DRUG ABUSE

eLEARNING PROGRAMME FOR MEDICAL STUDENTS AND YOUNG DOCTORS

Guide Book

Authors:

Regina Komsa-Penkova

Pencho Tonchev

Ani Kamenova

Valeria Valentinova

Svetlana Angelova

Notice

The writing of this text was accomplished through an extensive review of literature, web sites, web portals, virtual universities and through the use of critiques provided by experts and specialists. Every attempt has been made to develop a content that is current, accurate and presented in a logical manner appropriate for the users. As this vast amount of information was processed, inaccuracies or omissions may have occurred. However, the authors and publishers are not responsible for error or omissions or for any consequences from application of the information in this text and make no warranty, express or implied, with respect to the contents of this publication.

Training of Medical Students and Young People as Promoters of Prevention of Drug Abuse

Leonardo da Vinci Programme

Pilot Project: BG/04/B/F/PP-166016

ISBN-10: 954-756-066-2
ISBN-13: 978-954-756-066-6

This Guide Book has been developed for the eLearning Programme (eLP) by a team of European partners under the framework of the EU programme – Leonardo da Vinci, as a pilot project N BG/04/B/F/PP-166016, titled "Training of Medical Students and Young People as Promoters of Prevention of Drug Abuse".

This book describes the structure and management of virtual programme (eLP) for training in drug abuse prevention and treatment. It aims at helping students to improve their skills.

Users are provided with instructions for registration, enrolment and certification; explanation of training rules and training procedures, training contents template and description of its components, methodology of innovative approaches and individual guidance, nature of communication with tutors and peers.

CONTENTS

Introduction

Welcome to the eLearning Programme for Training of Medical Students and Young People as Promoters of Prevention of Drug Abuse

eLearning programme (eLP) has been developed by European partners with the support of the European Commission, General Directorate for Education and Culture Leonardo da Vinci Programme.

eLearning Programme is based on the Educational curricula prepared by European experts and it offers 20 training modules combining a variety of innovative learning methodologies. Regular courses organised in the frame of the programme contribute to intensive training and certification in prevention and treatment of drug abuse

To achieve the project aims and objectives following products have been developed:

1. Web site www.drugs-mesada.com was developed for project dissemination; it provides access to the information about the project, main activities, partners' information, links to similar web-sites and educational resources.

2. eLP: Educational Portal for Training of Medical Students and Young People as Promoters of Prevention of Drug Abuse. The portal provides access to online training and self-preparation. It contains the instruments for eLearning: core curriculum, training contents, recourses for innovative training, tools for assessment, procedures for credit accumulation and certification; the instructions to guide the learning process. eLP could be also used as a very suitable adjunct to the courses on certain topics for intensive training and certification.
It contains as well **database** of information on real-life cases for PBL. The information was collected by students guided by experts at various Centres for Drugs and Drug Abuse (CDDA). The cases are useful tool for practical training. It contains as well research of the participants in the project as it was accepted by partners as a good training tool for problem description and analysis.

3. Guide book navigating users – contains guidelines for eLearning programme. It provides clear, complete, and timely information on the curriculum, topics to be studied, scale of subjects, short content and summaries of modules, programme of the courses, detailed instructions for training, and

materials for practical work (questionnaires, clinical cases, etc.). It includes instructions how to organize individual sequence of teaching and learning activities, to plan the educational goals according to the needs and availability, to plan the average length of the training (per module and overall). It also describes nature of interaction with tutors and administrators, prerequisites, equipment requirements, costs and payment policies.

4. Study Manual containing educational modules developed by partners: experts in collaboration with students according to the core curriculum. The Study Manual serves as supplementary material to the online modules of the eLearning Programme.
The main objective of this manual is to present basic knowledge about drugs, their short-term and long-term effects on human organism, and principles of prevention and treatment of drug abuse. It is constructed in a way that introduces the student step by step to modern training contents. The updated and comprehensive information provides a powerful tool contributing to the alleviation of one of the biggest problems of contemporary society.

5. Materials for Practical work with risk group: computer based presentations, leaflets, posters, brochures, interactive questionnaires, game-based materials, interactive computer-based products.

Partners and participants

Alliance "Health in Our Hands" – Pleven, Bulgaria: R. Komsa-Penkova, A. Kamenova, V. Valentinova, Z. Georgieva, K. Temov, M. Spasova, I. Ivanov, V. Krasteva, O. Pudovka, S. Vaid, R. Raj, J. Radenkova

University of Medicine – Pleven, Bulgaria: T. Genadieva, P. Tonchev, A. Ganeva, E. Docheva, Z. Kirovakov, D. Micevski, G. Bacheva, A. Izmaylov, F. Mehmedova, B. Buzeva, S. Stoyanova, E. Peychev, D. Khatri

Universite Libre de Bruxelles, Bruggman Hospital – Brussels, Belgium: E. Streel, P. Varbanck, I. Pelck, F. Weil

Vilnius Toxicology Clinic – Vilnius, Lithuania: R. Badaras, E. Atkociunas, S. Simanauskaitė, T. Kajokas.

Chapter 1

The problem of drug abuse

The problem of drug abuse is assuming major proportions. Comparatively easy access makes it easier for more and more adolescents to take up the habit. The average age at which heroin abuse starts is 15 – 16 years, while other drugs are used by 10 – 13 year olds. Adequate action is necessary to stop the growth of this menace to health and society.

During the last decade, the European Council made significant and important efforts against the spread of drug abuse. European and national Monitoring Centres for Drugs and Drug Abuse were established. The EU Drug Strategy (2000-2004) states that: "it is necessary to develop and implement preventive actions and strategies for all age groups, particularly children and young people" and "efforts directed at young people should involve their own contributions to ensure peer influences and support, i.e. activities should address young people and involve them directly in prevention activities".

However, the campaigns for drug prevention are not sufficient and effective and are usually guided by adults: medical doctors, social workers who due to the generation gap are unable to communicate effectively with the youngsters at risk. The age difference leads to a communication barrier that reduces the efficiency of their work, and fails to change the priorities of group at risk. Thus, to increase the effectiveness of prevention policies it is very important to ensure better contact with the affected and risk groups and to qualify young people in the field of drug prevention: "efforts directed at young people ... should involve their contributions".

The eLP provides an opportunity to young people to become all-new brand of medical specialists; possessing the expertise in the field of drug abuse prevention and treatment.

The eLP applies innovative educational methods; building a network of partners: experts and students that focus their activity in the field of prevention and treatment of drug abuse; so that to contribute to the alleviation of one of the biggest problems of modern society.

The mainstreams of eLP

eLearning programme

Drug Abuse Prevention and Treatment

Innovative training approaches of eLP

We are living in an epoch of intensive change. The ongoing information revolution and technological developments are contributing to a rapid transition of our society into a knowledge-based society. These challenges demand a new approach to education and training opportunities in the life-long perspective.

eLearning age

Information and Communication Technologies (ICT) have changed the idea of training starting eLearning age.

The use of ICT in the field of education has opened up a variety of opportunities to enhance learning processes in terms of accessibility, flexibility, knowledge sharing, and scalability. eLearning makes it possible to improve the competencies and knowledge at a time, place and pace that is suitable and convenient for the individual student.

- eLearning offers access to high-quality educational contents;
- eLearning provides the accumulated world-wide expertise on the problem;
- eLearning opens the horizons and removes the limits of one educational institution;
- eLearning provides the flexibility to modify, change and to update the contents;
- eLearning is accessible on demand;
- eLearning provides world-wide opportunities for peer and student-tutor interaction;
- implementation of a special software providing optimum intercommunication and data compilation makes eLearning a sophisticated tool for knowledge and skills improvement in life-long perspective.

In the modern knowledge-based society rapid changes in ICT and technology stimulate renovations in educational pedagogy and learning paradigms: a concept where education is flexible, diverse and available. Learning could be defined as: process that develops/culminates the ability:

- to frame proper problems and to ask the right questions;
- to evaluate sources of information and to acquire information;
- to investigate problems critically;
- to create a strategy for investigation and to make a suggestion for problem solving;
- to make choices among many alternatives;
- to explain a concepts to peers.

The important elements of modern education are problem based learning, individual learning portfolios and student-centred learning.

Problem-based Learning (PBL) is an instructional method that challenges students "learn to learn", working cooperatively in groups to seek solutions to real world problems.
These problems are used to initiate learning the subject matter by engaging students' curiosity. PBL trains students to think critically, and to find and use appropriate learning resources:

- The students are given a real life problem to solve and are expected to investigate and explore the knowledge required and how that knowledge can be used to develop solutions to the problem and to evaluate the solutions arrived at.
- Problem Based Learning is not solely regarded as an instructional technique, but as an educational philosophy or approach for designing curricula. PBL is confronting students with problems of "real-life". The "real-life" problems are often not bounded or solvable within mono-disciplinary constraints; but by means of multidisciplinary approach. Integration between disciplines is an essential impact of problem-based programmes.
- Problem-based Learning is a teaching and learning strategy used widely as a means of engaging students with material, developing collaborative learning, building independent learning and encouraging deeper learning.
- Principles of PBL: Presenting the problem, Participants post their first perceptions of the problem, explore the problem and their initial perceptions, revise their initial perceptions, prepare and post a critical reflection of the problem, record the solution.
- Distributed problem-based learning refers to the use of this strategy online in a networked learning and teaching environment. This approach focuses attention on building learning environments that support groups of students who are engaged in reflection on critical incidents from their workplace.

Learning Portfolios are modern educational tools; they contain the individual plan of learning and collection of student work and learning outcome.

- Learning Portfolios/profiles provide the basis for assessment improving and motivate students in their own learning.
- Learning Portfolios/profiles provide self-reflection through which students share what they think and feel about their work, their learning environment and themselves.
- Portfolio systems are characterized by a clear vision of the student skills to be achieved, student involvement in portfolio planning, use of criteria to define the quality of performance.
- The portfolio systems promote student self-assessment and control of learning; place students into specific programmes; certify student competence; grant alternative credits; demonstrate students' skills and abilities; build student self-confidence; and evaluate curriculum and instruction.

Student-centred education

- In the frame of student-centred education, the student is the

beginning and the end point of the learning process. Student's needs are the focus of the programme, including learning, assessment, follow up and feedback;

- Students are active partners in the learning process: responsible for their own learning and the activity to achieve the educational goal;
- Students choose by themselves the proper learning tools from those available and by providing a feedback they stimulate programme renovation and updating;
- The knowledge is the outcome of an active relationship between the student and the environment. Learning takes place during the time the student is actively engaged with a complex, realistic situation/context;
- The learning context broadly includes a shared culture, understanding, and motivation;
- The important component of modern training is a research work. Learning how to gain and to analyse the information, how to prepare the article, to share their reflections on a certain problem.

The parallel growth of biomedical science and its implementation in medicine demand continuous professional development and updating of the knowledge of the medical specialists.

This updating is important not only for medical students but as well in the life-long perspective, in coherence with the EU policy of Life-long learning.

The outcomes of modern learning are:

- Learning how to learn;
- Skills how to process and manage the information;
- Creative and strategic thinking;
- Analytical and problem-solving skills;
- How to make a decision;
- How to Communicate;
- How to work in team.

The initiative of eLP in drug abuse prevention and treatment is a significant effort to contribute to the alleviation of one of the biggest problems of contemporary society.

Chapter 2

Aims and objectives of eLP

The eLP proposes an opportunity to improve professional competencies of students giving them the flexibility to work around the busiest schedule, follow their own goals and educational needs, using innovative methods, updated contents and friendly software.

eLP aims:

- To provide students and young physicians an opportunity to acquire new competencies and skills in the field of drug abuse prevention and treatment;
- To promote professional development by enhancing knowledge for practical management of drug abuse problem;
- To encourage the application of effective prevention and treatment of drug misuse and abuse;
- To give tools to interpret new scientific information on all the components of abuse development: tolerance, craving, addiction, abuse, withdrawal, relapse;
- To provide educational credits for the national system of higher education and continuous medical education (CME).

Advantages of eLP:

- European educational curriculum on drug abuse treatment and prevention developed by European partners;
- Access to new educational technologies: computer-based learning, web tutorial; online curriculum, interactive learning;
- Modules assigned with credits organized in a specifically designed curriculum;
- Individualized portfolio-based program and approach;
- Individual list of modules, practical courses, lectures, consultations and tests. Individual tutoring;
- Case study based approach with elements of problem based learning;
- Regular courses at partner universities and under other initiatives;
- Forum for open discussion on hot topics and special cases.

Target group of eLP:

Postgraduate doctors, medical students and health-related professionals, who are in continuous need of further qualifications, according to the requirements of their respective fields.

Learning goals and outcomes:

- To identify knowledge requirements, what exactly to learn an how to apply it;
- To gain basic knowledge on drugs, their effects, short and long-term effects, complications;
- To learn approaches for the assessment and diagnosis of drug abuse;
- To apply the obtained knowledge in specific clinical situations and to take responsibility for the management of patients.

Certification and Diploma

The competencies and skills of the students will be assessed and certified.

Certification will be provided at several levels:

- **Certificate** in one specific topic or one educational module with credits;
- **Certificate** for a course on a specific topic.

Chapter 3

Structure of eLP and principles for its development

1. Policy of eLP building

The general policy in building up the eLP programme was to create a modern and efficient educational tool for improving the competencies and skills of medical students, young doctors, and health professionals in drug abuse prevention and treatment. The starting point for the development of a modern and efficient programme was the analysis of the needs of the target group and a survey of innovative training approaches. The following principles were used:

- to develop a general strategy for the educational programme;
- to apply a variety of training resources and to use the innovative educational approaches with the aim to insure better outcome for students;
- to check the appropriateness of the aims and objectives of the programme and the educational goals to the needs of the target groups;
- to provide high quality curriculum and training contents;
- to make the programme flexible: portfolio based training course, which depends on the needs, prerequisites, pace and the availability of students;
- to ensure the homogeneity and the coherence of the programme.

2. Modules of eLP

The main educational unit of the programme is a **module** in the frame of web-portal with wide variety of accessory educational tools.

Modules are carefully constructed through multi-disciplinary collaboration, and figure a precise set of competencies and skills essential for the particular area. The modules contain concentrated scientific and practical information developed in collaboration of experts and medical students.

The modules contain:

- a piece of information, with a defined layout and format, supplemented with references;
- case for problem solving;
- test/quiz for self-assessment.

Modules also include additional tools for stimulating students' activity and interactivity within the programme. They are supplemented with specific personalized activities and tasks, leading to extra credits:

- individual tasks and assignments (concept analysis, data collection,

research, development of part of the module);
- development of clinical cases based on student practice;
- forum and chat for discussions and consultations (team work).

Modules give the opportunity not only to obtain knowledge, but to apply the theory in practical situations; to analyze and resolve specific clinical cases. Modules are developed in a way that allows the student to become acquainted with the problem in the modern context very rapidly.

The modules are organized as web pages containing: key points and important information; overviews and presentations; references to scientific sources; links to European and national guides; references to book chapters and reports; access to suitable clinical cases and tests for assessment.

Modules provide the opportunity to evaluate the acquired student competencies by self-assessment tests and a final assessment for certification and awarding of credits. Special registration for online assessment and certification is provided. On successful completion of a module a predefined number of credits are awarded.

As eLP provides free access, any of the modules can be taken for free before the student is sure that the program fits his/her needs and interests. They can then register to obtain credits or certification.

The modular system gives the student the flexibility to work around the busiest schedule while still being able to interact with the tutor and other students.

3. Assessment, certification and quality control of eLP

3.1 Student profile

The success of student is followed by a tutor and an administrator and all the results of his progress and certification are collected in the "Student eLP dossier", portfolio/profile.

The Learning administrator maintains an individual record for each student, including an individual Portfolio/profile. This file contains record of all educational activities of the student: visited modules, enrolled modules, online self-training, the duration of training, scores, solved clinical cases, quizzes and the score of each quiz, relevant correspondence with administrator and tutors, admissions to the practical courses, courses on a special topic, on-line sessions for case discussion and PBL, and all other information deemed necessary for the proper documentation of the student's progress. The important part of the profile is individual assignment, developed by student under guidance of expert, which after evaluation and correction could be a contribution to the eLP. It could be a part of a module, an assay, research topic, review of scientific articles, or clinical case.

The student profiles will remain confidential and the student's identity will be held in confidence, including intrinsic system administrative reports.

3.2 Student certification

Certification is provided at several levels:
- **Certificate** for one educational module with credits;
- **Certificate** for a course on a specific topic.

Certification methodology for each module

- **Accumulative certification online**: collection of grades from quizzes and tests for continuous assessment of theory and clinical cases; materials prepared by the learner according to the personalized programme; reports, research and developed clinical cases.
- **Attending practical Courses**
- **Final test**

Certification Methodology includes accumulative certification online: collection of grades from tests for continuous assessment of theory and clinical cases; materials prepared by the student according to the personalized programme; reports, research and developed educational materials, clinical cases. The important contribution to the assessment of student work makes his individual developed materials: modules, assay, reviews, and organised forum sessions on a specific topic. The certification in the system is oriented to stimulate student active work in the program, to stimulate his active communication with peers, to stimulate his collaboration with the programme.

3.3 Quality control of curriculum and training process by students

Students are expected to be active participants in the programme quality control, to provide regular feedback about training process efficiency, training methods innovativeness and adequacy, curriculum coherence with their needs, tutor activity and their individual outcome, progress satisfaction.

The Learning Management System provides a mechanism for the evaluation by student of the entire eLP programme and its components: modules, clinical cases, quizzes, live sessions, courses and tutors.

The data from these surveys and evaluations will be used for the improvement of programme components and updating the educational curriculum.

Examples of this data include: whether a module contents is of high quality and updated; whether leaning objectives were clearly stated and followed, whether there was adequate and effective feedback; identification of the most important sources of learning; understanding competency relevance; and standard data about student (field of practice/specialty).

3.4 Learning Management System (LMS)

LMS software is used for monitoring and management of the training process. Details about the learning steps and main rules of programme operation, monitoring, management and administration are described in the chapter "Navigator".

4. Clinical case benefits

The entry into a clinical case database allows the student to obtain immediate benefits from the programme. The clinical case solved by a specialist provides him the "know-how" for his practice. In this way the student improves his skills for problem solving. A young doctor benefits for better management of the problems of his patients and will acquire better skills to manage more complicated situations. This methodology is very beneficial for physicians as they can apply the

adequate strategy in specific clinical situations.

As the programme is provided on the web, there are no communication barriers and problems. The student has the opportunity to discuss problems online with peers and tutors and to learn how they were solved by specialists.

Evidently, the student will have better skills to manage more complicated situations and to improve his future practice.

Furthermore, this database includes as well researches that were done, and will be continued by students/users of eLP and experts from partners' universities, that stimulate and improves the reflections and feedback of students.

5. Benefits of the courses

There are annual thematic courses of eLP organized by partners at European universities, covering main topics of eLP. List of the courses you can find on web page www.drugs-mesada.com/events.

The schedule of the courses is announced one year in advance so that students willing to participate could have enough time to prepare themselves. The advantages of the courses are: intensive training, provided by experts, opportunity for communication with experts and peers, collaboration, discussion of clinical cases, certification of competencies of participants and immediate feedback for assessment of quality of educational content and tools of eLP.

Chapter 4

Core Curriculum of eLP

Code	Title	Credit
Chapter 1 – Basic Principles		
eLP M 1.1	Drugs in general: from knowledge to clinical applications	**3**
eLP M 1.2	Pharmacological and neurobiological aspects of drug addiction	**3**
eLP M 1.3	Drug early detection, prevention and treatment	**3**
eLP M 1.4	Relapse prevention	**3**
eLP M 1.5	Cocaine characteristics and effects	**3**
eLP M 1.6	Toxicity of anabolic steroids and abuse	**3**
eLP M 1.7	Alcoholism: clinical and therapeutic issues	**3**
eLP M 1.8	Addiction and family	**2**
eLP M 1.9	Immunology of opioids	**2**
eLP M 1.10	Opioids pharmacology. Management of acute and chronic conditions*	**3**
eLP M 1.11	Models of dependence*	**2**
eLP M 1.12	Practice of drug abuse*	**2**
eLP M 1.13	Epidemiology of drug abuse*	**2**
Chapter 2 – Drug consequences and treatment		
eLP M 2.1	Integrated treatment of opioid dependence	**3**
eLP M 2.2	Cocaine cardiotoxicity	**3**
eLP M 2.3	Acute poisoning with substances of abuse	**3**
eLP M 2.4	Drugs in pregnancy	**2**
eLP M 2.5	Fetal alcohol syndrome and fetal alcohol spectrum disorders	**2**
eLP M 2.6	Treatment of alcohol withdrawal	**2**
eLP M 2.7	State of change and clinical management*	**2**
eLP M 2.8	Dependence versus addiction abuse*	**2**
eLP M 2.9	Tolerance and withdrawal*	**2**
eLP M 2.10	Psychological components of withdrawal*	**2**
eLP M 2.11	Physical complications*	**2**
eLP M 2.12	What to prescribe*	**2**
eLP M 2.13	Basic approaches to drug treatment*	**2**

eLP M 2.14	Rapid detox*	**3**
eLP M 2.15	Methadone therapy*	**3**
Chapter 3 – Substances use and health problems		
eLP M 3.1	Opioid history, characteristics and effects	**3**
eLP M 3.2	Marijuana and medical students	**3**
eLP M 3.3	Neurobiology of cannabis	**2**
eLP M 3.4	Synthetic drugs	**3**
eLP M 3.5	Misuse and abuse of legal drugs	**2**
eLP M 3.6	Polydrug use	**3**
eLP M 3.7	Double diagnosis – psychiatry and drug abuse	**3**
eLP M 3.8	General practitioners and addiction problems	**2**
eLP M 3.9	Drugs and sexual behavior*	**2**
eLP M 3.10	Drugs and communication. Behavior changes*	**2**

*These modules will be developed as assignments for the eLP.

Chapter 5

Key messages and contents of developed modules

I. Basic principles

Module 1.1

Drugs in general

Key messages

- Animal models are useful;
- Addiction is a brain disease;
- Tolerance and dependence are normal physiological reactions;
- Consider quality of life.

Contents

Module 1.2

Pharmacological and neurobiological aspects of drug addiction

Key messages

- Former concept: repetition of consumption → tolerance → increasing doses → physical dependence.
- All addictive drugs share in common ability to induce activation and euphoria, at least during a part of the intoxication, and that is due to the activation of a dopaminergic mesocorticolimbic pathway called "reward system". As a consequence, the reinforcing effects of drugs increase over time, with a progressive loss of control of the consumption.
- These phenomena are amplified by the simultaneous exposure to stress factors.
- Even if described firstly with psychostimulants, sensitization was recognized for all the addictive drugs; furthermore, a cross-sensitization was demonstrated between all of them.
- Sensitization is poorly reversible, even after long-term cessation of consumption, probably due to a modification of gene expression in neurons.
- New conception of addiction. The repetition of consumption induces a progressive sensitization to the reinforcing effects of drugs. As a consequence, a loss of control of the consumption is more and more pregnant. In addition, for drugs with sedative effects, the development of tolerance and physical dependence can also occur.

Contents

1. Classical concept – tolerance induced addiction
2. Addiction without tolerance – psychostimulants
   - 2.1 Reward system
   - 2.2 Sensitization
   - 2.3 The role of the stress-excitotoxicity – alteration of "executive functions"
3. Pharmacokinetics
4. Complex models of addiction – sedatives case

Module 1.3
Drug early detection, prevention and treatment

Key messages

- Early detection needed;
- Clinical experience required;
- Role of associates;
- Detection is part of the treatment process.

Contents

Module 1.4
Relapse prevention

Key messages

- Relapse prevention is part of the treatment;
- Abstinence is the best option;
- Pharmacology and psychotherapy are needed;
- Relapse is part of the treatment process.

Contents

Module 1.5
Cocaine characteristics and effects

Key messages

- Cocaine is the second commonest illicit drug used and the most frequent cause of drug related deaths.
- Cocaine induces a sense of exhilaration by blocking the reuptake of the neurotransmitter dopamine in the midbrain.
- Its use is associated with both acute and chronic complications.
- Many cocaine users have little or no idea of the risks associated with its use. Patients, health care professionals, and the public should be educated about the dangers and the considerable risks of cocaine use.

Contents

Module 1.6

Toxicity and abuse of anabolic androgenic steroids

Key messages

- The use of anabolic androgenic steroids (AAS) has increased substantially over the past two decades aiming to increase muscle mass for better athletic performance and to enhance physical appearance.
- There are several classes of steroids (more than 100 different forms) that were developed to achieve a remarkable anabolic effect, to promote muscle growth, increase lean body mass, and stimulate fat loss.
- However there are many adverse effects to AAS use.
- In men these include: testicular atrophy, decreased testosterone production, gynecomastia, hypertension, fluid retention, tendon injuries, nosebleeds, more frequent colds, and sleep disorders.
- In women, the adverse effects reported include: decreased breast size, fluid retention, hypertension, and sleep disorders.
- The major psychiatric effects of AAS use include major mood disorders including depression and mania. Such adverse effects could significantly impact athletic performance negatively and decrease sexual function.

Contents

Module 1.7
Alcoholism: clinical and therapeutic issues

Key messages

- Alcoholism and other alcohol-related problems are worldwide.
- There are several categories of "drinking problems" excessive drinking, alcohol abuse and alcohol dependence (inability to control consumption; physical dependence with withdrawal symptoms).
- The early diagnosis is very important; it is based on biological markers and standardized questionnaires.
- Alcohol can also have major consequences if consumed by pregnant women: fatal alcohol syndrome.
- When treating alcoholism, it has to be considered as a chronic and relapsing disease.
- Four-step therapeutic strategy: introducing the patient to treatment, stopping drinking, prevention and control of lapses and relapses and return to a normal way of life.
- Detoxification is necessary, but is only a first step in the treatment.
- A relapse prevention strategy must be adapted to the specific problems of each patient.
- The goal of the treatment is to improve the quality of life of both the patient and his family.

Contents

Module 1.8
Addiction and family

Key messages

- The term "codependency" has been used on each of three levels of meaning: as a didactic tool, psychological concept, and disease entity;
- Codependency is a learned behavior. "What we live with we learn; what we learn we practice; what we practice becomes habit; our habits have consequences";
- Behaviors of codependent persons are based on their emotional feelings and on how they view their world;
- Because of the complexity of the problems typically experienced by codependent persons, an integrative approach to treatment may be optimal;
- The recovery process for family members and the addict is simple to state, but takes time and efforts to change. "If nothing changes, nothing changes".

Contents

Module 1.9
Immunology of opioids

Key messages

- Except the obvious and well-investigated toxic effects of the abuse substances immune system complications were also found.
- The information about the changes the opioids induce in the immune system is very important for the therapy conducted by the toxicologist and for the preventing the post-intoxicational complications.
- Taking into consideration the expansion of drug abuse all over the world, the investigation of the influence of psychoactive substances on the immune system is a question of great practical and theoretical interest.

Contents

II. Drug concequences and treatment

Module 2.1

Integrated treatment of opioid dependence

Key messages

- Treatment of addiction is as successful as treatment of other chronic diseases;
- The treatment of addicted patients protects healthy people;
- Opioid addiction's treatment requires complex of detoxification, supportive treatment with opioid antagonists, rehabilitation and resocialisation;
- Rapid opioid detoxification could be used in general practice or even in outpatient settings according to cheap price, high effectiveness and safety of procedure.

Contents

Module 2.2
Cocaine cardiotoxicity

Key messages

- Cocaine is the second commonest illicit drug used and the most frequent cause of drug related deaths.
- Its use is associated with both acute and chronic complications that may involve any system, the most common being the cardiovascular system.
- Cocaine misuse has a major effect in young adult drug users with resulting loss of productivity and undue morbidity with cocaine related cardiac and cerebrovascular effects.
- Cocaine related Cardiac complications: myocardial ischaemia, coronary artery spasm, acute myocardial infarction (MI), atherosclerosis, myocarditis, cardiomyopathy, arrhythmia, hypertension, and endocarditis.
- Many cocaine users have little or no idea of the risks associated with its use.
- The recognition of cocaine induced ischaemia or MI is crucial for optimal management. A previously healthy young person presenting with cardiac type chest pain or MI should be asked about cocaine use.

Contents

Module 2.3

Acute poisoning with substances of abuse

Key messages

- There are general approach to identify and to evaluate drug intoxication;
- Opioid overdose symptoms are very specific effects on CNS and periphery: Respiratory depression, central cyanosis, Sedation and drowsiness, unconsciousness, miosis, hypothermia;
- Opioid overdose treatment includes cardiopulmonary resuscitation and Naloxone application;
- Cocaine neurotransmission: Blockade of reuptake of NE, DA and serotonin;
- Cocaine overdose treatment includes cardiopulmonary resuscitation, management of Agitation, psychosis, seizures, hypertension, tachycardia, and Hyperthermia external;
- Heroin+Cocaine overdose symptoms are more complex and requires specific treatment;
- Milestones in treatment of drug overdose: Naloxone, Benzodiazepines and Life support measures.

Contents

Module 2.4
Drugs in pregnancy

Key messages

- For a pregnant woman, drug abuse is doubly dangerous;
- Use of drugs in pregnancy is not associated with birth defects;
- Withdrawal increases the risk of miscarriage in early pregnancy, premature labour, fetal distress and death in-utero;
- Virtually all illegal drugs, such as heroin and cocaine, pose dangers to a pregnant woman;
- Some drugs can be harmful when used at any time during pregnancy; others, however, are particularly damaging at specific stages.

Contents

Module 2.5

Fetal alcohol syndrome. Fetal alcohol spectrum disorders

Key messages

- Fetal Alcohol Syndrome (FAS) is a term that describes a variety of physical and mental birth defects that are caused by women drinking alcohol during pregnancy;
- Fetal alcohol spectrum disorders (FASDs) is an umbrella term describing the range of effects that can occur in an individual whose mother drank alcohol during pregnancy;
- There is no cure or treatment for FAS and FAE. However, FASDs are completely preventable — if a woman does not drink alcohol while she is pregnant or could become pregnant.

Contents

Module 2.6
Treatment of alcohol withdrawal

Key messages

- Alcohol withdrawal is a syndrome which starts within 24-48 hours after cessation (or reduction) in alcohol use that has been heavy and prolonged;
- The most typical alcohol withdrawal symptoms are tremor, sweating, tachycardia, hypertension, anxiety, insomnia;
- The most critical are life-threatening findings such as seizures, hallucinations, arrhythmias and delirium tremens;
- Delirium tremens generally begins 2-3 days after cessation;
- Benzodiazepines are recommended as first choice medicine for alcohol withdrawal;
- 60% patients with AW respond to non-pharmacological interventions such as reassurance, reality orientation, and general nursing care.

Contents

III. Substances use and health problems

Module 3.1
Opioid history, characteristics and effects

Key messages

- Opioids are classified by their chemical structure, the way of production and effects. Generally they are divided into 3 groups: natural, semi-synthetic and synthetic.
- Opioid dependence (addiction) is defined as a cluster of cognitive, behavioral, and physiological symptoms in which the individual continues use of opiates despite significant opiate-induced problems.
- The opiate addiction can lead to financial, health problems and high level of the criminal activity and mortality.
- The opioids produce their effects by interacting with a specific receptor.
- By the time that they seek help for their drug problem, most of those who abuse opiates have an established dependency and are seeking of pharmacotherapy.
- The replaceable therapy includes application of non-opiate and opiate drug by giving gradually decreasing doses.
- The use of holistic method, especially acupuncture, in treatment of drug abuse is a comparatively innovation.

Contents

Module 3.2
Marijuana and medical students

Key messages

- Marijuana is a common name for the leaves of the cannabis plant
- The marijuana sold today has much higher THC chemical content than the marijuana sold in the '60s and '70s due to hybridization techniques
- Marijuana is most commonly smoked
- Marijuana affects many parts of the human body.
- Students from University of Medicine – Pleven carried out the survey "Marijuana Use among Medical Students".

Contents

Module 3.3
Neurobiology of cannabis

Key messages

- The effect of cannabis depends upon the quantity of the effective components absorbed and their metabolism in the human body named cannabinoids. The most important cannabinoid is δ-9-hydroxy-cannabinol (THC)
- The cannabinoids cannot be removed easily from the body, but they are stored in fat tissue. From fat tissue they slowly move to other tissues and organs including blood and brain.
- Cannabinoids are cell membrane-derived signalling molecules that are released from nerves, blood cells and endothelial cells, and have diverse biological effects.
- Cannabis is gate way for drug addiction.
- Physical effects of cannabis use on the gastrointestinal tract, endocrine system, cardiovascular system, respiratory system and immune system could be classified generally as short term and long term effects.
- There are also reports with classification of THC effects as negative, neutral and positive effects.
- Marijuana has many possible medical uses.

Contents

Module 3.4
Synthetic drugs

Key messages

- Synthetic drugs are artificially produced substances for the illicit market which are almost wholly manufactured from chemical compounds in illicit laboratories;
- Usually synthetic drugs have mild to serious hallucinogenic effects and can be either stimulants or depressants of the central nervous system (CNS) leading to heavy health risks;
- For clarification, heroin, cocaine, and marijuana are in the organic category, while LSD, MDMA, and methamphetamine are synthetics.

Contents

Module 3.5
Misuse and abuse of legal drugs

Key messages

- A legal drug is not necessarily safe or non-addictive.
- Sometimes, those who are addicted to prescription medications go from doctor to doctor to obtain the drug of abuse. "Doctor shopping" can be particularly dangerous because it prevents any one doctor from knowing the patient's medical history or what medications have been taken.
- There are different types such as drugs that are both legal and freely available (such as alcohol and nicotine) are among the most often abused.
- Other drugs (such as sedatives and tranquilizers) are available by prescription and are considered safe for medical purposes, but they are highly addictive, even at prescribed dosages.

Contents

Module 3.6
Polydrug use

Key messages

- Polydrug use occurs when two or more drugs are used at the same time or on the same occasion;
- Mixing drugs can also occur when the manufacturer combines two different drugs in order to achieve a specific effect to save money. This often results in users combining drugs unintentionally;
- The combinations of drugs identified in mortality and overdoses provide indications of particular risks associated with drug combinations;
- It is well known that polydrug use is more difficult to treat than single drug use.

Contents

Module 3.7
Double diagnosis - psychiatry and drug abuse

Key messages

- Substance abuse and psychiatric disorders commonly occur together;
- Drugs can cause psychiatric disorders and can also be used as an attempt to "cure" them by self-medication;
- Cannabis use in young people moderately increased the risk of developing psychotic symptoms;
- The risk for the onset of symptoms was much higher in young people with a predisposition for psychosis;
- Assessment should include a drug abuse history, preferably corroborated by others, evaluation of the mental state, and examination focusing on signs of drug abuse;
- Treatment should include the management of abstinence from drug abuse and access to psychiatric care.

Contents

Module 3.8
General practitioners and addiction problems

Key messages

- Drug addiction is a significant social problem, which leads to several other complications connected with human health.
- The aim of the General Practitioners is to find out the etiology of the disease, history of the patient, to diagnosis correct, to remove the cause, and to give adequate treatment to the patient.
- The general practitioner should know how to recognize the addiction, to solve the medical problem of the patient, to inform the parents, to involve the relatives to the problem.
- GP has to know short and long term effects of main drugs.
- When diagnosing patient to take in mind the complications of non-intravenous and intravenous usage of drugs by drug – addicts.

Contents