



CD 8.5.1 DISCIPLINE CURRICULUM

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FACULTY OF MEDICINE
STUDY PROGRAM 0912.1 MEDICINE
DEPARTMENT OF INTERNAL MEDICINE
GERIATRICS AND OCCUPATIONAL MEDICINE

APPROVED
at the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum faculty
Minutes No. 1 of 16.09.21

Chairman professor, doctor, PhDH
Suman Sergei _____

APPROVED
at the Council meeting of the Faculty Medicine 2
Minutes No. 1 of 21.09.21

Dean of Faculty, associate professor, PhD
Mircea Betiu _____

APPROVED
approved at the meeting of the chair
Geriatrics and occupational medicine
Minutes No.3 of 16.09.2021

Head of chair, professor, doctor, PhDH
Nicolae Bodrug _____

SYLLABUS

OCCUPATIONAL MEDICINE AND OCCUPATIONAL DISEASES

Integrated studies

Type of course: Compulsory discipline

Names of the authors who teach course units:

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Chisinau, 2021



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I. Introduction

- The Discipline Occupational medicine and occupational diseases is a suitable medical field for integration and implementation of basic medical sciences (anatomy, pharmacology, human physiology, pathophysiology etc.) in clinical practice. During the course, the student will study the causes (etiology), clinical manifestations and effects on organs (clinical pathology), recognition (diagnosis), treatment (therapy) and prevention (prophylaxis) of the diseases caused by noise, poisonings and diseases caused by exposure to chemicals, diseases caused by musculoskeletal overuse professional, occupational diseases caused by dust, asbestos and silicone and skin diseases, diseases caused by vibration, poisoning by pesticides and other chemical compounds used in agriculture (chlorine-, phosphorus-organic and derivatives nitrophenol) that affect the human body.
- **Mission of the curriculum in professional training**
Occupational Diseases mission is to provide theoretical and practical skills, support and cultivate skills and attitudes necessary to practice medicine as an important part of maintaining of occupational health and working capacity.
- **Language(s) of the course:** English.
- **Beneficiaries:** 5th year students, faculty of Medicine II.

II. MANAGEMENT OF THE DISCIPLINE

III. Code of discipline		S.09.O.080	
Name of the discipline		Occupational medicine and occupational diseases	
Person in charge of the discipline		Head of chair, professor, PhD Nicolae Bodrug	
Year	V	Semester	IX
Total number of hours, including:			60
Curs	10	Practical/laboratory hours	10
Seminars	10	Self-training	30
Form of assessment	E	Number of credits	2



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III. TRAINING AIMS WITHIN THE DISCIPLINE

At the end of the discipline study the student will be able to:

At the level of knowledge and understanding

- Know the causes and genesis of Occupational diseases affecting the human health;
- Acquire knowledge necessary to make the diagnosis of each professional diseases;
- Acquire knowledge in specifying clinical examination and laboratory features for patients with diseases caused by noise, poisonings and diseases, caused by exposure to chemicals, diseases caused by overuse of locomotors diseases, caused by dust, asbestos and silicon diseases and occupational skin diseases, caused by vibration;
- Develop clinical reasoning principle of knowledge and identification of various disease symptoms and signs present in occupational diseases;
- Prepare clinical thinking, skills of analysis and systematize clinical examination and laboratory results;
- Develop clinical diagnosis (establishing occupational exposure), positive and differential professional diseases
- Know the diagnostic algorithm and argument individually appropriate treatment, etiologic treatment and treatment tactics in cases of unidentified etiology, pathogenetic treatment, symptomatic (drugs, doses, route of administration, mechanism of action, adverse actions and their prevention, contraindications, duration of treatment, predicting the evolution of pathology established the patient in question);
- Enhance, enrich and implement in clinical practice knowledge in the field of ethics and medical ethics
- Use knowledge gained in the process of law by strengthening, enriching and implementation in clinical practice.

At the application level:

- **Theoretically:** acquire knowledge related to clinical features of Occupational Diseases;
- **Practice:**
- assess the results of clinical examination of patient treatment, presumptive diagnosis reasoning, reasoning program preparation and laboratory investigations and consultations from other physicians, specialists, making differential diagnosis: conditions that must be taken into consideration, the criteria of differentiation;
- acquire the issuing of medical documents;
- acquire habits of prophylactic recommendations (technical and organizational measures and health measures) and control, depending on the feature of each professional diseases with major impact on health.

At the level of integration

- appreciate the importance of occupational diseases in the context of internal medicine and related disciplines health integration;
- possess the skills to implement and integrate knowledge between occupational medicine and other clinical disciplines ;



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- approach originally problems from clinical practice;
- to be able to determine and self-assess objectively evaluate and self-assess knowledge in the field;
- be able to implement the principle of integrated activities (education, health care, scientific research), which involves acquiring the appropriate methodology to solve the problems of medical practice
- be able to assimilate new developments in the discipline of occupational diseases.

IV. PROVISIONAL TERMS AND CONDITIONS

Occupational medicine and occupational diseases is a suitable medical field for integration and implementation of basic medical sciences (anatomy, human physiology, microbiology, pathophysiology etc.) in clinical practice.

The Discipline Occupational Medicine and Occupational Diseases is one of the disciplines in the university training of students, regardless of specialty chosen later, is the widest field of integration and implementation of fundamental knowledge (anatomy, human physiology, pathophysiology, chemistry, pharmacology, biology, etc.) in clinical practice. In this discipline, along with studying the etiology, pathogenesis, clinical manifestations, evolution, treatment and prevention of diseases professional specialists accumulate practical skills for investigation and assessment of patient's outcomes, assessment of the impact that new technologies have on the body, put the basis of clinical appropriate treatment and early detection of diseases, which ensure proper diagnosis.

Occupational Diseases has a distinct position in establishing the foundations of clinical thinking, which will provide the future doctor with the necessary skills and knowledge to make the correct diagnosis, treat diseases, as well as fix emergency situations related to Occupational Diseases.

V. THEMES AND ESTIMATE ALLOCATION OF HOURS

Lectures, practical hours/ laboratory hours/seminars and self-training

No. d/o.	Themes	Number of hours		
		Lectures	Practical hours	Self-training
1.	Introduction to the discipline of Occupational Medicine. Definition. Purposes of occupational medicine. Areas of occupational medicine component. Condition of employment. Occupational hazards. The action of professional hazards.	2 hours	4 hours	6 hours
2.	Poisoning with acute and chronic plumb. Etiology. Pathophysiology. The clinical picture. Diagnosis. Differential diagnosis. Treatment. Prophylaxis.	2 hours	4 hours	6 hours



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3.	Diagnosis and management of poisoning with organophosphates and organochlorines insecticides. Diagnosis and management of acute and chronic organochlorines, organophosphates insecticides poisoning. Etiology. Pathogenesis. Signs and symptoms. Diagnosis. Complications. Treatment. Prevention.	2 hours	4 hours	6 hours
4.	Occupational diseases induced by physical factors-vibration. Etiology. Pathogenesis. Signs and symptoms. Diagnosis. Complications. Treatment. Prevention.	2 hours	4 hours	6 hours
5.	Pneumoconiosis. Definition. Types. Etiology. Pathogenesis. The clinical picture. Signs and symptoms. Complications. Positive diagnosis. Differential diagnosis. Treatment. Prophylaxis. Poisoning with acute and chronic benzene and its homologues. Etiology. Pathophysiology. The clinical picture. Diagnosis. Differential diagnosis. Treatment. Prophylaxis.	1 hour 1 hour	4 hours	6 hours
	Total	10 hours	20 hours	30 hours

VI. PRACTICAL TOOLS PURCHASED AT THE END OF THE COURSE

1. Clinical examination of a patient with occupational disease pathologies.
2. Detection of functional symptoms and clinical syndromes.
3. Knowing the diagnostic criteria of occupational disease pathologies patients.
4. Interpretation of laboratory tests results.
5. Knowledge necessary to identify categories of risk factors and agents: professional nuisance.
Principles and methods used in risk assessment: hazard identification, dose-response assessment, exposure assessment, risk characteristics, toxicity impaired digestive system, CNS, respiratory, cardiac, hematopoietic treatment.
6. Application of hygiene measures and labor protection, individual and collective protection measures against labor and human exposure to physical, chemical, biological, toxic, etc.
7. Registration of the observation form for assessing professional route of occupational diseases.
8. Knowledge of contemporary treatment of occupational diseases.
9. Prescribing of drugs of major groups.



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10. Qualified first aid if:

- Acute poisoning with Organophosphates pesticide
- Acute poisoning with Organochlorines pesticide
- Acute poisoning with pesticides nitrophenol compounds
- Acute poisoning by benzene and its derivatives
- Acute lead poisoning
- Poisoning by heavy metals and their compounds
- Industrial dust poisoning (asbestoz, antracos, siderosis, silicatos, silicosis).
- Poisoning by organic compounds: organic solvents, aliphatic, aromatic.

VII. REFERENCE OBJECTIVES OF CONTENT UNITS

Objectives	Content units
Theme (chapter) 1. Introduction to the discipline of Occupational Medicine. Definition. Purposes of occupational medicine. Areas of occupational medicine component. Condition of employment. Occupational hazards. The action of professional hazards.	
<ul style="list-style-type: none">• To be able to classify Occupational Diseases• To be able to interpret laboratory data and diagnostic imaging results• To know the purposes of occupational medicine• To know the areas of occupational medicine component• To know the occupational hazards, condition of employment of Occupational hazards.• To demonstrate the physical examination of a patient with Occupational diseases.	Definition of the discipline of Occupational Medicine Classification of Occupational Diseases Purposes of occupational medicine The areas of occupational medicine component Occupational hazards The action of professional hazards.



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Objectives

Content units

Theme (chapter) 2 Poisoning with plumb. Etiology. Pathogenesis. The clinical picture. Diagnosis. Management principles Differential diagnosis. Complications. Treatment. Prophylaxis.

- To define the notion of poisoning with plumb
- To know the clinical manifestations of poisoning with plumb
- To know the diagnostic criteria of poisoning with plumb
- To know the management principles of poisoning with plumb
- To demonstrate the roles of risk factors in the development of poisoning with plumb
- To demonstrate how the etiology leads to the development of poisoning with plumb
- To integrate all the knowledge for establishing the correct treatment for acute and chronic poisoning with plumb.

Definition of poisoning with plumb

Etiopathogenesis of poisoning with plumb

Classification of poisoning with plumb

Clinical manifestations of poisoning with plumb

Laboratory assessment and diagnostic imaging

Treatment of poisoning with plumb

Complications of poisoning with plumb

Prophylaxis of poisoning with plumb

Theme (chapter) 3. Diagnosis and management of poisoning with organophosphates and organochlorines insecticides. Etiology. Pathogenesis. Diagnosis and management of organochlorines, organophosphates insecticides poisoning. Signs and symptoms. Diagnosis. Complications. Treatment. Prevention.

- To define the notion of poisoning with organophosphates and organochlorines insecticides
- To know the clinical manifestations of acute and chronic poisoning with organophosphates and organochlorines insecticides
- To know the classification of poisoning with organophosphates and organochlorines insecticides
- To know the diagnostic criteria and management of acute and chronic poisoning with organophosphates and organochlorines insecticides
- To demonstrate the roles of risk factors in the development of poisoning with

Definition of poisoning with organophosphates and organochlorines insecticides

Diagnosis and management of poisoning with organophosphates insecticide

Diagnosis and management of organochlorines insecticide poisoning

Etiopathogenesis of poisoning with organophosphates and organochlorines insecticides

Classification of poisoning with organophosphates and organochlorines insecticides



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Objectives	Content units
<p>organophosphates and organochlorines insecticides</p> <ul style="list-style-type: none"> To demonstrate how the etiology leads to the development of acute and chronic poisoning with organophosphates and organochlorines insecticides To integrate all the knowledge for establishing the correct treatment for acute and chronic poisoning with organophosphates and organochlorines insecticides. 	<p>Signs and symptoms of poisoning with organophosphates and organochlorines insecticides</p> <p>Laboratory assessment and diagnostic imaging</p> <p>Complications of poisoning with organophosphates and organochlorines insecticides</p> <p>Treatment of poisoning with organophosphates and organochlorines insecticides</p> <p>Prevention of poisoning with organophosphates and organochlorines insecticides.</p>
<p>Theme (chapter) 4. Occupational diseases induced by physical factors-vibration. Etiology. Pathogenesis. Classification. Clinical manifestations. Laboratory assessment and diagnostic imaging. Complications. Treatment. Prevention.</p>	
<ul style="list-style-type: none"> To define the notion of occupational diseases induced by physical factors To define the notion of occupational diseases induced by - vibration To know the clinical manifestations of occupational diseases induced by physical factors- vibration To demonstrate how the etiology leads to the development of occupational diseases induced by physical factors- vibration To demonstrate the roles of risk factors in the development of occupational diseases induced by physical factors- vibration. To integrate all the knowledge for establishing the correct treatment for occupational diseases induced by physical factors- vibration. 	<p>Definition Occupational diseases induced by physical factors. Vibration.</p> <p>Etiopathogenesis of occupational diseases induced by physical factors- vibration</p> <p>Classification of occupational diseases induced by physical factors- vibration</p> <p>The action of noise on the human body.</p> <p>Illness through exposure to physical factors:</p> <ul style="list-style-type: none"> Occupational vibration syndrome Hand-arm vibration (HAV) Whole-body vibration (WBV) Vibration white finger (VWF) Hand-arm vibration syndrome (HAVS) Raynaud's phenomenon <p>Clinical manifestations</p> <p>Laboratory assessment and diagnostic imaging</p> <p>Complications</p> <p>Treatment</p> <p>Prevention.</p>



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Objectives

Content units

Theme (chapter) 5. Pneumoconiosis. Definition. Types. Etiology. Pathogenesis. The clinical picture. Signs and symptoms. Complications. Positive diagnosis. Differential diagnosis. Treatment. Prophylaxis.

Poisoning with benzene and its homologues. Etiology. Pathogenesis The clinical picture. Diagnosis. Differential diagnosis. Treatment. Prophylaxis.

- To define the notion of pneumoconiosis
To know the classification of pneumoconiosis according to the etiology and clinical picture
To know the clinical manifestations of pneumoconiosis
To demonstrate how the etiology leads to the development of pneumoconiosis
To integrate all the knowledge for establishing the treatment for pneumoconiosis.
To define the notion of - Silicosis
To know the clinical manifestations of Silicosis
To define the notion of - asbestosis.
To define the notion of poisoning with benzene and its homologues
To know the classification of poisoning with acute and chronic benzene and its homologues
To know the clinical manifestations of acute and chronic poisoning with benzene and its homologues
To demonstrate how the etiology leads to the development of acute and chronic poisoning with benzene and its homologues
To integrate all the knowledge for establishing the treatment for acute and chronic poisoning with benzene and its homologues.

Definition of Occupational respiratory lung disease
Silicosis. Definition, etiology
Etiopathogenesis
Classification
Clinical manifestations
Laboratory assessment and diagnostic imaging
Treatment
Prevention
Asbestosis, etiopathogenesis
Asbestosis, clinical manifestations
Asbestosis, laboratory assessment and diagnostic imaging
Asbestosis, treatment
Definition
Types
Etiopathogenesis
Classification
Clinical manifestations
Laboratory assessment and diagnostic imaging
Treatment
Prevention



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**VIII. PROFESSIONAL (SPECIFIC (SC)) AND TRANSVERSAL (TC) COMPETENCES
AND STUDY OUTCOMES**

✓ **Professional (specific) (SC) competences**

- SC1. Responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the provisions of the legislation in force.
- SC2. Adequate knowledge of the sciences about the structure of the body, physiological functions and behavior of the human body in various physiological and pathological conditions, as well as the relationships between health, physical and social environment.
- SC3. Resolving clinical situations by developing a plan for diagnosis, treatment and rehabilitation in various pathological situations and selecting appropriate therapeutic procedures for them, including providing emergency medical care.
- SC4. Promoting a healthy lifestyle, applying prevention and self-care measures.

TC1. Autonomy and responsibility in the activity

✓ **Study outcomes**

Teaching students in line with the strictness of the medical act and the understanding of basic sciences for the particular level, as well as for the professional formation.

Obtaining of the practical skills to perform correctly various medical tests, and understand their real value;

Theoretical and practical training for helping students put the correct diagnosis of Occupational diseases.

Note. Study outcomes (are deduced from the professional competencies and formative valences of the informational content of the discipline).

IX. STUDENT'S SELF-TRAINING

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Interacting with patients	Examination of patient and making of a presumptive diagnosis, with subsequent recommendation for a more complex assessment and treatment.	The ability to create conclusions and the correctness of writing a medical report.	During the course
2.	Preparation of presentations	Choosing of research subject, determination of the plan and deadline.	The degree of insight of the project's subject, the level of scientific support, the quality of	Until the end of the course



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	, posters and reports.	Choosing the plan for PowerPoint presentation, poster or report – subject, scope, results, conclusions, practical applications, references.	conclusions, ingenuity elements; the formation of personal attitude, coherence and the correctness of scientific data; graphical representation, mode of presentation.	
3.	Using different teaching methods		The volume of work, the degree of insight of the project’s subject, the level of scientific support, the quality of conclusions, ingenuity elements; the formation of personal attitude.	During the course

X. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

• ***Teaching and learning methods used***

Occupational Diseases and occupational diseases discipline is a mandatory discipline and it is taught according to the classical university standards: courses, seminars and practical lessons. The theoretical course is held by tenured professors.

The discipline reserves the rights to hold the practical lessons and courses in an interactive manner.

Methods of teaching - learning: lecture, heuristic conversation, explanation, discussion, problem-solving, simulation of situations, methods of group work and individual study curriculum documents and references.

Discipline of Occupational Diseases and occupational diseases is taught in the classical manner: with lectures and practical work.

The lectures are read by the lecture owners.

Department reserves the right to have the practical work and lectures in an interactive manner.

Algorithm of a practical lesson in the Occupational Diseases

duration - 5 academic hours (225 min)

- a. Answers to questions on the topic by the teacher - 10 to 15 min.
- b. The initial knowledge base (pretest) - 15 to 20 min.
- c. Independent work with patients - 30 - 35 min.
- d. Topic discussion using teaching and illustrative materials - 60 min.
- e. Further topic discussion of clinical case specific and based on type of situation problems with the results of laboratory and instrumental investigations. - 60 min.
- f. Estimate practical properties of the theme, conclusions - 10 min.



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Theoretical courses are taught classically: with slides, interactively.

Practical lessons are spent methodically, widely using different illustrative clinical materials. Depending on the time dynamics of the educational process, various types of seminar sessions, are applied: introductory workshops, seminars basic overview seminars, discussion, lecture, applications, making instructional objective (informative) - education (formative), which is based on such characteristics as: mobility, diversification, specialization.

Practical works are proposed:

- examination of patients together with students, and laboratory interpretation of laboratory investigations, assessment of the work;
- periodic testing of practical knowledge;
- student involvement in the preparation of clinical cases or exposures theoretical topics;
- presentation of materials with different disease conditions generating professional work, concrete ways positive diagnosis of occupational diseases
- the development of clinical reasoning: assessing the clinical examination of patient outcomes in the context of individual clinical case, the argument presumptive diagnosis, preparation and laboratory investigations program arguments and advice of other doctors - specialists, making the differential diagnosis, formulate a positive diagnosis (clinical) practice.

Clinic reserves the right to spend some practical work in interactive and modern approach:

teaching strategies focused on active and interactive learning:

- Activity centered and on students
- Multidirectional communication
- Emphasis on thinking development
- Skills training
- Encouraging of participation initiative, creativity
- Assessment of their own work
- Transforming of student from learning object into learning subject
- Predominantly formative component, cognitive component balanced evaluative component.

- **Methods of assessment (including the method of final mark calculation)**

Current:

- a. During practical lessons – at each practical lesson, the students obtain a mark based on the pretest (usually impromptu), the performance at the patient's bedside, the communication of the report at the respective topic.
- b. Medical report is marked at the end of the discipline and its discussion is performed in front of the colleagues during the course.

Final Exam

Students who have an average mark lower than 5 or did not recover the absences, are not admitted to the final exam.

In the discipline of occupational diseases during the studies, the assessment of students' knowledge are made:

- The assessment of theoretical knowledge (oral);
- The completion of the module by performing practical tests by examining and discussing a clinical case;
- Assessment of clinical observation sheets;
- Is carried out according to the course work and practical lessons;
- Written and oral tests.



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Assessment methods:

Current assessments:

- practical lessons - every lesson student is rated at under estimate pretest (most commonly in the form of pop quiz), worked at the bedside, communication, referred to the theme, and the theme of practical properties;
- medical observation card is assessed at its presentation and discussion at the end of the module;

At the end of occupational diseases subject it has finished with the exam.

The final mark is composed from the following: the average mark during the course x 0.5, oral exam X 0.3 coefficient; multiple-choice tests X 0.2 coefficient.

Rating Scale

Assessment of the knowledge is marked with grades from 10 to 1, without decimals:

- Mark 10 or “excellent” (ECTS equivalent – A) is given for learning of 91-100% of the material;
- Mark 9 or “very good” (ECTS equivalent – B) is given for learning of 81-90% of the material;
- Mark 8 or “good” (ECTS equivalent – C) is given for learning of 71-80% of the material;
- Mark 6 and 7 or “fair” (ECTS equivalent – D) are given for learning of 61-65% and 66-70% of the material respectively;
- Mark 5 or “poor” (ECTS equivalent – E) is given for learning of 51-60% of the material;
- Mark 3 and 4 (ECTS equivalent – FX) are given for learning of 31-40% and 41-50% of the material respectively;
- Mark 1 and 2 or “insufficient” (ECTS equivalent – F) are given for learning of 0-30% of the material;

Method of mark rounding at different assessment stages

Intermediate marks scale (annual average, marks from the examination stages)	National Assessment System	ECTS Equivalent
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	



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8,01-8,50	8,5	B
8,51-8,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

The average annual mark and the marks of all stages of final examination - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.

Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations.

XI. RECOMMENDED LITERATURE:

A. Compulsory:

In English:

Essentials of Managed Health Care (2010), 4th edition. By: Peter R. Kongstvedt. Aspen Publisher.

- Presentations.

In Romanian:

1. Practica medicinei muncii, I. Manu, Toma Niculescu; Editura Medicală Bucuresti 2008

2. Manual de patologie profesională, vol. I, Toma Niculescu, Editura medicală Bucuresti 200

3. Manual de patologie profesională. Vol. 2, sub redacția T. N. Niculescu. București. Editura Medicală, 2010.

B. Additional:

1. Curs de medicina muncii, Toma Niculescu, Editura medicina muncii. 2009.

2. Indreptar practic de medicina muncii, Toma Niculescu, Editura medicina muncii. Bucuresti. 2009;

3. Medicina muncii, vol. I, Toma Niculescu, Ion Toma, Anca Pavel, Editura Medicina muncii. 2009;

4. Cocarla A., Tefas L., Petran Marilena, Manual de Medicina Muncii, Ed. Medicala Universitara "Iuliu Haieganu", Cluj-Napoca, 2009.