



MODERNIZATION OF PHARMACEUTICAL EDUCATION IN KAZAKHSTAN: CHALLENGES, STRATEGIES, AND PROSPECTS

Kurmanbay Z.K.

Nurtayeva.G.K.

Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan

e-mail: kurmanbajzere4@gmail.com

<https://doi.org/10.5281/zenodo.17310301>

Relevance. In his Address, President of the Republic of Kazakhstan Kassym-Jomart Tokayev outlined the goal of developing the pharmaceutical industry and expanding domestic drug production by 30%. New pharmaceutical enterprises are being established in the country, international quality standards are being implemented (ISO – International Organization for Standardization, GMP – Good Manufacturing Practice, GDP – Good Distribution Practice, GPP – Good Pharmacy Practice, GCP – Good Clinical Practice), along with drug labeling systems. These changes require the modernization of pharmaceutical education and the training of a new generation of specialists.

Objective. To conduct a meta-analysis of academic publications, regulatory documents, and student survey data in order to evaluate the effectiveness of pharmacy education and explore prospects for its enhancement.

Materials and Methods. A total of 25 sources published between 2018 and 2024 were analyzed, including materials from CyberLeninka, eLIBRARY, Google Scholar, and PubMed, as well as official documents of the Ministry of Health of the Republic of Kazakhstan and the Presidential Address. The selected sources focused on the reform of medical and pharmaceutical education, as well as the implementation of GMP and ISO standards. In addition, a survey of 50 pharmacy students was conducted to assess their perceptions of current educational programs.

Results. Strategic reform areas:

1. Training personnel in Pharmacy (expanding grants to 100 places, postgraduate training, establishing simulation and certification pharmacy compliant with GMP).
2. Integration of international recommendations, including Nanjing Statements (FIP, 67 statements for monitoring and improving pharmaceutical education).
3. Training specialists for industry (quality control, standardization, certification, biotechnology).

Survey of 50 students:

- 88.9% in favor of developing international cooperation (the Nanjing Statements developed by FIP – International Pharmaceutical Federation, international training, visiting professors).
- 67% noted a lack of practical training and access to equipment.
- 55.6% supported the implementation of international standards.
- 27.8% noted the greatest interest in biotechnology and molecular biology as promising scientific areas.

Conclusion. Pharmaceutical education in Kazakhstan requires reform in line with international standards and initiatives (Nanjing Statements). The combined analysis of literature and survey results highlights clear priorities: strengthening infrastructure, integrating FIP recommendations and expanding clinical training opportunities.