

New challenges in public health education and training in the Slovak Republic

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Abstract

Background: The Slovak Republic joined the European Union (EU) on May 1st 2004. The public health system of the country is under continuous transition including public health education and training. The aim of the presented paper is to describe and discuss how far the transition of public health education of the country went during last time period.

Methods: Web site review, documentation search and curriculum content analysis were the main methods employed within presented paper.

Results: There are 7 universities offering public health education on bachelor, master and doctoral level. Among them 6 could be found in list of accredited universities of the Ministry of Education by Accreditation Committee of the Government of the Slovak Republic. The three levels of education are fully harmonized with the Bologna principles. The Accreditation Committee of the Government of the Slovak Republic describes very detailed aims of a public health education program including recommended study subjects. Universities add to additional, mostly clinical medicine or hygiene subjects to recommend study subjects leaving likely very little time for research at universities.

Conclusions: Despite large progress further effort is needed to clarify what is public health, what kind of subject should be included in curricula and on introduction of public health research at universities.

Key words: public health, education, competencies, research

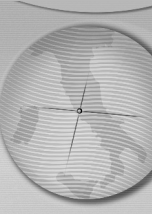
Introduction

The Slovak Republic joined the European Union (EU) on May 1st 2004. The role of the EU in education and training policies is a supporting one. The national governments of Member States are in charge of their education and training systems, but they cooperate within the EU framework in order to achieve common goals. Letter 1 (article 126, chapter 3 of title VIII) the Maastricht treaty [1] states: "The Community shall contribute to the development of quality education by encouraging cooperation between Member States and, if necessary, by supporting and supplementing their action, while fully respecting the responsibility of the Member States for the content of teaching and the organization of education systems and their cultural and linguistic diversity."

The Lisbon strategy has further strengthened

the role of education and training by including it into key pillar areas; education and training are present in two out of three pillars (economy and social pillar) [2].

Health and especially public health within EU is similar to education and training a responsibility of member states. EU aims to encourage collaboration, experience exchange and support collaborative work on areas of research and implementation via research programs (http://cordis.europa.eu/fp7/home_en.html) and the public health action plans (http://ec.europa.eu/health/ph_programme/pgm2008_2013_en.htm). A key initiative with the aim to create a European higher education area is the Bologna Process (http://ec.europa.eu/education/policies/educ/bologna/bologna_en.html); it should lead to better possibilities of student/teacher exchange and comparability of content of different curricula.



Any education and training program should respond the need of practice. In case of public health these needs are defined internationally in sets of competencies which graduates of public health education should possess. The Association of School of Public Health in Europe (ASPHER) presented its own provisional set of competencies in spring of 2008 (<http://www.aspher.org/media/pdf/asphercompetenciesprogrammephase2report.pdf>). The Public health Agency of Canada has published a set of core competencies in public health in 2007 (<http://www.phac-aspc.gc.ca/ccph-cesp/index-eng.php>). Other examples of public health competences from outside of Europe could be mentioned as the Core Competencies Development Project of Association of Schools of Public Health of USA at <http://www.asph.org/document.cfm?page=851> and the Australian example at <http://www.phlr.anaphi.unsw.edu.au/comp/comp.htm>.

History of public health (or its key elements) education in the Slovak Republic goes back to 1957 when at the State Health and Social Institute (established in 1939) a chair of hygiene and epidemiology began systematic training of medical personnel in hygiene and epidemiology [3]. Especially during time of Czechoslovakia there was a possibility to study hygiene at pre-graduate level at the Medical Hygienic Faculty of Charles University in Prague. In the Slovak Republic, first public health program for pre-graduate level was launched in 1993 by opening public health program at the Faculty of Health Care and Social Work, at the University in Trnava. Earlier there was only a possibility to study public health as a postgraduate course for medical doctors (MPH degree) at the Slovak Postgraduate Academy of Medicine (a sectoral university of the Ministry of Health, recently the Slovak Medical University).

The aim of this paper is to compare the development of public health education in the Slovak Republic with EU policies, Bologna process and content wise with Canadian core competences.

Methods

The main methods employed within this analysis were websites review, documentation search and curriculum content analysis. Starting by the website of Accreditation Committee of the Government of the Slovak Republic (<http://www.akredkom.sk/> in Slovak only) universities with accredited public health programs were identified as well as criteria for

public health programs in the country. Via individual university websites the necessary documentation describing the study programs was gathered for curriculum content comparison with core public health competencies. Personnel interviews were conducted in necessary cases where information was not available on the web. The three universities for detailed curriculum analysis were selected based on convenience principle; either there was information about their curriculum available over web site or via personnel informant. Due to specificity of doctoral level the analysis was restricted to bachelor and master level in our paper.

In terms of selection of reference core competencies the Canadian set has been selected due to clarity, simplicity and focus on practice. The ASPHER set of competencies is considered more for post-graduate training as for full scale training.

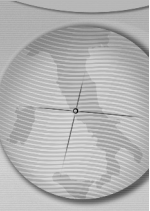
Results

There are two accreditation systems and committees for public health education and training in the Slovak Republic. The first is the Accreditation Committee, an advisory body of the Government of Slovak Republic which is obliged to assess, evaluate and approve university education and training programs across sectors. Legal support to work of this Accreditation Committee is provided by the Act No. 131/2002 on Universities. The committee includes public health as a study subject under medicine and health category, subcategory of non-medical subjects. Public health is defined as a multidisciplinary subject with aims to prevent disease, promote health and expand human life by organized effort of the society. The description fully introduces the three level education according to the Bologna criteria by establishing bachelor, master and doctoral (phd) level.

The second is the Accreditation Committee of the Ministry of Health of the Slovak Republic which has the same roles within the Ministry of health sector in the field of further education of healthcare sector and has its legal background in the Act No. 578/2004 on Provision of health care and Directive of the Government of the Slovak Republic No. 322/2006 on further education of medical workers.

Table 1 shows overview of universities and public health programs with levels according to the Bologna criteria and accredited by the Accreditation Committee of the Government of the Slovak Republic.

In addition, The Slovak Medical University with its specialized and certificated study programs

**Table 1.** List of universities and public health programs accredited by the Accreditation Committee of the Government of the Slovak Republic.

University	Public Health Program	Bachelor	Master	Doctoral (PhD)	Form	Year of last accredit.
University of St. Elisabeth, Bratislava	Public Health	Yes	Yes	Yes	Ext.	From 2003 and 2006
	Public health administration	No	Yes	No	Int.	2007-2009
	Tropical Public Health	No	Yes	No	Ext.	2007-2009
Trnava University, Trnava	Public health	Yes	Yes	Yes	Int. Ext.	From 2004
Pavol Jozef Safarik University, Kosice	Public health	Yes	Yes	No	Int. Ext.	From 2004
Jesenius Medical Faculty of Comenius University Bratislava, Martin	Public health	Yes	Yes	Yes	Int. Ext.	From 2003 and 2005*
Medical Faculty of Comenius University, Bratislava	Public health	Yes	Yes	Yes	Int. Ext.	From 2004 and 2006*
Constantine the Philosopher University, Nitra	Public health	Yes	No	No	Int. Ext.	2007-2010

Ministry of Education, science and youth of the Slovak Republic (<http://www.minedu.sk/index.php?lang=sk&rootId=45>) [Accessed on January 16, 2009].

Legend: Accredit. = Accreditation; Ext. = external, Int. = internal, daily studies

accredited by the Accreditation Committee of the Ministry of Health in compliance with above mentioned legal background also offers bachelor, master and doctoral education on public health according to the university web site (www.szu.sk).

The content of the curriculum for public health as well as basic competences are described in the description of subject public health of the Accreditation Committee of the Government of the Slovak Republic. The description clearly says that public health study programs must be based on research, theory and practice in hygiene, epidemiology and factors endangering health. The curriculum must contain biomedical, humanistic and behavioral, preventive medicine, information technologies, language and other (statistics) subjects.

Table 2 summarizes the competences which should be possessed by graduates of bachelor and master level in comparison with Core Competences of Public Health Workers as defined by the Public Health Agency of Canada.

The curriculum description by the Accreditation Committee of the Government of the Slovak Republic describes quite in detail study subjects to be included in curriculum as

- On bachelor level
 - Key subjects - biology, anatomy and pathologic anatomy, physiology and pathologic physiology,

microbiology, social psychology, communication, legislation, epidemiology, hygiene, social medicine, health education

- Additional subjects - human ecology, dietology, sport medicine, hospital hygiene, societal, moral and legal aspects of profession, basic of management, health policy
- On Master level
 - Key subjects - pharmacology, basic of clinical disciplines stressing disease prevention, immunology, toxicology and occupational diseases, basic of scientific work, epidemiology, health policy, health economy and legal aspects of health system, social aspects of health care, health management and insurance, human ecology, dietology, preventive nutrition and nutritional diagnostics, sport medicine, hospital hygiene

To analyze the curricula of individual accredited universities three of enlisted 7 universities were picked up and their curricula reviewed as of subjects; results are shown in Tables 3 and 4.

Discussion

Educational system of the Slovak Republic seems to be completely transformed according to the Bologna criteria to three level systems including public health. Number of universities offering public health programs are impressive. 7 universities offer bachelor programs and 6 do

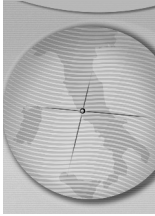
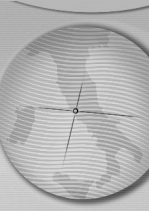


Table 2. Key competences of public health study program graduates according to the Accreditation Committee of the Government of the Slovak Republic compared to Canadian set of core competences.

Competences on bachelor level	Competences on master level	Canadian set of core competences
Perform defined nursing, preventive, diagnostic and therapeutic methods and procedures	Know and apply basic of dietology, economy of nutrition, preventive nutrition and nutrition diagnostic	
<ul style="list-style-type: none"> Apply epidemiological methods Collect, analyze and evaluate results of hygiene-epidemiological work and studies 	<ul style="list-style-type: none"> Know ecologic relations, identify and analyze risk, propose targeted solutions Analysis and diagnostic in public health 	Assessment and analysis
<ul style="list-style-type: none"> Apply methods of health protection and promotion Apply legal knowledge in practice and field work 	<ul style="list-style-type: none"> Present knowledge on field of social medicine and define social aspects of health care Implement principles of economy and management in health system Apply knowledge of hospital hygiene in practice Apply legal knowledge in health system and environment (including work environment) Implement knowledge into local, regional and national health policy Know and apply intervention techniques in public health Be able to participate in project work on national and international level 	Policy and program planning, implementation and evaluation
Additional skills such as presentation, teamwork, organizational skills		Partnership, collaboration and advocacy
<ul style="list-style-type: none"> Apply health education, psychological and sociological methods and techniques in professional conduct Communicate on professional level within own subject Use foreign language on level which allows orientation in foreign scientific literature 		Communication
	<ul style="list-style-type: none"> Integrate knowledge and apply it in practice Additional skills such as ability to work individually as well as team member or team leader, be updated on new development in public health, apply ethical conduct of work 	Leadership
<ul style="list-style-type: none"> Be able to gather the newest knowledge, conduct lifelong learning and apply new knowledge 		Public health sciences
		Diversity and inclusiveness
	Be professional on field of sport medicine	

**Table 3. Study subjects of selected universities in comparison with subjects enlisted in the Accreditation Committee of the Government of the Slovak Republic rules – bachelor level.**

	Bachelor level
Accreditation Committee of the Government of the Slovak Republic	biology, anatomy and pathologic anatomy, physiology and pathologic physiology, microbiology, social psychology, communication, legislation, epidemiology, hygiene, social medicine, health education, human ecology, dietology, sport medicine, hospital hygiene, societal, moral and legal aspects of profession, basic of management, health policy
University I.	anatomy and pathological anatomy, normal and pathological physiology, microbiology and immunology, hygiene, introduction to epidemiology, epidemiological studies, social medicine, introduction to statistics, biology and genetics, Latin language, communication and rhetoric, informatics, foreign language, philosophy, nursing and first aid, physical exercise, summer practice, basics of clinical disciplines, epidemiology of chronic diseases, qualitative and quantitative research methods, epidemiology of infectious diseases, infectology and tropical diseases, hygiene of environment, health education and counseling, ethics, legal aspects of public health, hygiene of children and youth, hygiene of diet and dietology, occupational health, mental health, dental health, health care management, hospital hygiene, health policy and organization of health system, bachelor thesis
University II.	anatomy and physiology, biophysics, biochemistry and radiology, foreign language, medical biology, medical terminology, nursing techniques, ethics, psychology and basic of communication, biostatistics, human ecology, summer practice, microbiology, pathological anatomy and physiology, population health and demography, first aid, introduction to public health, physical exercise (elective), epidemiology of infectious diseases, pharmacology, hygiene of nutrition, hygiene of environment, legislation and basic of economy, methodology of epidemiology and hygiene, hospital hygiene, social psychology, basic of clinical medicine, preventive occupational health, social medicine, health education, epidemiology of non-communicable diseases, hygiene of children and youth, management and organization of health system, medicine of catastrophes, objectification of environmental and occupational factors, role of nutrition in prevention of civilization disease, basic of scientific work, protection against ionizing radiation, research in public health, bachelor thesis
University III.	anatomy, biophysics, biology, physiology, informatics, legal aspects of public health, introduction to public health, basics of research and science, biochemistry, determinants of health, medical microbiology, pathological anatomy, basics of hygiene, biostatistics, pharmacology and pharmacoeconomy, basic of laboratory techniques, infectious diseases, practice, pathological physiology, prevention in oncology and cancer epidemiology, prevention in pediatrics, prevention in internal medicine, introduction to epidemiology, applied epidemiology, pharmacology, mental health and its protection, hospital hygiene, protection against ionizing radiation, prevention in internal and practical medicine, environmental health, epidemiology of infectious diseases, microbiology of environment, health promotion, prevention in gynecology, prevention in surgery, bachelor thesis seminar, tropical public health, health of children and youth, occupational health, epidemiology of chronic diseases, international public health, state health supervision, nutrition and health, health policy, in addition 15 elective subjects

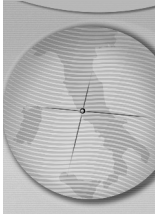


Table 4. Study subjects of selected universities in comparison with subjects enlisted in the Accreditation Committee of the Government of the Slovak Republic rules – master level.

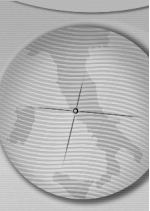
	Master level
Accreditation Committee of the Government of the Slovak Republic	pharmacology, basic of clinical disciplines with focus on disease prevention, immunology, toxicology and occupational diseases, basic of scientific work, epidemiology, health policy, health economy and legal aspects of health system, social aspects of health care, health management and insurance, human ecology, dietology, preventive nutrition and nutritional diagnostics, sport medicine, hospital hygiene
University I.	management of human resources, health service administration and insurance, health economy, health legislation, determinants of health, health promotion and intervention programs, basics of clinical disciplines focusing on prevention, epidemiology, research project, behavioral medicine, health education, health and medical informatics, basics of sociology and social work, pharmacology, immunology, physical exercise (elective), principles of work safety, relation to public and mass media, sport medicine, specificities of health of handicapped people, communication and team work, health and social problems of minorities
University II.	thesis seminar, emergent infectious diseases, health system financing, assessment, management and communication of health risks, legislation of health protection, management and health system work, international health, social aspects of health care, travel and tropical medicine, state health supervision, public health of specific population groups – inequalities in health, occupational health services and occupational health protection, health policy, master thesis
University III.	epidemiological studies, assessment, management and communication of risk, counseling in public health, analysis of epidemiological data, intervention programs, clinical epidemiology, practice, master thesis seminar, master thesis, decision making processes and health, patient rights, in addition 38!!! electives

master programs for a population of about 5.4 million of the Slovak Republic; this is double of public health programs offered for example in Denmark for similar size of population. There is one discrepancy comparing information from the website of the Accreditation Committee of the Government of the Slovak Republic and information available on website of the Slovak Medical University. It is accredited only by the Accreditation Committee of the Ministry of Health of the Slovak Republic as institution for further education of medical professionals. However, it does offer full bachelor, master and doctoral study programs on public health for whole population of the Slovak Republic.

The definition of public health provided by Accreditation Committee of the Government of the Slovak Republic is in compliance with internationally accepted definition providing a good baseline for comparison of curricula and competences of graduates. The description of the Accreditation Committee of the Government of the Slovak Republic provides very detailed

information leaving probably little space to individual universities for specialization. As presented in Tables 3 and 4 universities solve this situation by including the subjects defined by Accreditation Committee of the Government of the Slovak Republic and inclusions of a large numbers of other, mostly hygiene and clinical medicine based subjects. Seeing the enormous amount of study subjects in two selected universities one should ask the question when students study and practice what they learn. Comparing internally definition of public health, competencies expected after graduation and study subjects there are couple of points to discuss:

- Diagnostic and therapeutic competences are mixed up with typical public health competences – it might be questioned whether public health graduates as non-medical experts (public health is categorized as non-medical discipline) will ever need to diagnose and treat individuals.
- Strong focus on some disciplines and missing other ones – for example dietology, nutrition



diagnostic, sport medicine, hospital hygiene, hygiene subjects are repeatedly present on both bachelor and master level, but environmental health (not necessarily the same as hygiene of environment), health promotion (one of key terms of definition of public health!), behavioral health are missing

- There are subjects without clear and direct link to expected competences such as pharmacology, immunology, human ecology; in some cases it might be due to terminological problems (human ecology could be mixed up with environmental health at some extent)
- A clear statement that public health deals with population is missing

It is understandable and visible that content wise public health is still on transformation from hygiene curriculum. The large amount of study subjects shows lack of clear understanding of public health; universities respond to this by offering "wide range of different subjects" instead of focusing on key disciplines of public health and giving clear message to students what kind of knowledge and skills they should possess. Further clarification among definition of public health, content of curriculum and competences is apparently the key challenge for public health education and training in the Slovak Republic.

This challenge could be addressed at the same time as harmonization of competences with internationally accepted public health competences. As noted above due to simplicity and practicality we use the set of core competences by the Public Health Agency of Canada. In Table 2 we enlist those competences in form of headlines only (readers can find them in detail on web site provided earlier). In principle all of the competences mentioned in description of Accreditation Committee of the Government of the Slovak Republic are included in Canadian set of competences. The main difference is that the Canadian one clearly deals with population level and avoids diagnostic and therapeutic procedures, techniques. The balance between medical, social, environmental, economic and managerial competences is much stronger in Canadian competences as in Slovak ones, which tend to be more medically oriented. It could be hypothesized that this is related to fact that public health is taught at medical faculties (4 out of 7) and orientation of the curriculum is linked to human resources available.

Despite the harmonization of study system according to the Bologna criteria and inclusion of foreign language into curricula of universities there is little student and teacher exchange with

other EU and non-EU countries according to knowledge of the authors of this paper. The reasons could be defined as lack of comparability of content of individual study subjects to those in foreign universities and lack of skills to provide education in English (or other foreign language).

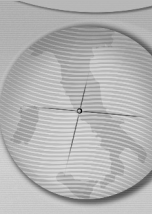
Another weakness of the recent system is lack of high quality public health research at universities in the country. The Strengthening Public Health Research in Europe (SPHERE) project analyzing public health research in Europe explored that the Slovak Republic belongs to those countries which produce minimum public health research measured by bibliometric indicators (<http://www.ucl.ac.uk/public-health/sphere/Country%20profiles/Slovakia.pdf>). Seeing the curricula of individual universities this is not a surprise; to conduct high quality education of so many subjects within available working time could leave very little if any time for research. Of course, this could be discussed also from the other side and one may ask the question whether high quality university education can exist without high quality and internationally recognized research, especially on long term perspective.

Due to limitation of method of our study we could not analyze and discuss two important issues; who teaches at so many universities and what graduates do in practice after finishing a master degree program in public health. The first point, personnel capacities to keep high quality education in 7 universities is very relevant especially regarding lack of internationally accepted scientific publications from Slovak Republic as identified by the SPHERE project. The second should be analyzed both from cost-efficiency point (investment into study and benefit produced during working career) and real impact on the health of population.

Conclusions

The Slovak Republic achieved a great progress in transformation from traditional hygiene and epidemiology (infectious disease oriented) education to public health education. The educational system has been transformed according to the Bologna criteria though it is still not fully ready to be engaged in systematic student and teacher exchange (is there any who is in Europe?).

Further effort should focus on clarification of the subject 'public health', modification of curricula according to real needs, functions and competences of graduates and the increasing role of public health research in universities.



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