

The relevance of training specialists in the Health Technology Assessment in the world and Ukraine

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Abstract

Based on generalization of the modern international experience the areas of development of the methodology for training specialists in Health Technology Assessment (HTA) system have been determined; they reflect the categories of information consumers, the goal, methods, organizers and intermediaries of knowledge transfer. The analysis of the market of educational services, educational curricula and Internet resources in the field of HTA has been conducted. Based on the results they are classified into 4 groups – academic programs, professional improvement and continuing education, short-term training and information for various target groups, online courses at the pre-graduate level and for postgraduate training. According to the all-Ukrainian survey the necessity for training specialists in the field of “expert in assessing health technologies” has been confirmed. Based on the information needs, requirements of stakeholders and international experts in HTA a qualification characteristic, and on its basis – the professional academic program, have been developed at the National University of Pharmacy, as well as training of the corresponding specialists has been started. In the future, it is planned to expand educational services and conduct short-term courses and workshops, as well as online training of specialists in HTA at the postgraduate level.

Keywords

educational program, health technology assessment, training of specialists

Introduction

Health Technology Assessment (HTA) is one of the key areas of healthcare reforming in the world, which involves a comprehensive independent examination of the effectiveness of the use of health technologies (diagnostic & screening technologies, medical and surgical interventions, pharmaceuticals). According the HTA Core Model the assessment is conducted in the following domains: Health problem and current use of technology (CUR); Description and technical characteristics of technology (TEC); Safety (SAF); Clinical effectiveness (EFF); Costs and economic evaluation (ECO);

Ethical analysis (ETH); Organizational aspects (ORG); Patients and Social aspects (SOC); Legal aspects (LEG). (<https://eunethta.eu/hta-core-model/>). In this context, training of qualified professionals – experts in HTA, who are able to properly assess using modern methods of analysis, such as clinical, economic, comparative effectiveness, impact on the budget, etc., as well as to summarize, interpret the results and document reports and implement them in scientific, educational and practical activities, reflect them in regulatory documents, becomes relevant.

The latest WHO report in HTA (WHO 2015) notes that the main barrier to HTA development in healthcare deci-

sion-making in almost all 194 countries where the study was conducted is the lack of qualified human resources.

HTA is an interdisciplinary process, some of its components (such as health economics, pharmacoeconomics, etc.) are included in the content of medical and pharmaceutical education or postgraduate training. However, countries of Central and Eastern Europe (CEE) have limited opportunities to offer HTA courses for graduate students, especially in the field of economic modeling skills.

Ukraine is currently actively implementing HTA in the health care system. The proper institutional structure of the HTA, the regulatory framework and the education system are formed. The Law of Ukraine defines the concept of “health technologies assessment”, the procedure and conditions of the HTA are regulated by a government decree. The position of “expert in the health technologies assessment” has been included in the National classifier of professions.

Materials and methods

The goal of this review is to outline the current national training programs for HTA, as well as to compare it to international experience and suggest ways of improving the training of specialists in Ukraine. The scientific publications, official websites of educational institutions, national HTA agencies and international organizations, as well as the data of educational portals and training centers were used in the work. The content of more than 120 educational programs and training courses in health economics and HTA was analyzed. The study was performed using methods of analysis, systematization and generalization. 845 healthcare professionals were interviewed on the problems and prospects of HTA development in Ukraine.

Results

To substantiate political and managerial decisions in the framework of the healthcare system reform, Ukraine like most of the Eastern European countries with rather limited resources implements the modern experience primarily of European countries where HTA is widely used not only at the national and regional levels, but also at the level of health institutions (HI). At the same time, the specialized state and public institutions, such as the HTA Agency, have been created and are actively working in Ukraine, as well as scientific and practical research has been conducted since 2011 by the soft model (Nemchenko and Kosyachenko 2011; Kosyachenko and Nemchenko 2014).

Upon recommendation of the Ministry of Health (MOH) of Ukraine, at the end of 2019 the Ministry of Social Policy of Ukraine decided to introduce a position of an “expert on the assessment of health technologies” to the National Occupational Classification of Ukraine.

In modern conditions of rather intensive implementation of HTA in many countries of the world the development of the methodology for organizing the learning process and the use of adequate educational technologies

becomes particularly relevant. In this regard, we summarized the current experience of developing educational technologies in HTA. The results of this study are presented in Fig. 1.

It is important to note that these technologies take into account the information needs of various target groups, the goals and motives of their training. This will determine the results of training and the actual procedure for organizing the learning process (Nemchenko et al. 2019).

Considering that most potential applicants have already higher education (medical, pharmaceutical, economic, legal) and experience, as well as hold certain positions it is advisable to organize several educational options:

- the Master’s program on the basis of medical and pharmaceutical education with the qualification “Expert in HTA” (for HTA executives and users);
- a distance course for 3–6 months to improve the skills of specialists in the field of public procurement;
- trainings and workshops to raise awareness of politicians, managers and specialists on various problematic issues and practical application of HTA.

The analysis of the market of educational services, available curricula and Internet resources aimed at raising awareness in the field of HTA was also conducted. Based on the results the most common services were determined, and classified into 4 groups (Fig. 2).

According to the WHO data, 27 countries of the world, 13 of them are European states, have academic programs in HTA (higher education, Master’s degree program). HTA courses, trainings and workshops are held in 61 countries, including 26 European ones. In-service training of the staff (trainings or workshops) is conducted in 52 countries (in particular, 21 of them belong to the WHO European region) (WHO 2015).

The results of our analysis show that a lot of short-term training programs (trainings, workshops, master classes) are now offered. Only a few of the world’s leading universities offer Master’s programs. Post-graduate education (post-graduate studies) in HTA and healthcare economics is also being developed, including the HTA block (Nazarina 2020). Special attention in the development of educational technology methodology in HTA system should be paid to international programs (Lehoux et al. 2005; Douw et al. 2002; Kristensen et al. 2002).

There are educational curricula of the International Society of Pharmacoeconomics and Outcomes Research (ISPOR). HEOR is a modular training program lasting from 1 to 3.5 days; it contains two modules: introduction to HTA and HTA methodology. *Short courses* are also offered in conjunction with ISPOR conferences as a series of 1-day training courses to improve knowledge and methods in the main HEOR topics, as well as for studying new trends. Short courses range from beginner to the advanced level (Health Technology Assessment Training Program <https://www.ispor.org>).

The CELforPharma international training center offers an interactive 1–2-day HTA course: fundamentals, trends and

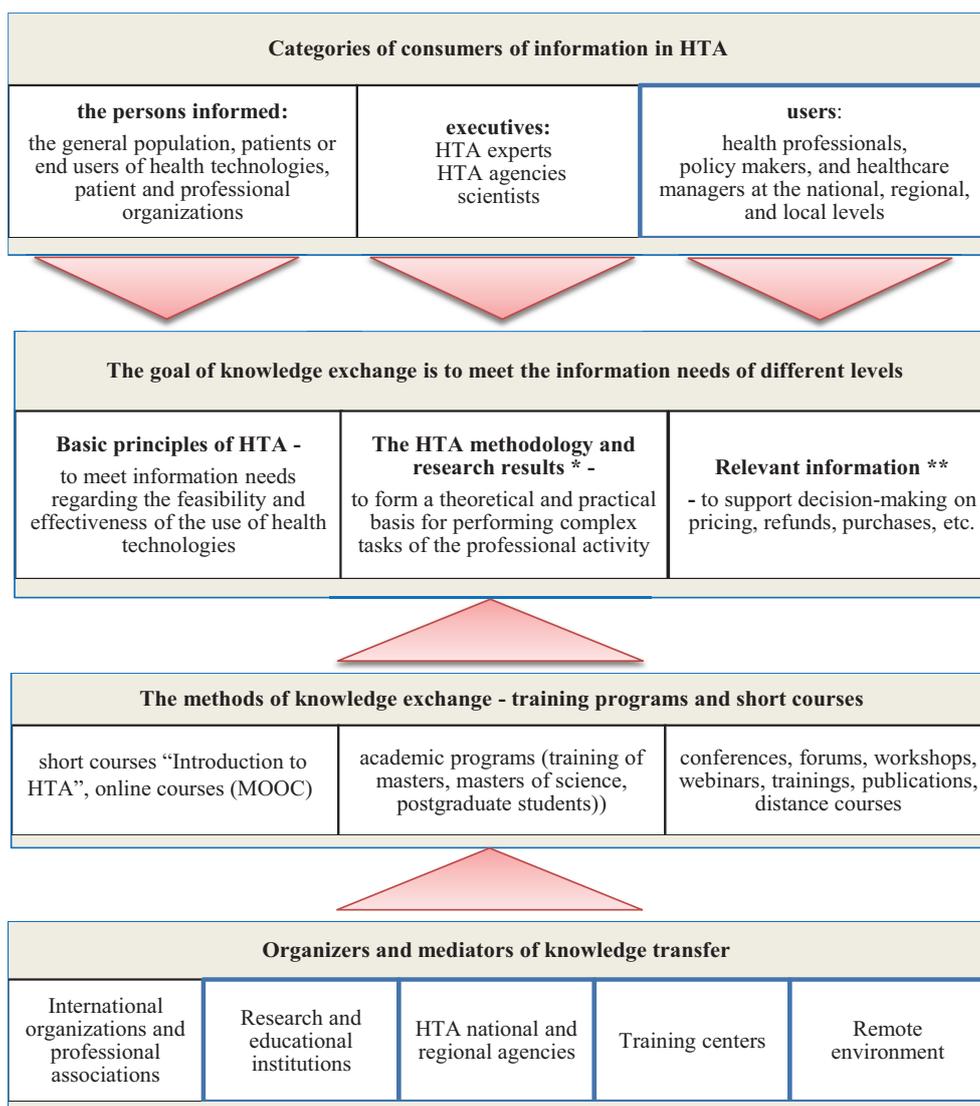


Figure 1. Development of the methodology for training specialists in the HTA system. Note: * reports in HTA and databases (medical and demographic statistics, results of meta-analysis, clinical and pharmaco-economical studies, prices, etc.). ** Information that meets specific information needs.

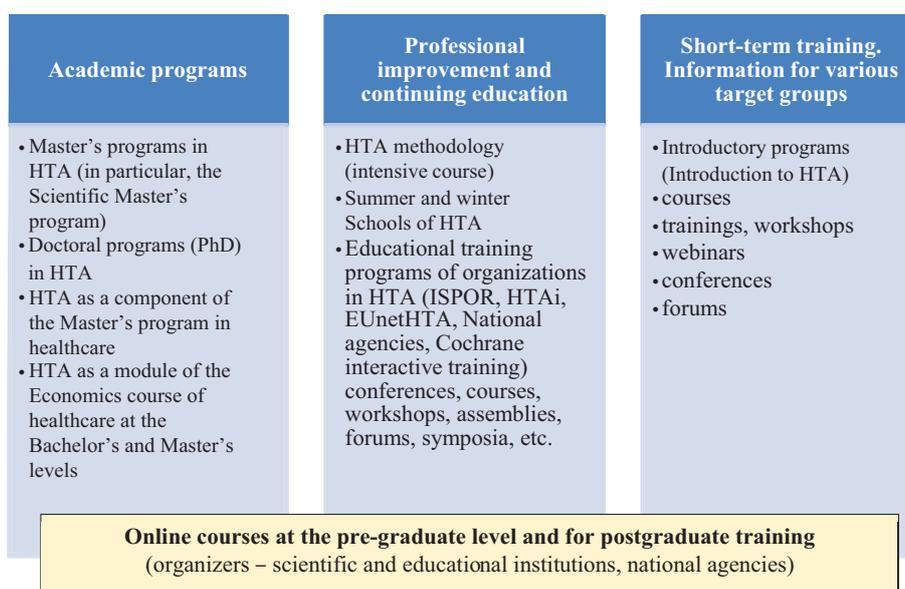


Figure 2. Distribution of academic and training programs in HTA.

opportunities for the heads of PHARMA, BIOTECH and MEDTECH companies (<https://www.celforpharma.com>).

The HTA division of the International Federation of medical and biological engineering (IFMBE HTAD) has created an e-learning platform to promote HTA among biomedical and clinical engineers. HTAD focuses primarily on medical devices, procedures, and systems that are used to provide medical care (<https://www.htad-ifmbe-elearning.org/courses/>).

Now most methodological papers in HTA are based on the experience of countries with a high level of income, primarily in Western Europe. Due to the uneven pace of development of the methodology the main provisions of the roadmap for the HTA implementation in countries of Central and Eastern Europe (CEE) have been developed, one of the main tasks of it is to improve training of specialists in HTA using local scientific, practical and educational resources, as well as the international experience and the European academic programs in HTA (Kaló et al. 2016).

These provisions provide an example of Poland as a country with a developed system of educational technologies – academic programs for graduates and postgraduates, which are supplemented by short courses contributing to the expansion of HTA opportunities (Gulácsi et al. 2014). There is also an example of Bulgaria, which before 2013 had limited human resources and academic programs in HTA, and it had a negative impact on making political and managerial decisions in the field of healthcare (Iskrov et al. 2013). However, it should be noted that since 2014 the situation in the country has changed for the better – the HTA course for Masters of Pharmacy was introduced in medical universities, and in 2017 – for Masters of Medicine. Currently, there are postgraduate courses in HTA in several educational and specialized institutions, such as Medical Universities in Pleven and Sofia, National Center of Public Health and Analyses of the Ministry of Healthcare NPO's, Center for Analyses and HTA (CAHTA), Bulgarian Association for Drug Information (BADI), etc. The experience of Poland and Bulgaria is very useful for Ukraine: the Polish experience – in the development of academic programs, while the Bulgarian one – in the organization of postgraduate education in HTA.

The need for specialists is determined on the basis of expert assessment after consultation with international experts on HTA, potential employers, taking into account the number of institutions and health care facilities that carry out public procurement. In the absence of HTA professionals the forecast minimum need for executives and users consisting about 2,200 specialists was determined. In accordance with the decision of the meeting of the Working group on evaluation of health technologies of the Ministry of Health of Ukraine, there was a series of workshops within August-October 2019 on the topic: "Topical issues of implementation of health technology assessment and public procurement in the field of healthcare". Workshops were held with the involvement of international experts in 8 regions of Ukraine (Kharkiv, Odessa, Kyiv and Kyiv region, Lviv, Poltava, Vinnytsia, Zhytomyr, Dnipro). A total of 1,100 people took part in these workshops.

During the workshops a survey of participants was conducted to determine the professional judgment of pharmaceutical and medical professionals regarding the state of implementation, problems and prospects for development of HTA. In the survey 845 specialists working in the state (9%) and municipal (91%) healthcare institutions as a chief physician and his Deputy, senior nurse, head of the Department, economist, accountant, lawyer, specialist in public procurement, pharmacist, pharmacist, pharmacy manager, etc., participated. Representatives of healthcare departments of regional administrations, educational institutions and structural divisions of the Ministry of Health of Ukraine also took part in the survey. The majority of our respondents had higher medical education (44.7%), 26.5% – economic, 12.9% – pharmaceutical and 14.9% – specialized secondary medical education.

At the beginning of the workshop, a self-assessment of the respondents on awareness of the issue was conducted. It was found that the vast majority of the respondents (56%) encountered with HTA to some extent in practice (Fig. 3).

The vast majority of the respondents have significant work experience in their specialty. Therefore, we studied what kind of knowledge and experience they had in various areas of practical activity related to HTA. The results of the survey are presented in Fig. 4.

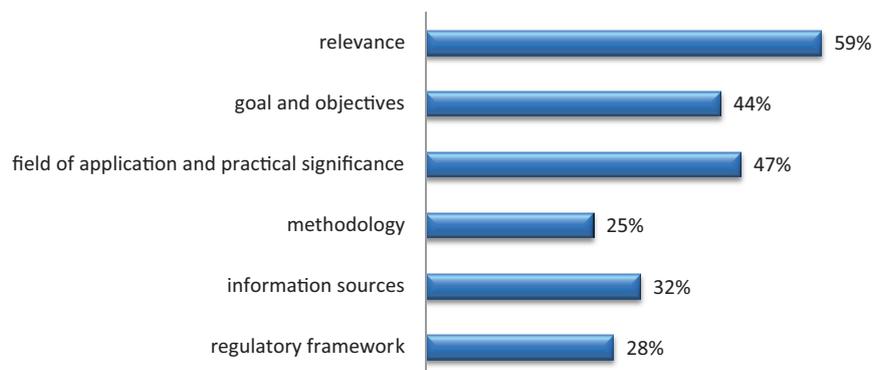


Figure 3. The results of the respondents' self-assessment of the level of awareness about certain aspects of the HTA system.

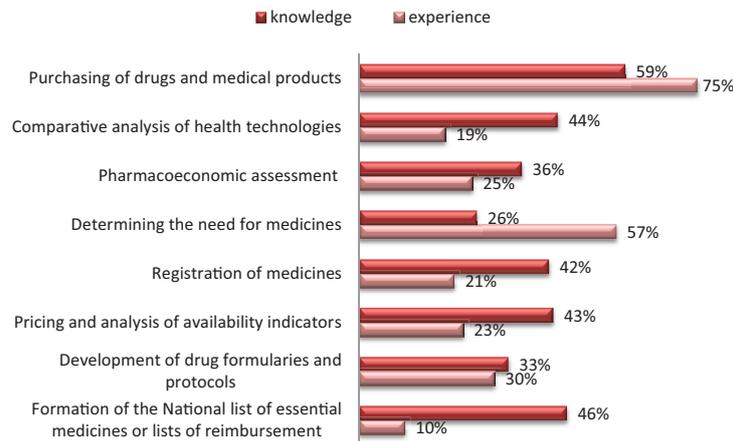


Figure 4. The respondents' self-assessment of their own experience and knowledge in conducting certain types of activities related to HTA.

According to the results of the study, the majority of the respondents (75%) have experience and knowledge of public procurement (59%). A third of the specialists surveyed have experience and knowledge in the development of local drug formularies and protocols. In other fields, there is not only a lack of relevant knowledge, but also significant differences in their application in practice. This applies to such aspects as comparative analysis of health technologies (44% of the respondents indicate that they have relevant knowledge, while only 19% apply it in practice), pharmacoeconomic assessment (36% and 25%, respectively), registration of medicines (42% and 21%), pricing and analysis of availability indicators (43% and 23%), formation of the National list of essential medicines or lists of reimbursement (46% and 10%).

Based on the results of the workshop, the specialists were asked to note how HTA can be applied in their further practical activities. The respondents consider that the main areas of application of the knowledge of HTA are public procurement (90% of the respondents), determining the need for medicines (68%), development of drug formularies and protocols (51%).

We also diagnosed the information needs of specialists and their motivation to obtain additional knowledge in HTA. It has been found that 98% of the respondents express a desire for various forms of training and professional development. At the same time, they are most interested in the issues of legislation (92% of the respondents), public procurement (86%), pricing for medicines and medical services (85%), practical aspects of HTA (82%), economic and clinical analysis (81% each). The vast majority of the respondents consider it necessary to train experts to conduct research in HTA (56%), as well as making decisions on public procurement and reimbursement of the cost of medicines (82%).

Discussion

The scientific basis of the HTA methodology has been introduced into the learning process of the National University of Pharmacy (NUPh) since 2012, first, as separate topics of the

major subjects "Organization and Economics of Pharmacy", "State System of Drug Supply", "Healthcare Economics" at the level of "Specialist" and "Master" in such specialties as "Pharmacy", "Clinical Pharmacy", "Laboratory Diagnostics".

It is possible to practically implement the entire set of knowledge gained concerning the methodology of HTA only at the level of Master's programs when performing research tasks in HTA and proper registration of their results. Since 2016 the academic discipline "Health Technology Assessment" (optional) is provided by the curriculum for training in the third academic and research level leading to a Ph. D. degree in speciality 226 "Pharmacy, Industrial Pharmacy".

Taking into account the actualization of issues related to the implementation of HTA since September 2019 the NUPh has conducted training under the new author's academic program "Health Technology Assessment". The opening of a new specialty has become possible with the support of political and scientific circles, the Ministry of Health of Ukraine and the Public Union "Ukrainian Agency for health technology assessment".

The professional academic program (PAP) "Health Technology Assessment" was developed after consultations with scientists and potential employers, who confirmed the need for training specialists in this specialty in order to work in government organizations (MOH), domestic and international HTA agencies, expert groups, higher education institutions, research institutes, laboratories, healthcare institutions, health insurance funds, and other organizations. The academic program is based on a competence-based approach taking into account the requirements for a specialist set by the international Project of the European Commission "Harmonization of educational structures in Europe" (Tuning Educational Structures in Europe, TUNING).

The author's PAP is aimed at training specialists – experts in HTA who are able to perform professional tasks and responsibilities of research and innovative nature in the field of HTA at the proper level with an emphasis on critical thinking and practical research skills. It also allows us to plan (model) and conduct an assessment of health technologies by various aspects (therapeutic and economic effectiveness, safety, social and ethical consequences,

impact on the budget, etc.) using modern methods of analysis, to summarize, interpret and document the results of the assessment and implement them in research, educational and practical activities.

The PAP “Health Technology Assessment” provides training of experts in the assessment of medical technologies on the basis of the basic higher education previously obtained.

Integrated, general and professional competencies are achieved in the cycles of general, professional and practical training, which include both normative disciplines and subjects of the student’s free choice (in total 90 ECTS credits). It is appropriate that the curriculum includes such disciplines of medicopharmaceutical and organizational economic blocks as “Healthcare Economics”, “Legislation in the healthcare system”, “Medical statistics”, “Scientific foundations of clinical research”, “System analysis of activities of health institutions”, “Methodology of HTA”, “Practical aspects of modeling”, “Economic analysis in the HTA system”, “Clinical analysis in the HTA system” “Healthcare financing”, “Public procurement in the field of healthcare”. A complex of disciplines allows us to systematically develop the competence in order to analyze and use the necessary data from clinical trials and conduct economic evaluation (meta-analysis and modeling), use the evidence-based database from the perspective of concerned users (patients, payers, regulators and providers of medical technologies and services), take informed management decisions based on the results of the research conducted. The emphasis is on the modern methodology of organizing and conducting HTA, scientific research. The involvement of international experts in the learning process and probation in a HTA agency are planned.

These disciplines are focused on achieving the appropriate program learning outcomes. The sequence of the study subjects, plan and schedule of the educational process, the list and scope of compulsory and optional subjects correspond to the structural-logical scheme of training of higher education applicants in speciality “Health Technology Assessment” and are designed to facilitate compliance of the program learning outcomes to the needs of potential employers (stakeholders).

HTA is an interdisciplinary field, and some of its components, especially those related to generalization of clinical data, are included in the traditional curriculum of medical education or postgraduate training. However, CEE countries have limited opportunities to offer HTA courses for post-graduate students, especially in the area of developing economic

modeling skills. Until such training courses are organized in the regions, it is advisable for potential researchers from CEE countries to study at international academic centers such as EUnetHTA, HTAi and ISPOR. At the same time, when dealing with financing issues it should be taken into account that this is a very expensive alternative to local education.

The Bachelor’s degree is also debatable. According to many specialists and teachers, it is not suitable for advanced training of HTA, especially in the methodology of economic assessment; however, it is important for raising awareness, basic knowledge and understanding of potential opportunities for medical and pharmaceutical professionals.

Local regular short-term HTA courses or trainings can be useful options to meet the need for retraining of medical and pharmaceutical professionals. These short courses are also useful for HTA users – politicians and managers in the field of healthcare.

It is also relevant to use a unified assessment system of indicators concerning the HTA implementation both at international training courses and other educational events. At the same time, it is important to discuss the results of the assessment by the indicators of HTA implementation and publish them in scientific journals.

Conclusions

Based on generalization of the modern international experience in training specialists the areas of development of educational technologies in HTA have been determined; they are focused on the information needs of various target groups, the goals and motivation of their training.

The analysis of the market of educational services, curricula and Internet resources in the field of HTA has been conducted. Based on the results the most common services have been determined, and they are classified into 4 groups.

According to the all-Ukrainian survey conducted the necessity for training specialists in the up-to-date field of “expert in assessing health technologies” has been confirmed. Based on the information needs, requirements of stakeholders and leading international experts in HTA a qualification characteristic, and on its basis – the professional academic program for training of the corresponding specialists, have been developed. It will eventually allow creating a new professional environment, which will further contribute to the development of this educational and scientific field.

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