GLOBAL TRENDS AND NATIONAL APPROACHES TO THE TRAINING OF CLINICAL PHARMACISTS

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https://doi.org/10.5281/zenodo.17312344

Relevance: Clinical pharmacy plays a key role in ensuring the rational use of medications and reducing the incidence of drug-related complications, which, according to the WHO, account for up to 10% of hospitalizations worldwide. International experience shows that the training of clinical pharmacists is integrated into the educational programs of most countries, which contributes to improving the quality of pharmacotherapy and patient safety. For Kazakhstan, the issue of integrating clinical pharmacy into educational programs is particularly relevant in the context of the modernization of the healthcare system.

Study Objective. To conduct a comparative analysis of educational programs in the specialty "Pharmacy" at universities in Kazakhstan in terms of their alignment with international approaches to the training of clinical pharmacists.

Materials and Methods. The study focused on the curricula of undergraduate, graduate, and doctoral programs in Pharmacy. The methodology is based on a substantive analysis of disciplines covering key areas: clinical pharmacology, pharmacotherapy, evidence-based medicine, good practices (GCP, GVP), pharmacoeconomics, pharmacovigilance, and formulary systems.

Results. A comparative analysis of educational programs revealed that the training of clinical pharmacists at Kazakhstani universities is developing in stages, but has a number of specific features and limitations.

Bachelor's degree curricula include individual elective courses, such as xenobiotic biochemistry, hospital management, drug and medical device registration, and fundamentals of clinical reasoning. These courses develop initial understanding of drug interactions with the body, mechanisms of side effects, and drug interchangeability. However, the limited number of practical modules restricts opportunities to develop clinical reasoning skills early in the program. Master's degree programs include specialized disciplines such as evidence-based medicine, participation in clinical trials, cost and effectiveness assessment of pharmacotherapy, personalized pharmacotherapy, therapeutic drug monitoring, and formulary systems. These courses help students develop skills in applying evidence in clinical practice and develop competencies in rational choice and economic evaluation of pharmacotherapy. At the doctoral level, the emphasis shifts to research activities: formulary policy development, risk analysis and management in drug therapy, preclinical studies, regulatory aspects of drug registration, and antibiotic resistance. Doctoral programs train researchers and experts capable of influencing national policy on the rational use of medicines.

Conclusions. Educational programs implement a model for the gradual development of clinical competence; however, gaps remain in practice-oriented training and the integration of international standards. To improve the effectiveness of clinical pharmacist training, it is advisable to expand practical modules, introduce uniform standards aligned with FIP and WHO recommendations, and strengthen the research component of educational programs.