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## Analysis of Medical and Social Technologies in Nursing at the Level of Primary Health Care

Assel Maratbekovna Iskakova<sup>1,\*</sup>, Roza Abzalovna Abzalova<sup>2</sup>, Dinara Maratbekovna Beisebekova<sup>3</sup>

<sup>1</sup>Department of Public Health, Semey State Medical University, 103 Abay Street, Semey 071410, The Republic of Kazakhstan

<sup>2</sup>Center of Family Medicine "Demeu", 1, prospect Ablaikhana, Astana 010000, The Republic of Kazakhstan

<sup>3</sup>Communal State Public Enterprise "Club of Shulbinsk", Settlement Shulbinsk, Semey 071426, The Republic of Kazakhstan

### Abstract

This article provides an analysis of medical and social technologies in nursing at the level of primary branch of health care. Improving the quality of health care is one of the main policy goals of any state in the health sector. Many public health development state programs have identified primary health and social care as a priority for the development of health care in a number of states. There is a trend of improving health and social technologies in nursing at the level of primary branch of health care in many countries. This allows us to solve the problem of providing quality health services, which let us render locally the required and prompt primary care. The analysis made and presented in this article revealed the main trends of medical and social technologies in nursing at the level of primary branch of health care, consisting of the increased growth of professional and cultural levels of the nursing staff, the computerization of the nurses' workplaces using innovation, the practice of the active role of nurses in preventing diseases and educating patients, the application of psychology in the communication of nurses with patients, and the expansion of leadership functions of nurses.

### Keywords

Medical and social technologies; Nursing; Primary branch; Public health care

### Introduction

One of the main indicators of the state rating in the global economy is the level of development of the health sector, which today has become the most vulnerable to all current and economic crises. At the same time, due to the rapid development of medical science, the international declaration of human rights, and increase of health literacy, health care is seen as one of the areas of public services and is subject to constant public scrutiny, the indicator of which is the quality of medical services.

Improving the quality of health care is one of the main policy goals of any state in the health sector. The quality of medical services rendered and the organization of medical process in general are the most important topics under discussion. The evolution of research on the issue referred to as "quality of medical care" for a short time underwent the path from problem statement to the definition of the extent of the quality of medical services and medical care in general.

Many state programs of public health development (the regional policy for health care – Health 2020: the foundations of European policy in support of the actions of the entire state and society in the interest of the health and welfare [1], the program of nursing development in Russia for 2010–2020 [2], the Ottawa Charter on health improvement of the European Regional Bureau of the World Health Organization (WHO) [3], the state program of development of health care of the Republic of Kazakhstan "Salamatty Kazakhstan" for 2011–2015 [4], and others) have identified primary health and social care as a priority for the development of health care in a number of states. The implementation of these programs allowed achieving improvements in population health indicators such as reduction of overall mortality, particularly mortality from cardiovascular diseases, improvement of infant and maternal mortality rates, and reduction of mortality rates from tuberculosis and cancer.

Guided by the Alma-Ata Declaration [5], the WHO accumulates and spreads the experience of successful forms of organization of primary health care, giving priority to integrated models oriented to the needs of the population [6–11].

The European Regional Bureau of the WHO within the framework of the regional strategy for health gave a task to each and all of the states to create the effective mechanisms ensuring quality patient care [12].

However, consumer attitudes to medicine that have been formed over many decades on the background of the lack of health-care current financing system in the population, weak material base, low salaries of health workers, and an insufficient number of medical personnel, especially socially oriented nurses are accompanied by an increase in dissatisfaction of patients with the quality of medical care.

Thus, research aimed at optimizing the quality and meeting the needs of the population in high-quality medical care is determined by the need to analyze the medical and social technologies precisely in nursing at the level of primary branch of health care.

### Materials and Methods

The research materials include the study and synthesis of multiyear scientific–theoretical and practical results of studies performed by advanced and leading scientists in the field of medical and social technologies in nursing at the level of primary branch of health care.

**\*Corresponding author:** Iskakova AM, Department of Public Health, Semey State Medical University, 103 Abay Street, Semey 071410, The Republic of Kazakhstan

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Information is available from the articles of scientific journals, theses of the international scientific-practical conferences and forums, monographs, published guidelines, research reports, electronic databases, archives, outpatient clinics, and interviews of medical staff and patients. The depth of information search varied from 1999 to January 2015.

Processing and analysis of the information were performed by the comparison of the characteristics of medical and social technologies in nursing at the level of primary branch of health care and comparison of the advantages and disadvantages of medical and social technologies in nursing at the level of primary branch of health care.

A complex methodology was used in research in accordance with the set tasks and included the study and generalization of experience of (information and analytical) work of nurses, as well as typological, statistical, and sociological research methods.

## Results

The result of the research was to identify the trends of the improvement of medical and social technologies in nursing at the level of primary branch of health care in modern conditions.

There is an increasing demand for nursing staff in the world since their practice responds flexibly to demographic, economic, and social changes. As a result, a nursing activity has become a key component of health care in any conditions. Table 1 shows the main medical and social technologies in nursing at the level of primary branch of health care used in different regions of our planet.

It is important to note that, in practice, innovative medical and social technologies are not introduced alone. First, there is the development of an innovative approach, and then its implementation in practice. The process of introduction of innovative medical and social technologies usually occurs in several stages: knowledge, persuasion,

#	Medical and social technologies in nursing at the level of primary branch of health care	Brief description and advantages of medical and social technologies in nursing at the level of primary branch of health care	Developers of medical and social technologies in nursing at the level of primary branch of health care
1	Advices of nurses and midwives	Provide nurses with methodical and information support to improve the professional and cultural levels of the nursing staff [13]	Russia
2	Innovative methods of nurses training	Technical training, presentations, seminars, workshops, exchange of experience, and creation of videotapes by nurses. Exercise of the ability to orientate in nonstandard conditions, analyze problems, develop, and implement management decisions by nurses [13]	Russia
3	Higher education in nursing. Nurses examination	Conduct of business games. Professional growth of nurses [13]	Russia, The Republic of Kazakhstan
4	Computerization of nurses' workplaces	Creation of unified information database [13]	Russia
5	E-registration	Reducing the time for patient care at the reception [13]	Russia
6	System of computer application and introduction of drugs	High precision of drug dosage [13]	Russia
7	Antidecubitus mattresses	Prevention of decubitus [13]	Russia
8	Complex system of sterilization equipment	Improving the quality of medical devices processing [13]	Russia
9	Automatic biochemical analyzer	Ensures the safety of medical staff working with blood and improves the accuracy of laboratory tests [13]	Russia
10	Aerosol generators	High quality of air handling, reduction of the staff time, and the consumption of disinfectants [13]	Russia
11	Washing machine in the endoscopy department	Automatic and intensive disinfection of all endoscope channels [13]	Russia
12	Medical, social, and psychological technologies	Learning of the communication psychology basics by nurses. Skills of friendly communication with patients [14]	The Republic of Kazakhstan (Dr R.A. Abzalova)
13	Technology of patient-oriented nursing	Organizational structure of nursing (administrative path) with the demonstration of leadership. Consistency and professionalism in the words and actions of nurses dealing with patients and staff [15]	Singapore
14	Telemedicine. Technology of interactive television	The use of specialized telecommunications equipment. It allows bringing specialized medical care to the patient to the maximum. Two-way interactive communication between a nurse and a patient. Consulting of patients in rural remote areas by nurses [16].	Ukraine (V.N. Kazakov and others)
15	Technology of equality of nurses with doctors and other medical workers	Nurses are full partners in the process of reorganization of health care, along with the doctors and other medical workers [17]	the USA
16	Distance learning of nurses	Study situation is connected with the analysis of all consequences of improper prescription, including the introduction of medical errors registration tool. Further training of nurses [18]	Ukraine
17	Evidence-based nursing practice	Conscious use of the best available evidence to make decisions by nurses to care for patients [19]	Finland
18	Active role in disease prevention and patient education	Nurses, working under the supervision of a general practitioner, play an active role in disease prevention and patient education. They also extend the capabilities of a physician to provide medical care to patients with chronic diseases, visiting patients at home, and by monitoring the weakened patients [20]	the UK

Table 1: Medical and social technologies in nursing at the level of primary branch of health care

decision, implementation, and confirmation. At this stage, nurses play an important role in the innovation activity of the health-care system, starting with the development of innovations and ending with their implementation and further spread.

## Discussion

The changes in the status and role of a nurse take place right in front of our eyes. The colleagues from the Russian Federation [21] recommend all senior nurses to get higher education in nursing, and they even have a forecast requiring nurses with higher education for individual treatment and prevention organizations.

The nursing reform process in Belarus is slow and difficult for several reasons, one of which is the lack of activities by nurses themselves. Playing supporting roles in medicine, nurses often do not seek to take the initiative. However, quality care cannot exist without high-quality nursing [22].

In some developing countries with low-income population, nursing is well developed and provides all primary health care. In the poorest countries, nurses supervise a large part of health-care services. They often work with the poorest and most vulnerable sectors of society. At the same time, the provision of services is carried out with the use of information and communication technologies after receiving the information required for the diagnosis, treatment, and prevention of disease.

Today, one of the most dynamic areas of health and social technologies is the telecommunication technology. Telemedicine is a technology that allows for the provision of specialized medical care to a patient with maximum efficiency [23], including nursing at the level of primary branch of health care. The key features of telemedicine technology are shown in Figure 1.

World experience shows the telemedicine services market has an upward trend, increasing annually by 25%. The volume of external consultations for developed countries ranges from 5% to 8% of the population [24].

Highly common medical and social technology is the technology of two-way interactive communication between a counselor and

a consultee (a nurse and a patient), for example, the technology of interactive television. On the one hand, most often, there is a patient and a provider of related services; on the other hand, there is a consultant and a corresponding nurse. One uses the software with the support of online videoconferencing.

It should be noted that this technology is different by increasing complexity, in other words by the integrated nature of decision, as well as by a significant rise in prices for software products. Also, a large number of configurations of interactive counseling are offered, but the most widely used is the counseling of patients from rural remote areas by the city health workers. Practice has shown that the inhabitants of remote areas address willingly to such counseling, and a wide variety of professionals, including nurses, are involved into this process.

Videoconferencing is the most effective and widely used in clinical practice of nursing at the level of primary branch of health care. Nurse's service (nursing post) takes place in real time at the patient's house 24 h through an interactive video television with no need to change the usual atmosphere [25]. Taking into consideration the international experience of medical videoconferences and a number of annually declared telemedicine projects, the experts working in the field of telemedicine believe that many agencies wait for a boom in the field of videoconferencing due to the growth of low-cost modern means of telecommunications.

A patient-oriented nursing technology is used in Singapore in the field of nursing at the level of primary branch of health care, the basis of which is a patient as a center of care and the core of nursing practice includes the relationship between patient and nurse (Figure 2). It should be noted that a patient-oriented nursing technology includes the original organizational structure of nursing (administrative path) with the demonstration of leadership at each level, presented in accordance with Figure 3. The leader is an efficient, reliable, and a positive role model, including the sequence and professionalism in the words and actions of nurses dealing with patients and staff.

The most popular are socio-psychological technologies in nursing, including training of nurses with the basics of social work and psychology of communication, counseling, and management in nursing under a lifelong education method on an ongoing basis: summer/winter schools and conferences (local within medical institutions as well as regional and national); the ability of the social and psychological evaluations and social diagnosis of a family and community; knowledge of methods of social care and effective prevention technologies (schools, clubs, and community councils); public initiatives in nursing (the creation of councils, committees, and associations); and professional competence of nurses.

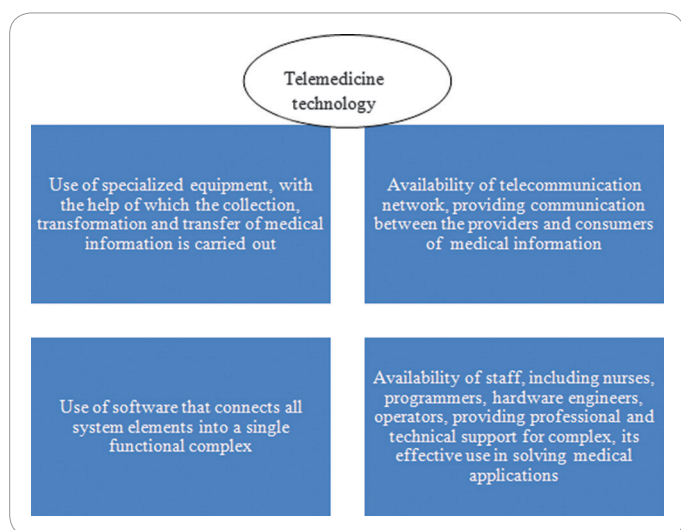


Figure 1: Key features of telemedicine technology

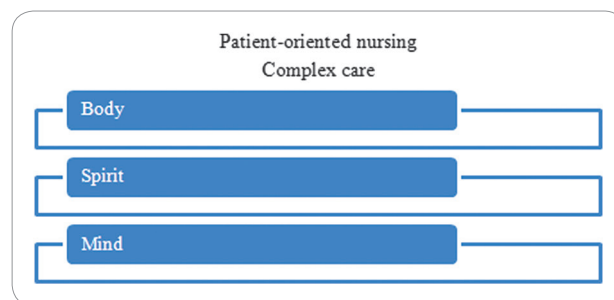


Figure 2: Patient-oriented nursing technology



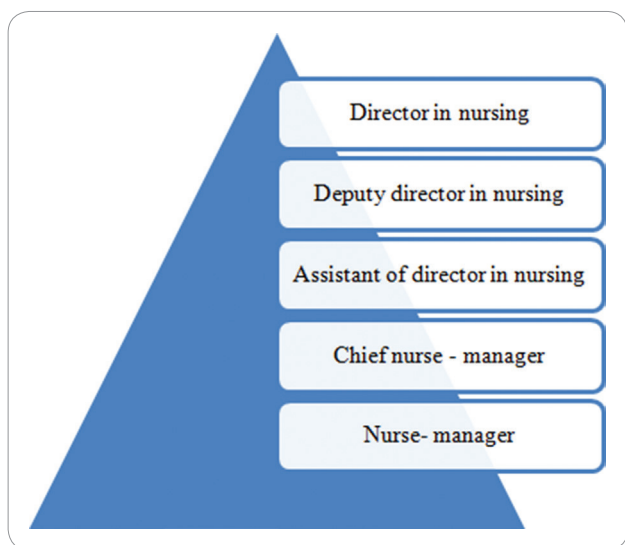


Figure 3: Organizational structure of nursing (administrative path)

It should be noted that the training of nurses is essential for the development and implementation of health and social technologies in nursing at the level of primary branch of health care that can be effectively solved through distance learning. At the same time, training of nurses through distance learning can be called as a medical and social technology, since the state of society also depends on the competence of nurses. Distance learning courses are taught exclusively online and are often designed to prepare nurses for accurate and responsible calculation of doses of drugs. The terms of calculation are as close to those in actual practice. The most important and distinctive aspect of the learning process is that the calculations cannot be rewritten and the educational situation is connected with the analysis of all the consequences of improper prescription, including the introduction of medical errors registration tool. The training ends with an examination using WebCT pages.

One of the medical and social technologies of nursing at the level of primary branch of health care in Finland is evidence-based nursing practice, based on a systematic search and critical analysis of the most relevant scientific data to answer questions, one's own clinical experience and professional knowledge, and preferences and values of the patient.

In many countries, the strategic goal of health development programs, including medical and social technologies of nursing at the level of primary branch of health care, is a "full digitization of medical information" and innovation of all kinds of directions in nursing, which solve problems such as the introduction of high professional quality of health care, the achievement of clear medical decisions, the reduction of time for diagnostic procedures, the increase of patient's satisfaction, better informing of the public on the possible health service and its quality, the efficient use of medical resources, and ensuring freedom of choice by patients of medical institutions and individual nurses.

## Conclusion

This article deals with the essence, main characteristics, and features of key medical and social technologies in nursing at the level of primary branch of health care with consideration of international experience in the development of medical and social

technologies in nursing at the level of primary branch of health care. In many countries, there is a trend of health improvement and social technologies in nursing at the level of primary branch of health care. This allows us to solve the problem of providing quality health services, which let us render locally the required and prompt primary health care. The analysis made and presented in this article revealed the main trends of medical and social technologies in nursing at the level of primary branch of health care, consisting of the increased growth of professional and cultural levels of the nursing staff, the computerization of the nurses' workplaces using innovation, the practice of the active role of nurses in preventing diseases and educating patients, the application of psychology in the communication of nurses with patients, and the expansion of leadership functions of nurses.

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