Pedagogical science

Budanova Liana

Phd, assistant professor, foreign language department

National university of Pharmacy, Ukraine

Буданова Ліана Георгіївна

к. пед. наук, доц., кафедра іноземних мов

Національний фармацевтичний університет, Україна

Буданова Лиана Георгиевна

к. пед. наук., доц. кафедра иностранных языков

Национальный фармацевтический университет

PECULIARITIES OF THE EDUCATIONAL PROCESS ORGANIZATION FOR STUDENTS TRAINING “PHARMACY” AT EASTERN EUROPEAN UNIVERSITIES

ОСОБЛИВОСТІ ОРГАНІЗАЦІЇ НАВЧАЛЬНОГО ПРОЦЕСУ СТУДЕНТІВ ЗА СПЕЦІАЛЬНІСТЮ «ФАРМАЦІЯ» В УНІВЕРСИТЕТАХ СХІДНОЇ ЄВРОПИ

ОСОБЕННОСТИ ОРГАНИЗАЦИИ УЧЕБНОГО ПРОЦЕССА СТУДЕНТОВ ОБУЧАЮЩИХСЯ ПО СПЕЦИАЛЬНОСТИ «ФАРМАЦИЯ» В УНИВЕРСИТЕТАХ ВОСТОЧНОЙ ЕВРОПЫ

Summary: The features of the educational process of students in the specialty "Pharmacy" at universities in Eastern Europe. We have analyzed the organization of educational process at the Faculty of Pharmacy Bulgaria, Poland, Romania, Hungary, Slovakia and the Czech Republic for cycle training. Established number of institutions in each country, which is training for the pharmaceutical industry and the number of teaching staff engaged in training.

Key words: learning process, specialty "Pharmacy", a cycle of preparation, a pharmaceutical industry expert.

Анотація: Досліджено особливості організації навчального процесу студентів за спеціальністю «Фармація» в університетах Східної Європи. Нами було проаналізована організація навчального процесу на фармацевтичних факультетах Болгарії, Польщі, Румунії, Угорщини, Словаччини та Чехії за циклами підготовки. Встановлено кількість навчальних закладів по кожній країні, де ведеться підготовка фахівців для фармацевтичної галузі та кількість науково-педагогічних працівників,які здійснюють підготовку.

Ключові слова: навчальний процес, спеціальність «Фармація», цикл підготовки, фармацевтична галузь, фахівець.

Аннотация: Исследованы особенности организации учебного процесса студентов по специальности «Фармация» в университетах Восточной Европы. Нами была проанализирована организация учебного процесса на фармацевтических факультетах Болгарии, Польши, Румынии, Венгрии, Словакии и Чехии по циклам подготовки. Установлено количество учебных заведений по каждой стране, где ведется подготовка специалистов для фармацевтической отрасли и количество научно-педагогических работников, осуществляющих подготовку.

Ключевые слова: учебный процесс, специальность «Фармация», цикл подготовки, фармацевтическая отрасль, специалист.

Introduction. Education is empowerment. It is a means to foster individual, social, professional and economic development and it shapes the difference between the world of today and that of tomorrow.

The issue of quality in education becomes therefore an essential concern, not only to those directly involved in the formal educational processes (such as students and educators), but also to society as a whole, policy-makers, professional bodies, parents and other stakeholders.

Problem statement. learning process, specialty "Pharmacy", a cycle of preparation, a pharmaceutical industry expert.

Results. In the 20th century, in all parts of the world, priorities and challenges facing pharmacy and healthcare in general have changed considerably. The World Health Organisation estimates that by 2020, leading causes of the burden of diseases are likely to be ischemic heart disease, depression and road traffic accidents, while health trends are likely to be dominated by four factors: the ageing of the world's population, the unfolding of the HIV epidemic, the epidemic of tobacco-related mortality and disability and the expected decline in childhood mortality from infectious diseases.

The role of the pharmacist is developing rapidly to meet the needs of modern health care systems. Ensuring accurate dispensing of prescribed medicines against prescriptions and providing sound advice on responsible self-medication remain vitally important parts of the service provided by pharmacists. Pharmacists have, however, recognised for some years that equally important roles are to advise other healthcare professionals on safe and rational use of medicines and to accept responsibility for seeking to ensure that medicines are used safely and effectively by those to whom they are supplied so that maximum therapeutic benefit is derived from treatment. This activity contributes both to the welfare of the individual and the overall improvement of public health.

We will consider organization of educational process of students training on speciality “Pharmacy” in the universities of West countries countries.

The economic, political and social changes in Bulgaria, since 1989 have an important impact on all aspects of social life in the country as well as on pharmaceutical activities. Until 1989, the pharmaceutical system was centralized - community pharmacies, hospital pharmacies, wholesalers, pharmaceutical works and institutes were owned by the state. The import and export of drugs were controlled by the state.

There are five pharmaceutical universities that provide education for pharmacists in: Medical University of Sofia, University of Plovdiv, University of Varna, Sofia University. The Faculties of Pharmacy in Sofia, Plovdiv and Varna are faculties of the corresponding Medical Universities. The Faculty of Chemistry and pharmacy is part of the Sofia University.

The School of Pharmacy in Bulgaria was founded in 1942 and merged with the Faculty of Medical Studies (Medical Academy) in 1951. The course lasts 5 years and the last year includes practical training in pharmacies or hospitals. The total hours spent on lectures are 1515, and in labs 2910. During their studies, students must successfully pass 39 courses. At the end of their studies they may sit state examinations, or submit a thesis. The pharmacy faculty is the oldest in Bulgaria that educates pharmaceutical specialists. The duration of the education is 5 years for community, hospital and industrial pharmacists. All the graduates receive a "Master of Pharmacy" degree. One hundred to one hundred and twenty Bulgarian and 25-30 foreign students are accepted for training every year. There are 6 departments in the Faculty of Pharmacy: Pharmaceutical Technology and Bio-pharmacy, Pharmacognosy and Pharmaceutical Botany, Pharmaceutical Chemistry, Chemistry,

Pharmacology and Toxicology, Social Pharmacy. After graduation students can specialize for a further 3 years. Whilst working in a hospital or industrial environment, they follow a study program and 2 weeks per year they have courses at the Faculty of Pharmacy. After the 3rd year they pass a state examination in a given speciality.

Sectors in which pharmacists are employed: academia faculties of pharmacy, wholesale medical and pharmaceutical information, bulgarian drug agency, ministry of health, representative offices of bulgarian and foreign drug companies, drug manufacturing in the bulgarian drug companies.

There are 10 higher education institutions offering pharmacy education and training in Poland: Medical University of Bialystok; Nicolaus Copernicus University in Torun Medical College; Medical University in Gdanks; Jagiellonian University Medical College; Medical University of Lublin; Medical University of Lodz ; Poznan University of Medical Sciences; Medical University of Silesia; Medical University of Warsaw; Wroclaw Medical University. In Poland The five-year undergraduate pharmacy course leads to the degree of Master of Pharmacy (MPharm) and, after a further 6-month of pre-registration training in an approved pharmacies, to registration as a pharmacist. Polish registration is recognized in other member states of the EU. The Faculty enjoys a national and international reputation for research and

innovation. Innovative teaching, clinical and experiential placements and business skills programs provide our students with a well-rounded and professionally relevant pharmacy degree, putting them in high demand with employers. 1st Year (690 hrs. 42 ECTS): Human Anatomy, Biophysics, Biology & Genetics, General and Inorganic Chemistry, Pharmaceutical Botany, Mathematics, Statistics, History of Pharmacy, Latin, Polish Language, Occupational Safety and Health, Physical Training. 2nd year (780 hrs. 60 ECTS): Analytical Chemistry, Physical Chemistry, Organic Chemistry, Identification of Organic Compounds, Professional ethics, Economics and Management in Pharmacy, Physiology, History of Philosophy, Pathophysiology, Psychology & sociology, IT. 3rd year (1030 hrs. 64 ECTS): Biochemistry, Molecular Biology, Medicinal chemistry, Pharmacognosy, Immunology, Drug Metabolism, Microbiology, Pathobiochemistry, Drug Delivery Technologies & Formulation part 1, First aid training for pharmacists, Summer internship in community pharmacies. 4th year (1070 hrs. 66 ECTS): Bromatology and Food Technology, Synthesis and technology of medicines, Drug Delivery Technologies & Formulation part 2, Pharmacokinetics, Pharmacology with Pharmacodynamics, Toxicology, Biopharmacy, Hygiene and epidemiology, Drugs of Natural Origin, Elective courses – e.g. Clinical Pharmacy and Cosmetology, Summer internship in community pharmacies. 5th year (1830 hrs. 108 ECTS): Pharmaceutical care, Pharmaceutical Biotechnology, Drug Delivery Technologies & Formulation part 3, Introductory Pharmacy Practice, Pharmacogenomics and Drug Information For Professionals, Conflict & Catastrophe Medicine, Pharmacy Law, Elective courses. 6-month period after 5th year :Pre-registration internship in community pharmacies.

Sectors in which pharmacists are employed in Poland: Local and National Pharmaceutical Boards, scientific institutions, Local and Main Pharmaceutical Inspectorate, Sanitary Inspection, central administration (i.e. Ministry of Health).

There are 4 higher education institutions delivering pharmacy education and training in Hungary. Two of them – Budapest and Szeged – have existed for over 200 years. The other two – Debrecen and Pécs – are of much more recent origin. The pharmacy degree course is a fully integrated 5-year university course with 32 weeks of HEI-supervised traineeship spread over the 2nd through the 5th year and taking

place mainly in the 10th semester. The main subject areas taught – besides generic subjects (including traineeship) – are medical sciences, chemical sciences and pharmaceutical technology. There are plans for a decrease in the teaching of chemistry- related subjects, and an increase in the weight of the biomedical and clinical subject matters.

The program of Pharmacy training in Hungary extends over a period of five years (10 semesters). It begins with an introduction to the basic sciences providing a basis for further pharmaceutical studies. In the second part of the program, students take part in general and special pharmaceutical education at the university departments, teaching pharmacies, institutes, laboratories and pharmaceutical works. After the successful completion of the program the title Doctor of Pharmacy is awarded. Sectors in which pharmacists are employed in Hungary: Education, regulatory & authorities.

Pharmacy training in Romania is organized as a 5 years integrated study programme. The first two years are devoted mainly to chemical, biological, physics and mathematics and generic sciences while in the next 3 years, disciplines such as pharmaceutical technology, medical sciences and law prevail. In the academic year 2009-2010 the number of study hours has been reduced in accordance with the European directives. The university study period ends with specific subject courses, 6 month training and the final exam. The graduates can specialize further either in Clinical Pharmacy or Clinical Laboratory through the internship program(“rezidentiat”), or with a master in Biostatistics or in Public Health Management and/or with a PhD. Pharmacists study the following subjects: General, organic and inorganic chemistry, Analytical chemistry, Pharmaceutical chemistry, Physics, mathematics, Botany, Galenic formulation, Cosmetics, Elements of Human anatomy and physiology, Medical terminology, Pharmacology, Pharmacognosy, Non-pharmacological treatment, Generic drugs, OTC medicines, Phytotherapy, Legislation, law relating to pharmacy, Professional Ethics, Foreign languages.

Sectors in which pharmacists are employed in Romania: armed forces, universities, National health services, agricultural and veterinary pharmacy.

Czech Community pharmacies provide sale and counselling of Rx and OTC medicines as well as some diagnostic services (such as taking blood pressure). Graduated pharmacists study for five years and graduate as Magister (Mgr., equivalent to MPharm). A Mgr. diploma is the only requirement for registration as a pharmacist. Pharmacists can own and manage community pharmacies and work as responsible pharmacists in either community or hospital pharmacies. All practising pharmacists must be registered with the Czech Chamber of Pharmacists.

There are two Universities providing higher education in pharmacy in the Czech Republic: Charles University of Prague with its Faculty of Pharmacy in Hradec Králové (established in 1969) and the University of Veterinary and Pharmaceutical Sciences Brno with its Faculty of Pharmacy located in Brno (established in 1991). At both Universities the pharmacy curriculum is organized as a seamless fully integrated Master Degree course (a bachelor degree does not exist). The pharmacy curriculum comprises 6 months of university-supervised traineeship taking place in the fifth year of study. The pharmacy curriculum is organized in accordance with the EU directive 2005/36/EC.

Subjects which studied students training on speciality “Pharmacy” English or German, Latin, Information and Communication Technologies, Chemistry and Biochemistry, Psychology and Communication, Health Education, Anatomy and Physiology, Microbiology and Hygiene, Human Nutrition, Pharmaceutical Botany, Analysis of Drugs, Pharmacology, Compounding of Medicines, Laboratory Technology, First Aid, Pathophysiology and Pathology, Pharmacognosy, Pharmaceutical Chemistry, Basics of Radiology, Pharmacy Practice, Public Health Care, Dispensing, Medical Devices, Practical Training.

Sectors in which pharmacists are employed in Czech Republic: .armed forces, secondary school and Universities, National health services, State Institution of Drug Control, Institute of Clinical and Experimental Medicine, Laboratories (research, production, control, development), distribution, sales management and marketing.

Comenius University only provides uninterrupted studies in pharmacy on Master level. There exists a specific pharmacy-related entrance examination in

chemistry and biology. During pharmacy studies the specialized courses are not provided.

Sectors in which pharmacists are employed in Slovakia: government and ministries, regional government Academic position Science, journalism, forensics, armed forces, voluntary health organisations/non-governmental organisations, secondary school, National health services, International health services, agricultural and veterinary pharmacy, administrators of pharmaceutical associations.

In conclusion summarize information about training pharmacy students in pharmaceutical department in east European universities (tables 1-2).

Table 1. Pharmaceutical department in higher education institutions, staff and students.

Countries	Number of universities	Staff	Number of application for entry per year
Bulgaria	4	250	260
Czech Republic	2	190	430
Hungary	4	176	400-500
Poland	10	1446	1500
Rumania	10	1000	1500-2000
Slovakia	2	108	1000

Table 2. . Subject areas in %:

Country	chemical sciences	physics, mathematics	biological sciences	pharmaceutical technology	medical sciences	law, society, ethics	generic subjects, traineeship
Bulgaria	31.0	7.0	11.0	13.0	24.0	7.00	7.00
Czech Republic	17.0	5.0	8.0	22.0	19.0	13.00	16.00
Hungary	27.2	5.2	5.2	16.0	28.5	3.88	14.22
Poland	21.3	4.1	8.0	15.9	38.2	6.20	6.20
Rumania	26.1	8.7	15.8	14.1	24.9	3.70	6.60
Slovakia	28.8	8.8	10.9	14.4	27.6	3.40	6.00

Conclusion. Educational re-orientation in pharmacy is necessary in many schools and the strategies by which students learn, as well as the context for the learning process should be a primary focus for review. The concepts of "learning" and "teaching" are two aspects of the educational process that are often mistaken and too often, Pharmacy Education: A Vision of the Future 25 the educational process, that is how we learn and not the content of our education or what we learn, assumes

greater significance teaching, rather than what students actually learn, tends to be emphasised when pedagogical reform is planned or made. Most faculties attempt to monitor the quality of the pharmaceutical education that they provide, however the manner and systems of their evaluations vary enormously in scope, depth and indeed, actual value. Many neglect to adequately assess each aspect of the programme, including students, staff and environment and so fail to result in the implementation of the changes required to enhance quality and relevance. Curriculum development should not focus solely on the content of the programme, a properly designed evaluation addresses all parts of the educational process, of which the content is only one element.

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