. Review the steps of an outbreak investigation?
3. What are other modes of transmission of food poisoning?
4. What are the most common organisms causing food poisoning?
5. What are the laboratory methods for diagnosis of food poisoning?

Case- 2:

A 24-year-old previously health adult male comes to the clinic with the complaints of fever and sore throat. The attending doctor considers the diagnosis of pharyngitis and prescribed oral ampicillin. Approximately one hour after intake of antibiotic by the patient, he complained of tightness of chest, breathing difficulty, and wheezing. He rushed to the emergency department. The attending doctor found him to be in great distress. His blood pressure was 86/45 mm of Hg, heart rate 124/minute, and oxygen saturation 94% of room air. There was diminished air entry bilaterally in the lungs with both inspiratory and expiratory rhonchi. The patient developed following skin rash soon after



1. What are the possible causes of his symptoms?
2. What history would you like to find out from his relatives?
3. Can you explain the basis of his symptoms?

Anesthesia team was called immediately. Oxygen was administered through a mask with improvement of his oxygenation. Intravenous adrenaline was administered, followed by methylprednisolone, diphenhydramine, and cimetidine. Medication resulted in gradual improvement of patient's condition.

Questions for discussion:

1. What is the primary mechanism underlying the patient's condition?
2. What is the basis of administering the medication?
3. How his condition could have been prevented?
4. What advice do you have for him?
5. Would you do any further test to confirm ampicillin allergy?

Case - 3:

The patient was a 74-year-old man with a history of diabetes mellitus and coronary artery disease. He was admitted for a coronary bypass graft. Postoperatively, his foot remained ischemic and he was treated with antibiotics (cephalosporin). Three days later he developed tachypnoea, diarrhoea, and abdominal distension. On abdominal X-ray, his colon was markedly dilated. His full blood count shows leucocytosis. He was diagnosed as having colonic ischemia and subsequently underwent an operation where parts of his small and large intestines were removed. He required further two weeks of hospitalization and then eventually was discharged home.

Questions for discussion:

- Explain the key terms
 - a. Ischemia
 - b. Tachypnoea
 - c. Leucocytosis

Gross description of colon and ileum

The surgical specimen consisted of an 11 cm segment of terminal ileum, a 7 cm appendix, and 23 cm of cecum and colon. The cecum and colon were diffusely covered by pseudomembranes consisting of yellow, raised, exudative plaques.

Question for discussion:

- Explain the following terms:
 - a. Gross descriptions
 - b. Pseudomembrane
 - c. Exudates
- What is the relevance of antibiotic to his presenting symptoms?

Microscopic

Histologically, the colonic mucosa was largely ulcerated and necrotic. The normal mucosa was replaced by pseudomembranous plaques of fibrin, cellular debris, and neutrophils. Relatively normal mucosa with preserved glandular architecture was seen adjacent to mushroom-shaped necrotic plaques. Perforation of the mucosa muscularis.

Objectives of discussion:

- a) Explain the basis of microscopic findings

Immunoserology

- The patient's stool was positive for *Clostridium difficile* toxin.

Practical Sessions Objectives

A. Microbiology:

1. Microscopy

- Describe parts and principles of using microscope
- Explain the different types of microscopes

2. Gram Staining & Bacterial Slides

- Describe the reagents used in the Gram stain and state the purpose of each reagent.
- State the color expected for Gram positive and Gram negative cells after performing the Gram stain
- Describe why Gram positive and negative cells stain the way they do with the Gram Stain.
- Describe the cell wall structure of Gram positive and negative organisms.
- Explain what Gram variable means.
- Explain specific findings of different slides illustrating different bacteria.

3. Sterilization

- Define disinfection and sterilization
- Describe the common substances and processes used to achieve these outcomes
- Evaluate issues influencing choice of method

4. Immunoserology

- Explain the basic procedures of immunoserology,

B. Pathology

- Discuss basic techniques of gross and microscopic interpretation of tissue specimens.
- Identify various diagnostic techniques in Pathology.- Venous thrombosis, Inflammation

Principles of Health & Diseases

Weekly Time Plan

Week-1					
Starting Date:	Sunday: 3/12/1432 H (30/10/2011 G)				
Theme:	Concepts of Health & Diseases				
Day:	Saturday	Sunday	Monday	Tuesday	Wednesday
Date:	29/10/2011	30/10/2011	31/10/2011	1/11/2011	2/11/2011
8-9 am	Revision Human Body Module	Concepts of Health & Disease Dr. Ashraf	Social Determinants of Health & Disease Dr. Ashraf	Eid Al-Adha Vacation	
9-10 am		Health for All Dr. Ashraf	Common Health Problems in Saudi Arabia Dr. Ashraf		
10-11 am		Critical Lateral Thinking Dr. Fahim	Attitudes Dr. Kamran		
11-12 pm		IGL	Salam		
12-1 pm		Prayer & Prayer Break			
1-3 pm	Revision	IGL	IGL		

Principles of Health & Disease	PBL	CD	IGL	Psychological & Behavioral Sciences	Medical Learning Skills	Salam
--------------------------------	-----	----	-----	-------------------------------------	-------------------------	-------

Principles of Health & Diseases

Week-2					
Starting Date:	Saturday: 16/12/1432 H (12/11/2011 G)				
Theme:	Concepts of Health & Diseases				
Day:	Saturday	Sunday	Monday	Tuesday	Wednesday
Date:	12/11/2011	13/11/2011	14/11/2011	15/11/2011	16/11/2011
8-9 am	Health System in Saudi Arabia Dr. Ashraf	Final Exam Human Body Module	Health Beliefs of Individuals Dr. Ashraf	Bio-psychosocial Approach to Health & Disease Dr. Ashraf	Introduction to Health Education & Health Promotion Dr. Ashraf
9-10 am	National & International Health Organizations Dr. Ashraf		IGL	IGL	IGL
10-11 am	IGL		IGL	Overview of Epidemiology Dr. Ashraf	IGL
11-12 pm			Salam	Psychosocial Factors Affecting Physical Illnesses Dr. A. Rahman	
12-1 pm	Prayer & Lunch Break				
1-3 pm	IGL	Final Exam Human Body Module	Utilizations & Barriers to Health Care Dr. Ashraf	CBD Psychosocial Factors Affecting Physical Illnesses Dr. A. Rahman	Role-play Interpersonal Skills Dr. Ashraf

	Principles of Health & Disease		PBL		CD		IGL		Psychological & Behavioral Sciences		Medical Learning Skills		Salam
--	--------------------------------	--	-----	--	----	--	-----	--	-------------------------------------	--	-------------------------	--	-------

Principles of Health & Diseases

Week-3					
Starting Date:	Saturday: 23/12/1432 H (19/11/2011 G)				
Theme:	Mechanism of Diseases				
Day:	Saturday	Sunday	Monday	Tuesday	Wednesday
Date:	19/11/2011	20/11/2011	21/11/2011	22/11/2011	23/11/2011
8-9 am	Genetic Basis of Diseases Dr. Sherif	Cell Injury & Cell Response Dr. Fawaz	Cell Growth Dr. Rehan	Pathology of Tumors Dr. Ashraf	Mechanism of Cancer: Environment Dr. Rehan
9-10 am	IGL	Cell Adaptation Dr. Qazi	Environmental Factors: Dehydration, Chemical Injury Dr. Fawaz	IGL	IGL
10-11 am		Stereotype & Prejudice Dr. A. Rahman	IGL		
11-12 pm	Inborn Errors of Metabolism Dr. Sherif		Stereotype & Prejudice Dr. A. Rahman	Salam	Cancer: Definition, Classification, Overview Dr. Ashraf
12-1 pm	Prayer & Lunch Break				
1-3 pm	PBL - 1 a	CBD Dr. A. Rahman	Role- play Interpersonal Skills Dr. Ashraf	CD - 1	PBL - 1b

	Principles of Health & Disease		PBL		CD		IGL		Psychological & Behavioral Sciences		Medical Learning Skills		Salam
--	--------------------------------	--	-----	--	----	--	-----	--	-------------------------------------	--	-------------------------	--	-------

Principles of Health & Diseases

Week-4					
Starting Date:	Saturday:1/1/1432 H (26/11/2011 G)				
Theme:	Mechanism of Diseases				
Day:	Saturday	Sunday	Monday	Tuesday	Wednesday
Date:	26/11/2011	27/11/2011	28/11/2011	29/11/2011	30/11/2011
8-9 am	Oncogenes Dr. Sherif	Mechanism of Cancer: Genetic Dr. Sherif	Effect of Cancer on Host Dr. Qazi	Medical Errors & Patient Safety Dr. Ashraf	Classification & Structure of Bacteria Dr. Fawaz
9-10 am	Working in Teams Dr. Ashraf	IGL	IGL	IGL	IGL
10-11 am	IGL		IGL	IGL	How to Excel in Examination: Answering Written Examination Dr. Waqas
11-12 pm	Leadership Dr. Ashraf		Salam	Introduction to Microorganisms Dr. Fawaz	
12-1 pm	Prayer & Lunch Break				
1-3 pm	PBL - 1 Panel	Seminar-1	Practical Histopathology-1	Practical Histopathology- 2	PBL - 2 a

	Principles of Health & Disease		PBL		CD		IGL		Psychological & Behavioral Sciences		Medical Learning Skills		Salam
--	--------------------------------	--	-----	--	----	--	-----	--	-------------------------------------	--	-------------------------	--	-------

Principles of Health & Diseases

Week-5					
Starting Date:	Saturday: 8/1/1433 H (3/12/2011 G)				
Theme:	Humans & Microorganisms				
Day:	Saturday	Sunday	Monday	Tuesday	Wednesday
Date:	3/12/2011	4/12/2011	5/12/2011	6/12/2011	7/12/2011
8-9 am	Growth & Replication of Bacteria Dr. Fawaz	Survival & Spread of Bacteria Dr. Fawaz	Overview of Anti-bacterials Prof. Mazen	Recent Advances in Medicine Prof. Mazen	Mechanism of Antibacterial Resistance Prof. Mazen
9-10 am	How Microorganisms Cause Diseases (Virulence) Dr. Fawaz	IGL	IGL	Illness Behavior Dr. Kamran	PBL 2: Panel
10-11 am	IGL			IGL	
11-12 pm	Professionalism of Students Dr. Rukban	Combating the Bacteria: Prophylaxis, Curative Dr. Ashraf	Salam	IGL	
12-1 pm	Prayer & Lunch Break				
1-3 pm	CD - 2	Practical Pathology Specimens	Seminar-2	PBL - 2 b	Practical Microscopy

	Principles of Health & Disease		PBL		CD		IGL		Psychological & Behavioral Sciences		Medical Learning Skills		Salam
--	--------------------------------	--	-----	--	----	--	-----	--	-------------------------------------	--	-------------------------	--	-------

Principles of Health & Diseases

Week-6					
Starting Date:	Saturday: 15/1/1433 H (10/12/2011 G)				
Theme:	Humans & Microorganisms				
Day:	Saturday	Sunday	Monday	Tuesday	Wednesday
Date:	10/12/2011	11/12/2011	12/12/2011	13/12/2011	14/12/2011
8-9 am	Mid Module Exam	Major Parasites Dr. Fahim	Major Fungi Dr. Qazi	Detection of Pathogens (Diagnostic Bacteriology & Virology Dr. Ashraf	Nosocomial Infection Dr. Ashraf
9-10 am		Role- play Interpersonal Skills Dr. Ashraf	Anti-fungals Prof. Mazen	Biomedical Waste Management Dr. Fawaz	IGL
10-11 am	Structure & Classification of Viruses Dr. Fawaz	Evidenced Based Practice Dr. Ashraf	Feedback of the Field Visit to PHC	IGL	Normal Microbial Flora of Human Body Dr. Fawaz
11-12 pm	Overview of Anti-virals (Major Classification & Mechanism) Prof. Mazen		Salam	Changing Behavior Dr. Kamran	IGL
12-1 pm	Prayer & Lunch Break				
1-3 pm	PBL - 3 a	Field Visit (PHC)	Practical Bacterial Staining & Slides	CBD Changing Behavior Dr. Kamran	PBL - 3 b

Principles of Health & Disease	PBL	CD	IGL	Psychological & Behavioral Sciences	Medical Learning Skills	Salam
--------------------------------	-----	----	-----	-------------------------------------	-------------------------	-------

Principles of Health & Diseases

Week-7					
Starting Date:	Saturday:22/1/1433 H (17/12/2011 G)				
Theme:	Body's Immune Response				
Day:	Saturday	Sunday	Monday	Tuesday	Wednesday
Date:	17/12/2011	18/11/2011	19/12/2011	20/11/2011	21/11/2011
8-9 am	Innate Versus Adaptive Immunity Dr. Fawaz	Antigen & Antibody Dr. Ashraf	Immunity in Vulnerable Age Groups (Neonates & Elders) Dr. Qazi	Antigen- antibody Interaction Dr. Fawaz	Antigen Processing & Presentation/T cell Function Dr. Kamran
9-10 am	Immune Organs Dr. Fahim	Motivation & Compliance Dr. Kamran	Fetal Maternal Immunological Barriers Dr. Rehan	IGL	IGL
10-11 am	IGL	IGL	IGL		
11-12 pm	IGL	Psychological & Behavioral Problems in the Kingdom Dr.A.Rahman	Salam	Complement Dr. Fawaz	IGL
12-1 pm	Prayer & Lunch Break				
1-3 pm	PBL - 3 Panel	Seminar - 3	Clinical Learning Dr. Ashraf	CD - 3	Practical Immunoserology

	Principles of Health & Disease		PBL		CD		IGL		Psychological & Behavioral Sciences		Medical Learning Skills		Salam
--	--------------------------------	--	-----	--	----	--	-----	--	-------------------------------------	--	-------------------------	--	-------

Principles of Health & Diseases

Week-8					
Starting Date:	Saturday: 29/1/1433 H (24/12/2011 G)				
Theme:	Body's Immune Response				
Day:	Saturday	Sunday	Monday	Tuesday	Wednesday
Date:	24/12/2011	25/12/2011	26/12/2011	27/12/2011	28/11/2011
8-9 am	Acute Inflammation Dr. Kamran	Field Visit to the Hospital	Vaccination Dr. ashraf	Immune Deficiency Dr. fawaz	Hypersensitivity Dr. Fawaz
9-10 am	Chronic Inflammation Dr. ashraf		Autoimmunity Dr. Fawaz	Continuous Professional Development Dr. Hamza	Transplantation Immunology Dr. ashraf
10-11 am	IGL		Body Response to Microorganisms Dr. Fawaz	IGL	IGL
11-12 pm	Healing & Repair Dr. Fawaz		Salam		
12-1 pm	Prayer & Lunch Break				
1-3 pm	Practical Slides in Bacteriology	Feedback of the Field Visit to the Hospital	Health System Management Dr. Ashraf	Introduction to Medical Ethics & Professionalism Dr. Ashraf	Graft Versus Host Reaction Dr. Fawaz

Principles of Health & Disease	PBL	CD	IGL	Psychological & Behavioral Sciences	Medical Learning Skills	Salam
--------------------------------	-----	----	-----	-------------------------------------	-------------------------	-------

Week-9						
Starting Date:	Saturday: 6/2/1433 H (31/12/2011 G)					
Theme:	Revisions & Examinations					
Day:	Saturday	Sunday	Monday	Tuesday	Wednesday	
Date:	31/12/2011	1/1/2012	2/1/2011	3/1/2011	4/1/2011	
8-9 am	<h1>Revisions</h1>			<h2>Written Examination</h2>		<h2>Practical Examination</h2>
9-10 am						
10-11 am						
11-12 pm						
12-1 pm						
1-3 pm						

Distribution of Tasks for the Faculty

Week	Week 3			Week 4			Week 5				Week 6			Week 7		Week 8	
	PBL-1 a	CD-1	PBL-1 b	PBL-1 Panel	Sem-1	PBL-2a	CD-2	Sem-2	PBL-2b	PBL-2 Panel	PBL-3a	Field Visit PHC SUN 11 Dec	PBL-3b WED 14 Dec	PBL-3 Panel SAT 17 Dec	Sem-3 SUN 18 Dec	CD-3 TUE 20 Dec	Field Visit HOSP. SUN 25 Dec
Faculty member	SAT 19 Nov	TUE 22 Nov	WED 23 Nov	SAT 26 Nov	SUN 27 Nov	WED 30 Nov	SAT 3 Dec	MON 5 Dec	TUE 6 Dec	WED 7 Dec	SAT 10 Dec	SUN 11 Dec	WED 14 Dec	SAT 17 Dec	SUN 18 Dec	TUE 20 Dec	SUN 25 Dec
Prof. Mazen	A	ALL	A	ALL	C	B	ALL	D	B	ALL				ALL	C	ALL	
Dr. Fahim										ALL	D		D	ALL	D	ALL	
Dr. Qazi	C	ALL	C	ALL	A	D	ALL		D	ALL				ALL		ALL	
Dr. Fawaz		ALL		ALL	B		ALL	B		ALL	B	A/B	B	ALL		ALL	A/B
Dr. Sherif	D	ALL	D	ALL			ALL	A		ALL	C		C	ALL	B	ALL	
Dr. Ashraf		ALL		ALL	D	C	ALL		C	ALL		C/D		ALL		ALL	C/D
Dr. Rehan	B	ALL	B	ALL		A	ALL	C	A	ALL				ALL		ALL	
Dr. Kamran										ALL	A		A	ALL	A	ALL	

Principles of Health & Disease
 PBL
 CD

Teaching & Learning Methods

This section provides an elaboration of the teaching and learning methods that will be used to deliver this block. Thus, there will be a detailed description and a step-wise guide as to how the about the following methods should be applied will be given below.

- A. Interactive lectures
- B. Small group learning sessions (PBL)
- C. Large group learning sessions (seminars)
- D. Practical sessions
- E. Skills lab sessions
- F. Clinical teaching and learning sessions

A. Interactive lectures:

Introduction:

Interactive lectures are similar to the lectures used in all other parts of the curriculum, or anywhere else. They are, however, not the didactic lectures used in the past.

Process:

The lecturer will involve the students in active discussion, and may provide brief learning activities during the lecture to achieve the learning objectives stated under each topic. Occasionally, there will be more than one lecture/lecturer to achieve all the learning objectives given under one topic. As much as possible, where applicable, *the lectures will highlight clinical application of the content material*. Students could take notes during a lecture, but the lecture slides will be available on Blackboard (i.e. the learning management system of the university).

B. Problem-Bases Learning (PBL)

Introduction:

These are activities where students are divided in a small group of about 10 under the supervision of a tutor/facilitator. One of the important methods of small group learning is PBL, where the students first will be trained how to work in a PBL.

Process:

A detailed guide as to how a PBL is conducted provided separately. Please go through this guide, carefully before taking on PBL learning.

C. Large group learning sessions :

Introduction:

In this method students will prepare for a relevant topic on a given 'curriculum facet'. The curriculum facet for discussion will be selected by the tutor. The topics related to a given curriculum facet could be either selected by the tutor or by the student, but pre-agreed with the tutor. The student will prepare for a 30-minute presentation on the topic and deliver it to the whole batch. There will be at approximately one large group learning session every two to three weeks.

Process:

1. Tutor selects a curriculum facet relevant to the module/theme that is being learned at that time.
2. Tutor asks for three student volunteers who are willing to prepare for three, 30-minute presentations.
3. The three volunteer students will discuss with the tutor and agree on three topics under a given curriculum facet. For example, if the curriculum facet selected by the tutor is 'the contribution of tissues to the organization of the body', students can make presentations on topics such as 'structure of different tissues in the body', 'functions of tissues', and 'how the tissue structure has been adapted to its function'. These topics will be either selected by the tutor or selected by the students with the concurrence of the tutor.
4. For a given learning session, 2 hours in duration, three students will deliver three, 30-minute presentations on a particular theme, selected by the tutor. After each 30-minute presentation there will be a 10-minute discussion.
5. Finally, the tutor will summarize the presentations of the session in the last 10 minutes.

D. Practical sessions:

Introduction:

Practical sessions are designed to practically illustrate the concepts and principles introduced to the student in the lectures. Thus, the practicals will provide an opportunity for the students to acquire hands-on experience on an abstract concept or a principle they learned in the lectures; i.e. the students will experience for themselves how an abstract concept or a principle practically operates. Every theme that is studied within each module will have several practical sessions. These practicals will range from studying microscope to viewing slides using the light microscope. The topics of the practical sessions will be determined by the tutor as appropriate. A practical will be held for 2 hours in the newly built 'system-based laboratories' under the guidance of a tutor. Depending on the nature of the subject matter taught within a module, a given module may or may not contain practical sessions.

Process:

1. Tutors who teach in a particular theme, in collaboration with each other will determine an appropriate number of practicals for a given theme.
2. Objectives of a given practical session will be developed and given to the students by the tutor before the practical.
3. Students will be pre-informed about a given practical topic. Depending on the type of practical and facilities available, 25 to 50 students will take part in a given practical session.
4. Students will record findings of the practical in a separate Practical Record Book.
5. At the end of the session the tutor will summarize the main learning points illustrated during the practical.

E. Skills lab sessions:

Introduction:

Students will use the newly built, state-of-the-art skills lab to train the students in certain important practical, clinical skills from year 2; i.e. phase 2. An example for a skills lab session would be blood pressure measurement. Depending on the nature of the module, there may or may not be skills lab sessions for a given module.

Process

1. The tutors who teach within a module in collaboration with each other will determine the number of skills lab sessions per module.
2. The tutors will then draw up the objectives for each session and inform the students about the objectives of the session prior to the skills lab session.
3. Depending on the nature of the skills lab session, students will either participate in small groups or as the whole batch. For example, for blood pressure measurement they will measure the blood pressure of each other in small groups.
4. Depending on the skill, the students will perform the skill either on themselves, on each other or on a simulator.
5. The students will record the findings of the skills lab session in a separate Skills Lab Record Book.
6. The tutor will at the end of the session summarize the main learning points.

F. Clinical teaching and learning sessions:

Introduction

Where relevant the students in small groups of 10, will visit a clinical setting (e.g. a ward, a clinic, or a surgical theatre, central sterilization unit) observe (e.g. observing the sterilization process in the central sterilization unit of the hospital) or experience (e.g. speaking with a patient who has a disease related to smoking) how a given concept or principle is clinically applied. Depending on the nature of the subject matter being taught, there may or may not be clinical teaching and learning sessions within a given module.

Process

1. The tutors responsible for teaching and learning for a given module will determine the topics for which there will be clinical teaching and learning sessions.
2. The tutors will then draw up the objectives of a given session and communicate it to the student prior to the session.
3. The students will be divided into groups of 10.
4. A tutor will accompany the students to the clinical setting or a clinician (who is aware of the objectives of the session) from the relevant clinical setting will be assigned to show the students the relevant procedures that they need to observe or do.
5. Students will record their experience or observations in a 'Clinical Teaching and Learning Record Book'.

Assessment of the Module

This block comprises two types of assessment.

A. Continuous assessment:

- These assessments will take place throughout the course.
- They are mostly based the PBL sessions, skill lab, practical and clinical activities.
- Also there will be MCQ as mid module examination.
- A proportion of marks **(40%)** from these assessments will contribute to the final summative module assessment.

B. Final assessment:

- The eligibility criterion for sitting the final examination will be the completion of 75% of attendance.
- This exam is held the end of the module assessment, and will be held under formal examination conditions, including MCQ, OSPE, OSCE and so forth.
- A proportion of marks **(60%)** from this assessment will contribute to the final summative mark of the module assessment.

Quality Assurance & Evaluation Process

Any new course, or for that matter any old course, needs constant reviewing and monitoring to ensure that it meets the demands placed on it by the overall curriculum. This curriculum is no exception. Hence, there will be a number of evaluation strategies employed by the module.

They are as follows:

1. Student feedback at the end of the module, seeking student comments on both teaching and learning, and assessment, along with views on the general course organization and implementation
2. Student feedback of a sample of teaching and learning activities
3. Tutor feedback
4. Examiner feedback
5. Peer evaluation, where a staff member may visit a particular teaching and learning activity and provide formative feedback about its conduct
6. Analysis of the students' examination results
7. External reviews.

Resource Material

- **Parks Text Book of Preventive and Social Medicine. 18th Edition**
- **Robbins Basic Pathology. 8th Edition**
- **Muir's Text book of Pathology. 14th Edition**
- **Medical Microbiology by Jawetz, Melnick, Adelbergs. 25th Edition**
- **Text Book of Microbiology. Green Wood**
- **Essential Immunology. Roitt. 11th Edition**
- **Basic and Clinical Pharmacology. Katzung 10th Edition**
- **Study Skills and Test Taking Strategies For Medical Students. Deborah D. Shain**
- **Professionalism in Medicine –A Case Based Guide for Medical Students.—John Spandorfer, 2009**
- **Ayers, De Visser 2011. Psychology for Medicine. Sage Publications Ltd, London**

Tutors Emails

- Prof. Mazen Al-Qato: kqato@hotmail.com
- Dr. Fahim Haider Jafari: fahimjafari@gmail.com
- Dr. Qazi Imtiaz Rasol: qaziimtiaz@rediffmail.com
- Dr. Mohammed Alimullah Fawaz: drfawaz@yahoo.com
- Dr. Mohammed Ashraf: shakardara@hotmail.com
- Dr. Sherif Aly Saleh: sasaleh65@hotmail.com
- Dr. Mohammed Rehan Asad: rehan_asad123@yahoo.co.in