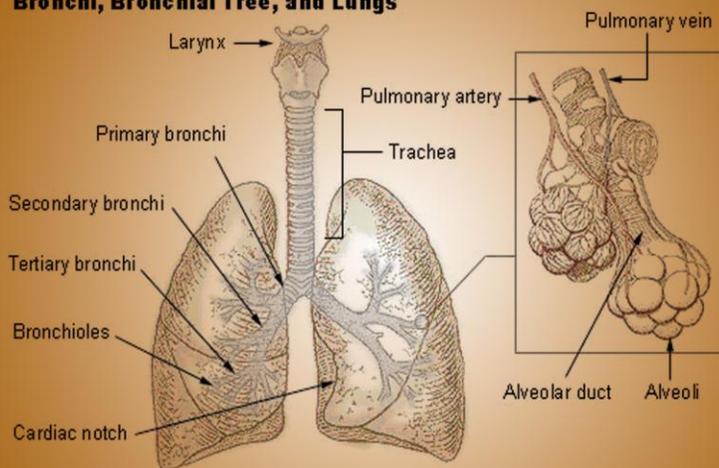


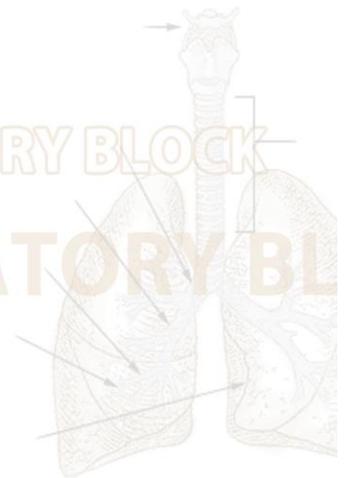


King Saud University
College of Medicine
Medical Education Department

Bronchi, Bronchial Tree, and Lungs



RESIRATORY BLOCK
RESIRATORY BL

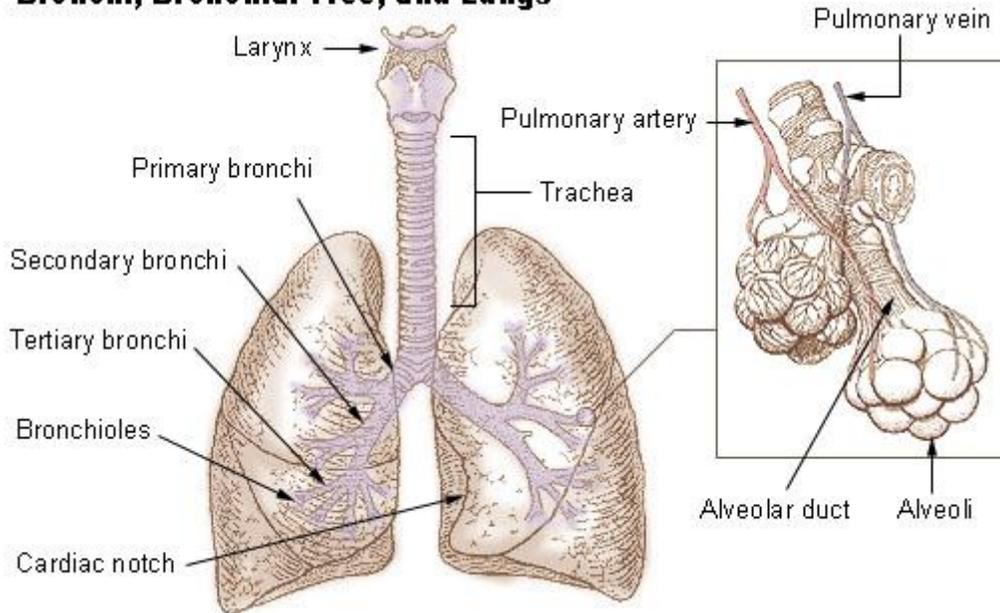


STUDENT GUIDE

RESIRATORY BLOCK



Bronchi, Bronchial Tree, and Lungs



STUDENT GUIDE

RESPIRATORY BLOCK

Academic year 1430~1431

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LIST OF CASES FOR RESPIRATORY BLOCK

1. Case no. 1

BRIEF INFORMATION ABOUT THE CASE:

A 35-year-old female with nasal congestion.

2. Case no. 2

BRIEF INFORMATION ABOUT THE CASE:

A 27-year-old male with tightness in his chest and shortness of breath.

3. Case no. 3

BRIEF INFORMATION ABOUT THE CASE:

A 60-year-old male with difficulty in breathing over the last three days.

4. Case no. 4

BRIEF INFORMATION ABOUT THE CASE:

45 years old smoker man, with cough.

INSTRUCTION TO THE STUDENT:

Each week you will be given a clinical case for discussion and to final out what you will be searching and getting information to complete the case. These cases will be discussed in a small group with a tutor to guide you.

GENERAL INFORMATION

Block Title	: Respiratory Block
Block Code & Number	: Resp 112
Credit Hour	: 4
Block Duration	: 4Weeks
Block Dates	: 20 th Feb 2010 – 20 th March 2010
Block Chairman	: Dr. Sami Al-Nassar
Block Tutors	: Dr. Ahmed Fathalla Dr. Tarig Ahmed Abdulrahman Dr. Mona Badawi Dr. Maha Arafa Prof Kambal Prof. Abdulqader Al Haider

Tutor List for Respiratory Block Small Group Teaching GROUP A&B (Male)

Group 1	FACILITATOR: Dr. Waseem Mohammad Hajjar
Group 2	FACILITATOR: Prof. Mohd Addar
Group 3	FACILITATOR: Dr. Razaq Masha
Group 4	FACILITATOR: Dr. Hazem Al Mandeel
Group 5	FACILITATOR: Dr. Khalid Bin Abdulla Al Roqaiyi
Group 6	FACILITATOR: Dr. Mohammad Bin Abdullah Al Zagaiby
Group 7	FACILITATOR: Prof. Mohamed Osman Gadelrab
Group 8	FACILITATOR: Prof. Zahid Shakoor
Group 9	FACILITATOR: Prof. Marwan Al Khawja
Group 10	FACILITATOR: Dr. Khalid Al Ghamdi
Group 11	FACILITATOR: Dr. Osama Ibrahim
Group 12	FACILITATOR: Dr. Muneen Ullah Khan
Group 13	FACILITATOR: Dr. Ahmad Ibrahim Al Faheel
Group 14	FACILITATOR: Dr. Ali Mohammad Ahmad Mohammad
Group 15	FACILITATOR: Dr. Abel Munim Al Siddig

Tutor List for Respiratory Block Small Group Teaching (Female)

Group 1	FACILITATOR: Dr. Mona Badr
Group 2	FACILITATOR: Dr. Khawater Al-Bakhali
Group 3	FACILITATOR: Dr. Wadha Al Otaibi
Group 4	FACILITATOR: Dr. Fatma Al Dammas
Group 5	FACILITATOR: Dr. Fatima Hanam Ismail
Group 6	FACILITATOR: Dr. Raiza Abdultawab Mohammad
Group 7	FACILITATOR: Dr. Dr. Johara Al Mutawa
Group 8	FACILITATOR: Dr. Fatimah Al-Qahatani
Group 9	FACILITATOR: Dr. Maha Sajja
Group 10	FACILITATOR: Dr. Nahla Azam

RESOURCE PEOPLE

INSTRUCTOR	DEPARTMENT	EMAIL	PAGER
Dr.Tareg AbdelRahaman	Physiology	Tarig124@hotmail.com	
Dr.Ahamed Fathalla	Anatomy	ahmedfethale@hotmail.com	
Dr.Ammar AL-Rikabi	Pathology	Ammar_rikabi@hotmail.com	2750
Dr.Ali Mohammed	Anatomy	Alymahmed53@hotmail.com	
Prof.Abdulqader Al-Haider	Pharmacology	aqahaider@hotmail.com	0675
Dr.Essam Al-Eldin	Anatomy	Essamo58@yahoo.com	
Dr.Mohammed Mujahid	Anatomy	dralkhan@hotmail.com	
Dr.Saeed Mohammed	Anatomy	saeedmakarem@hotmail.com	
Prof.Kambal	Microbiology	kambal@ksu.edu.sa	1328
Dr.Mohammed Arif	Pathology	marif@ksu.edu.sa	0607
Dr.Ali Somily	Pathology	alisomily@yahoo.ca	2889
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Dr.Waheed Al-Hearzy	Biochemistry	harrizi@ksu.edu.sa	0016
Dr.Mona Badawi	Biochemistry	Mon_bad12@yahoo.com	
Dr.Reem Sallam	Biochemistry	Rsallam_10@hotmail.com	1344
Dr.Sumbol Fatma	Biochemistry	sumbulfatma@gmail.cpm	
Prof.Mohammed Gad El-Eab	Immunology	Mogad2003@yahoo.com	0180

WELCOME ADDRESS

Dear Students,

We are pleased to welcome you in the college of Medicine, Respiratory Block attachment. We hope you will find this block both useful and enjoyable.

General Learning Objectives:

At the end of the course, you will be able to

- Demonstrate the anatomy of the lung, thoracic outlet, diaphragm & accessory muscles of respiration
- Identify environmental, predisposing factors, epidemiology and prevention of common respiratory diseases
- Recall the Physiology of normal respiration, and its central and chemical control.
- Recognize Pathology and management of common respiratory diseases.
- Show the needed skills (clinical and laboratory) related to the Respiratory system
- Identify the drugs used in the treatment of different illness, pharmacological action and side effects.

Weekly learning Topics:

Week One:

- Anatomy of Nasal Cavity and Larynx
- Anatomy of Lungs and Pleura
- Muscles involved in respiration
- Thoracic wall and intercostals space
- Histology of nasal cavity , larynx and trachea
- Functions and organization of the respiratory system
- Mechanism of breathing
- Pathology of bronchial asthma and chronic obstructive airways diseases (COPD)
- Pathology of atopy, allergic diseases and atopy Pharmacological treatment of asthma and chronic obstructive airways diseases

Week Two:

- Development of larynx, trachea and bronchi
- Anatomy of larynx and cervical part of trachea
- Anatomy of mediastinum
- Histology of the lung
- Physiology of respiratory ventilation
- Gas transfer
- Oxygen and CO₂ transport
- Alveolar - arterial equation
- Glucose utilization and ATP production
- Microbiological and immunological aspects of Tuberculosis
- Treatment of Tuberculosis

Week Three:

- Radiological anatomy of the chest
- Control of breathing
- Restrictive lung diseases
- Viral infection of respiratory tract (influenza, adenoviruses)
- Bacteria causing lower respiratory tract infection
- Bacteria causing upper respiratory tract infection
- Staph and streptococcal infection
- Pharmacological aspects of respiratory tract infections
- Respiratory chain
- Alveolar - arterial equation
- Effect of low and high gas pressure on the body
- Pathology of lung cancer
- Pathology of pulmonary infection
- Glucose utilization and ATP production

Week Four:

- Effect of exercise on the respiratory system
- Parameters for measuring work capacity
- Cancers of the lung
- Pharmacological treatment of acute and chronic rhinitis and cough
- Diagnosis of type I allergy
- Phospholipids
- Globular protein: hemoglobin and myoglobin
- Immunology of rhinitis and bronchial asthma
- Respiratory fungal infection (Aspergillosis)

Instructional Methods:

- Small group discussion.
- Lectures.
- Seminars.
- Laboratory based practical.
- Clinical skills.
- Independent learning.
- Writing an essay or mini thesis.

Assessment of Students in the Block

In order to pass the block, you must obtain a minimum final block grade of D (the grading guide attached as appendix¹), this grade is a composition from several block requirements, which can be subdivided as:

- 1- Attendance
- 2- Tutor assessment
- 3- Written Exams
- 4- OSPE (Objective Structured Practical Examination)

The final grade is a composition of the grades obtained for the specified block requirements, calculated as follows:

• Continuous Assessment (Tutor Assessment and Attendance)	: 15%
• Written Examinations (MCQ)	: 55%
• Mid-Block Exam	25%
• Final Block Exam	30%
• OSPE	: 30 %
TOTAL	: 100 %

1. Attendance :

Students are required to attend not less than 75% of all educational activities during the block. These include small group teaching, lectures, practical sessions, skills training sessions and integrated clinical sessions.

Your attendance will be recorded during all sessions. Failure to meet this requirement without a valid explanation will result in exclusion from the final examination. On the other hand, your presence will be rewarded by assigned marks.

2. Tutor Assessment in Large and Small groups (Continuous Assessment):

During each session, your individual efforts will be evaluated by your tutor. The tutors are instructed to evaluate two aspects:

- a. The extent to which you demonstrate that you study and prepare yourself thoroughly between the two sessions (i.e., preparation).
- b. The extent to which you actively contribute during group discussion (i.e., participation). Your grade for each session depends upon both your preparation and your participation. The grade will be on the scale from “5”, “4”, “3”, “2”, or “1”. Which have the following general descriptors:

- 5 = Outstanding (Excellent)
- 4 = Very good
- 3 = Good
- 2 = Average
- 1 = Poor

The block contains two sessions each week, so the maximum amount of ‘participation points’ you are able to obtain will be from two sessions multiplied by the number of weeks. The total participation points will be recalculated according to the weight for each participation in the total assessment.

Your tutor can give you more information about the evaluation of your participation. The details of this evaluation also given in “Tutor Assessment of Student” form.

3. Written Examination:

- a. Mid block exam 25% : In the form of MCQs, these are prepared mainly from sessions presented to the students in large group. This exam will consist of 50 MCQs that will assess factual knowledge.
- b. Final written exam 30%: at the end of the block in form of MCQs, that are prepared mainly from sessions and presented to the students. This exam will consist of 80 MCQs that will assess factual knowledge too.

4. Objective Structured Practical Examination (OSPE):

This contains 30% of the marks. It is a practical examination at the end of the block. The OSPE examination will consist of 15-20 OSPE stations. Each station will take about 5 minutes, which contains a mix of slide show and some practical sessions. The purpose of the OSPE stations is to test your deeper understanding of the basic sciences. The OSPE will take place at the end of each block.

Block Evaluation

The block evaluation uses the following three data sources:

- 1. Student Feedback In form of **DREEM** – Dundee Ready Educational Environment Measure
- 2. Tutor Feedback
- 3. Student Results

Methods of student’s formative assessment:

- Self evaluation
- Peer evaluation
- Tutor evaluation (both summative & formative)
- Log book

Reading Materials

The respiratory system is the system that is responsible for bringing oxygen into our body and taking carbon dioxide out of our body, this term is called respiration. The respiratory tract is the path of air from the nose to the lungs. It is divided into two sections: **Upper Respiratory Tract** and the **Lower Respiratory Tract**. Included in the upper respiratory tract are the **Nostrils, Nasal Cavities, Pharynx, Epiglottis**, and the **Larynx**. The lower respiratory tract consists of the **Trachea, Bronchi, Bronchioles**, and the **Lungs**. The lungs are divided into lobes; the left lung is composed of the upper lobe, the lower lobe and the lingula (a small remnant next to the apex of the heart), the right lung is composed of the upper, the middle and the lower lobes.

As air moves along the respiratory tract it is warmed, moistened and filtered.

Functions of the respiratory tract

2. **BREATHING** or ventilation
3. **EXTERNAL RESPIRATION**, which is the exchange of gases (oxygen and carbon dioxide) between inhaled air and the blood.
4. **INTERNAL RESPIRATION**, which is the exchange of gases between the blood and tissue fluids.
5. **CELLULAR RESPIRATION**

In addition to these main processes, the respiratory system serves for:

- **REGULATION OF BLOOD pH**, which occurs in coordination with the kidneys, and as *DEFENSE AGAINST MICROBES*
- **Control of body temperature** due to loss of evaporate during expiration

Ventilation is the exchange of air between the external environment and the alveoli which is carried out by the muscles of respiration

First the oxygen must diffuse from the alveolus into the capillaries. It is able to do this because the capillaries are permeable to oxygen. After it is in the capillary, about 5% will be dissolved in the blood plasma. The other oxygen will bind to red blood cells. The red blood cells contain hemoglobin that carries oxygen. Blood with hemoglobin is able to transport 26 times more oxygen than plasma without hemoglobin. Our bodies would have to work much harder pumping more blood to supply our cells with oxygen without the help of hemoglobin. Once it diffuses by osmosis it combines with the hemoglobin to form oxyhemoglobin.

Now the blood carrying oxygen is pumped through the heart to the rest of the body. Oxygen will travel in the blood into arteries, arterioles, and eventually capillaries where it will be very close to body cells. Now with different conditions in temperature and pH (warmer and more acidic than in the lungs), and with pressure being exerted on the cells, the hemoglobin will give up the oxygen where it will diffuse to the cells to be used for cellular respiration, also called aerobic respiration. Cellular respiration is the process of moving energy from one chemical form (glucose) into another (ATP), since all cells use ATP for all metabolic reactions.

It is in the mitochondria of the cells where oxygen is actually consumed and carbon dioxide produced. Oxygen is produced as it combines with hydrogen ions to form water at the end of the electron transport chain (see chapter on cells). As cells take apart the carbon molecules from glucose,

these get released as carbon dioxide. Each body cell releases carbon dioxide into nearby capillaries by diffusion, because the level of carbon dioxide is higher in the body cells than in the blood. In the capillaries, some of the carbon dioxide is dissolved in plasma and some is taken by the hemoglobin, but most enters the red blood cells where it binds with water to form carbonic acid. It travels to the capillaries surrounding the lung where a water molecule leaves, causing it to turn back into carbon dioxide. It then enters the lungs where it is exhaled into the atmosphere

Mechanics of Breathing

To take a breath in, the *external intercostal muscles* contract, moving the ribcage up and out. The *diaphragm* moves down at the same time, creating negative pressure within the thorax. The lungs are held to the thoracic wall by the *pleural membranes*, and so expand outwards as well. This creates negative pressure within the lungs, and so air rushes in through the upper and lower airways.

Expiration is mainly due to the natural elasticity of the lungs, which tend to collapse if they are not held against the thoracic wall.

Stimulation of Breathing

There are two pathways of motor neuron stimulation of the respiratory muscles. The first is the control of voluntary breathing by the cerebral cortex. The second is involuntary breathing controlled by the medulla oblongata.

There are chemo-receptors in the aorta, the carotid body of carotid arteries, and in the medulla oblongata of the brainstem that are sensitive to pH. As carbon dioxide levels increase there is a buildup of carbonic acid, which releases hydrogen ions and lowers pH. Thus, the chemoreceptors do not respond to changes in oxygen levels (which actually change much more slowly), but to pH, which is dependent upon plasma carbon dioxide levels. In other words, CO₂ is the driving force for breathing. The receptors in the aorta and the carotid sinus initiate a reflex that immediately stimulates breathing rate and the receptors in the medulla stimulate a sustained increase in breathing until blood pH returns to normal.

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4. **Textbook of Biochemistry with Clinical Correlations.** Wiley-Liss. 2005. 6th Edition. 0471678082
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4. **Color Textbook of Histology (Text & Atlas)** L.P. Gartner & J.L. Hiatt. 3rd Edition W.B. Saunders, London- NY
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6. **Grant's Atlas of Anatomy** By A.M.R. Agur, A.F. Dally. 12th Edition Lippincott Williams & Wilkins
7. **Clinical Anatomy** By R.S. Snell. 8th Edition Little Brown & Co. UK
8. **NeuroAnatomy** By A.R. Crossman D. Neary. 3rd Edition Churchill Livingstone
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10. **A practical guide to Clinical Virology.** By R. J. Whitley. Latest Edition John Wiley, NY, U.S.A. ISBN 0-470-85687-4

TUTOR CONTACTS INFORMATION

CHAIRPERSON: Dr. Sami Al Nassar		
CO-CHAIR: Prof. Abdulmajeed Kambal		
MEMBERS	DEPARTMENT	E-MAIL ADDRESS
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Dr. Tarig Ahmed Abdulrahman	Physiology Department	tarig124@hotmail.com
Dr. Mona Badawi	BiochemistryDepartment	mon_bad12@yahoo.com
Dr. Maha Arafa	Pathology Department	marafah@ksu.edu.sa
Prof. Abdulqader Al Haider	PharmacologyDepartment	galhaider@ksu.edu.sa
Prof. Mohamed Osman Gad El Rab	Immunology Department	mogad2003@yahoo.com



**TUTOR ASSESSMENT OF STUDENT
SCHOOL YEAR 2009-2010**

Student Name: _____ **Block Title:** _____
Tutor Name: _____ **Block Dates:** _____

Complete this form for each student in your group. Give your constructive feedback to the student at the end of the session. Please submit your form to the appropriate program staff.

Record your global (overall) rating of this student's performance in the 2nd Small Group Session. Make this judgment with reference to the performance criteria of three skills area: Preparation, Participation Behavior. (See the details for description of each area) Please discuss your evaluation feedback with the student.

PERFORMANCE CRITERIA						
1. Preparation a. Familiar with the content of basic references b. Illustrate concepts with specific examples. c. Identifies when help is needed. d. Gets beyond the basic texts. e. Integrates knowledge across organization levels. f. Generally well prepared.	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </table>	1	2	3	4	5
1	2	3	4	5		
2. Participation a. Contributes actively, regularly and substantially to the learning group. b. Draws diagrams, flowcharts and tables to explain, explore and summarize. c. Demonstrate and improves skills in the small group teaching process. d. Uses evidences. e. Facilitates participations of others. f. Engages in (and initiates) assessment, goal-setting and monitoring for self and the group. g. Critically assesses and challenges others' concepts and ideas in a logical and constructive way. h. Makes links with prior relevant reading.	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </table>	1	2	3	4	5
1	2	3	4	5		
3. Professional Behavior a. The student comes on time, and doesn't arrive late or leave early. b. Consistently demonstrates kindness, caring, acceptance of responsibility, honesty and fairness. c. Attend to good functioning of the group. d. Explains and discusses using terminology e. Knowledgeable about, and demonstrates the application of ethical principles. f. Accurately identifies areas personal strength and weakness. g. Demonstrates self awareness and discloses feelings and values. h. Gives and receives feedback with skill and useful outcomes i. Absence with excuse or absence without excuse.	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </table>	1	2	3	4	5
1	2	3	4	5		
TOTAL						



Global Rating: Meet the requirements Requires improvement

**KING SAUD UNIVERSITY
COLLEGE OF MEDICINE
MEDICAL EDUCATION DEPARTMENT**

**SMALL GROUP TUTOR EVALUATION FORM
BLOCK**

Date: _____

Tutor's Name: _____ Group No.: _____

Student: Peer: Other: Name (Optional): _____

How well did the tutor facilitate group process in the following regards? Please put a check (✓) in the box.

- 1. Appropriately facilitated the brainstorming sessions. 1 2 3 4 5
- 2. Appropriately facilitated the hypothesis reorganization sessions. 1 2 3 4 5
- 3. Appropriately facilitated the reporting sessions. 1 2 3 4 5
- 4. Appropriately manage the time flow. 1 2 3 4 5
- 5. Help to keep the group focused on its task 1 2 3 4 5
- 6. Provided a well balanced intervention within the group process, but avoided dominating. 1 2 3 4 5
- 7. Intervened when chairman or reporter needed. 1 2 3 4 5
- 8. Provided constructive positive and constructive feedback to the group as needed. 1 2 3 4 5
- 9. Encouraged positive and constructive feedback within the group about its performance 1 2 3 4 5
- 10. Showed enthusiasm. 1 2 3 4 5
- 11. Helped to create a supportive group climate. 1 2 3 4 5
- 12. Encouraged logical and critical thinking. 1 2 3 4 5
- 13. Overall rating of the tutor. 1 2 3 4 5

Number Code Values:

5- EXCELLENT 4- VERY GOOD 3-GOOD 2- FAIR 1- POOR