PRESENT-DAY ASPECTS OF PUBLIC HEALTH IN THE REPUBLIC OF KAZAKHSTAN

A model of integration of sanitary-epidemiological services, organizations of primary health care (PHC), medical and social services and nongovernmental organizations in the sphere of public health was developed. Its introduction in a pilot region produced positive results in rendering preventive medical services to the public, which are evidenced by the results of a sociological questionnaire survey of the patients and health care providers. The level of medical and social case work with vulnerable social groups of the population increased. The amount of dispensary patients, visiting topical health promoting schools raised from 30.6% to 58.9%, which resulted in reducing the ambulance call-out frequency during the working hours of medical preventive institutions by 2.5 times (from 0.33 to 0.13; p <0.5). The system of infection control was introduced. Epidemiologist's actions enabled arrangement of continuity in epidemiological observation between territorial institutions of PHC and sanitary-epidemiological surveillance.

Keywords: Public health, reform, integration, model

UDC: 614.2.39

Introduction

Public health occupies one of the central places in public social protection. One of the priority trends in current public health development in Kazakhstan is promotion of public health, over-orientation to primary health care and introduction of health promotion and disease prevention programs at a local (regional) level (McKee, 2002; Akanov et al., 2005; Kipshakbaev and Akshalova, 2006). These health reform efforts are now underway in Kazakhstan.

Current health activities cannot be only restricted to the intrasectoral issues. The integral character of the public health status calls for intersectoral coordination promotion especially in issues related to provision of sanitary-epidemiological well-being of communities, healthy lifestyle formation, provision of safe and high-quality social, psychological and ecological environment (Khromchenko and Kutsenko, 1990; Tulchinskiy and Varavikova, 1999). The current system of public health care and sanitary-epidemiological well-being provision in Kazakhstan is relatively independent structures of medical-preventive services and authorities of State sanitary-epidemiological surveillance (SSES) - sanitary-epidemiological service. In this case, prevention and health promotion suffer from diversity and fragmentation of professionals involved in these processes, nonexistence of clear delineation of responsibilities and lack of coordination of their activities.

The sanitary-epidemiological service (SES) of the country is a state structure possessing the authority to urge executive bodies, nongovernmental organizations, businesses, private entrepreneurs and citizens to collaborate in order to respond to multiple political, economic and social challenges related to provision of sanitary-epidemiological well-being of communities. However, an organizational-functional chart delineating roles and positions of interacting structures responsible for management of the public’s sanitary-epidemiological well-being in Kazakhstan is lacking (Baiserkin, 2009).
All stated above indicates the necessity of reforming organizational support of prevention practices, which provides for creation of a unified structure ensuring interaction and continuity of practical public healthcare authorities, state sanitary-epidemiological surveillance centers, state prevention organizations, as well as nongovernmental organizations and various agencies.

**Materials and methods**

The research goal was to create a research-grounded model delineating responsibilities and complementary functions of the SES and the public health services by other entities and assess its efficiency.

In accordance with the research goal and objectives we studied the existing forms of interaction, demarcation of functions and duties of sanitary-epidemiological surveillance authorities and public health establishments to improve the sanitary-epidemiological situation in order to prevent and reduce infectious, occupational, and non-infectious morbidity, to improve the environment and reduce harmful effects of unfavourable environmental factors on the public’s health in different countries and Kazakhstan. Objects for study were as follows: scientific literature, legislative acts and normative documents related to sanitary and epidemiological well-being of the public and to public health.

A developed conceptual model of integration of organizations of primary health care, sanitary-epidemiological services, and nongovernmental organizations at a regional level was introduced on the basis of Town Primary Health Care Center in Karaganda. Social efficiency of the model was assessed according to the results of a survey of the pilot PHC providers and their patients using a questionnaire specifically elaborated for this purpose.

**Results and discussion**

Analysis of the healthcare system worldwide demonstrated that health reform has become a common trend almost in all countries over the last decades. The main focus of the reform was strengthening of primary health care (PHC) which was considered as being not only the first line of organized personal medical care but also population-based health services. To manage the reform process, the coordination between different providers and the public, as well as engagement of communities in assuring the conditions for population health and environment protection were the key (WHO, 1996; Deber et al., 1991; Young, 1993; Tulchinskiy and Varavikova, 1999; Meimanaliev, 2003).

Since the early 90s of the twentieth century there has been a reform of the existing health care system in Kazakhstan. Improvement of the public health service efficiency in the country can be achieved by strengthening the activities in the following areas:

- epidemiological surveillance of infectious and priority non-infectious diseases;
- health promotion, the most important part of which is formation of public’s medical and social activities and attitudes to healthy lifestyle, raising public awareness about basic health aspects and social risk factors;
- strengthening of state regulation;
- intensification of intersectoral work to control major health determinants on the basis of demonstrative medicine.

The SES, the preventive activities of which are firstly determined by preventing the impact of harmful environmental factors on the public’s health, is responsible for achieving the tasks of the first orientation.

Formation of healthy lifestyle fundamentals is also of crucial importance for primary prevention as of factors determining human health, 50% are assigned to the lifestyle an
individual leads. All the public health structures must participate in formation of healthy lifestyle. At the same time medical and social activities of nongovernmental organizations contributing greatly to prevention of socially significant diseases are more and more growing.

The third important component of primary prevention is health protection of healthy people which includes a dispensary method and measures to create immunity to infectious diseases (immunization of communities) carried out at the PHC level.

In this connection the most effective strategic orientation is to reform organizational support of prevention practices, which provides for creation of a unified structure ensuring interaction and continuity of practical public healthcare authorities – medical preventive institutions, sanitary-epidemiological services, medical social services, nongovernmental prevention organizations (NGPO) as well as all interested institutions and departments. Epidemiologist, medical social worker and healthy lifestyle promotion specialist will be included in the staff of medical preventive institutions (MPIs).

Before developing a preventive medicine model, the international experience in preventive practices carried out at the lower level of medical institutions had been reviewed.

The optimal scientific and methodical, and coordination element of arranging preventive practices in the region appears to be the medical prevention center (MPC), which is a structural subdivision of the PHC institution.

The objectives of MPC are as follows:
- upgrading of primary health care efficiency through improvement of quality, availability, integrity and coordination of public medical care, which results in enhancement of public satisfaction with health protection services;
- orientation of regional public health systems on resource-saving technologies.

The medical prevention center is an association of medical prevention professionals, specialists in healthy lifestyle formation and medical social services.

Such association would provide a clear demarcation of functions between representatives of various public health services in carrying out preventive practices, and at the same time would complement their activity with a number of new prevention-oriented functions and ensure a close interaction with specialists at the level of outpatient-and-polyclinic institutions. In this case, PHC would become more diversified and focused, and a teamwork of all specialists with a clear demarcation of functions and duties would allow to solve promptly the issues associated with rendering medical prevention and medical social care to the public in the service area.

In order to introduce the model of integration of organizations of PHC, SSES and medical and social service, a group of various specialists was formed at Karaganda Primary Health Care Center (PHCC). The group members were epidemiologist (head of MPC unit), social hygienist, healthy lifestyle promotion specialist, medical statistician and nurse. Work objectives and goal were determined for each specialist in accordance with the model being offered.

The experimental pilot group of MPC unit worked during a year on the basis of PHCC with the population of two health localities, one of which was an “experimental locality”, the other one was a “test locality”. In the experimental locality the entire amount of work was carried out, which was developed by us within the program of public health care for all age groups (working population, elderly and aged population), for maternal and child health care, for vulnerable social groups, for healthy lifestyle promotion.

Prevalence of key risk factors of socially significant diseases, as well as the rate of patients’ satisfaction with quality and availability of disease-prevention services in outpatient-and-polyclinic institutions, were determined through sociological studies of the population served by the Karaganda Primary Health Care Center, on the basis whereof the conceptual
model being developed was introduced. The questions in the questionnaire are grouped in sections indicating social hygienic characteristics of patients, attitude of the respondents toward their health, understanding of healthy lifestyle fundamentals, assessment of availability and quality of disease-prevention services rendered in the polyclinic. All in all, 300 patients of the experimental locality and 260 patients of the test one were interviewed. The amount of patients interviewed was representative toward the total number of population being served by the MPI.

In order to assess the quality of the disease-prevention services rendered by PHC institutions, the officers of major medical professions in experimental and test localities were interviewed. The questionnaire was also divided into several sections: social hygienic characteristics of a specialist, assessment of knowledge of basic divisions of medical prevention and quality of preventive work. 70 officers of various medical professions were interviewed. 60.3% of them were represented by locality therapists, 15.0% - by locality pediatricians and 24.7% - by physicians of narrow specialties.

Findings of the sociological research conducted prior to pilot introduction of the model developed demonstrated practically identical answers given by the physicians of both test locality, and experimental locality, to fundamental questions of the questionnaire offered to them. For example, 90.5% of the physicians interviewed consider preventive work with the population as an integral part of the professional activities of a health care professional, however they comment that preventive practices are not arranged up to an appropriate standard at PHC institutions, which is caused by the following: lack of time, physicians’ overburden with routine work with documents, inadequate knowledge in certain issues of preventive work and lack of incentives for preventive work. 71.6% of the health care professionals of the experimental locality and 85.6% of those of the test locality being questioned were not able to name normative documents they are guided by when carrying out preventive work with the population. Only 38.4% of those interviewed in the experimental locality and 29.6% of those interviewed in the test locality specified the preventive measures protocol named *Algorithms of actions to be taken by primary medical care professionals for healthy lifestyle promotion, Prevention of risk factors of key socially significant diseases* (Tulebayev et al., 2007) as being used in their preventive practices.

Social work with the population being served, in particular with vulnerable social groups, is classified by all the physicians being interviewed as necessary, but not covered by their functional duties as the existing remuneration system does not provide for the mechanism of payment for disease-prevention services. In this respect, individual medical and social case work with the population of the area being served is not performed to an appropriate extent, a low rate of attendance of health promoting schools for socially significant diseases by dispensary patients (arterial hypertension and diabetes mellitus) has been identified.

Virtually all respondents (95.8%) turned out to be unaware of preventive activities of SSES authorities in the area being served. This fact is indicative of the lack of coordinated joint work of PHC and SES professionals related to monitoring of infectious and non-infectious morbidity, arranging of sanitary measures for the population, direction of hygienic knowledge promotion activities and healthy life promotion.

When assessing the preventive practices of PHCC, almost half of the physicians being interviewed (45.3%) failed to name the criteria to measure efficiency of preventive work with the population being served.

Detection of arterial hypertension patients among the population and their timely registration for dispensary purposes are important for reducing the arterial hypertension incidence. In this respect, increasing population coverage by arterial tension measurement actions is an important component of the activities of primary health care institutions. However, the questionnaire survey showed that only 67.9% of physicians measure arterial tension of their patients on a regular basis during every visit irrespective of the reason
thereof. Only 1.8% of the physicians interviewed measure arterial tension of the patients exposed to the risk of arterial hypertension (excess weight, coexistent diseases, such as diabetes mellitus, etc.) when being visited by those patients. This points to the fact that at the PHC level inadequate attention is given to the patients exposed to the risk of arterial hypertension, a disease which is in the leading position for public incidence and mortality rate. This fact is also proved to be true by the following: when assessing an individual risk, 94.3% of the respondents do not measure the Quetelet index, and therefore do not give any recommendations as to overweight correction. Whereas measurement of the Body Mass Index (BMI) and documenting thereof in the out-patient medical records would raise vigilance of the health care professionals for detection of arterial hypertension of their patients having risk factors.

Another questionnaire survey of the patients and health care providers held for feedback purposes after a 4-month implementation of the pilot project has already demonstrated a positive momentum in improving preventive work in the experimental locality: the neighborhood physicians became more active in their individual work with patients, holding group interviews and other types of preventive work; the number of physicians feeling lack for methodological literature, as well as pointing to the absence of incentives for preventive work decreased significantly (from 71.6% to 15.3%).

Weekly seminars held by the MPC professionals for primary and secondary prevention issues have considerably improved the qualification level of the physicians in the area of preventive activity. Preventive measures protocol (Tulebayev et al., 2007) came to be used in full in the experimental locality when rendering prevention services. The overall majority of physicians of the experimental locality (100.0%) point out a high efficiency of the use thereof.

Awareness of the PHC physicians of the key criteria for incidence rate of the population in the region, living and working conditions of the patients, has improved. Many physicians associated inadequate medical and social case work with vulnerable social groups of the population with lack of the relevant information. After introduction of the model, physicians noted the efficiency of the work of the medical social officer of the MPC and consider it necessary to institute an appropriate staff position at PHCC on an ongoing basis.

Introduction of the screening technique by MPC professionals in the experimental locality has produced satisfactory results as to detection of the risk groups in the population being served, health recreation whereof requires primary and secondary preventive measures to be taken for chronic non-infectious diseases. For example, measurement of arterial tension of all the patients seeking for medical care for any reason whatsoever, both at a polyclinic, and at home, contributed to identification of those having an arterial hypertension, who had not previously visited MPIs for that reason, and holding of a set of recreation events for that cohort.

Efficiency of the preventive model introduced is evidenced by an increased personal motivation of the population as to their health support. 58.9% of the dispensary patients, being instructed by their physicians, began to visit topical health promoting schools (arterial hypertension and diabetes mellitus) arranged by MPIs, which is almost twice more than at the beginning of the pilot project. The above measures have reduced 2.5 times such ratio as the ambulance call-out frequency during the working hours of MPIs to the number of the patients registered for dispensary purposes for arterial hypertension over the 4 months of the pilot project (from 0.33 to 0.13; p<0.5).

Questionnaire survey of the people visiting the experimental locality showed that throughout functioning of the medical prevention centre the level of the public satisfaction with the quality of preventive medical services has grown. Practically all the patients interviewed received hygienic advice as to healthy food and compliance with the work-rest regime, giving up social habits (smoking and alcohol consumption) during their
visits to physicians. Patients’ commitment to medical advice on regular drug administration, change of their lifestyle, attendance of training seminars for those having various chronic diseases, has improved.

Another questionnaire survey of the patients and health care professionals of the test locality of MPI, where over a similar period preventive work was carried out according to the previously operating system, showed no positive momentum in rendering prevention services to the public.

Epidemiological surveillance effected with due account for local epidemiological, clinical and administrative conditions, is crucial for making effective decisions on preventive measures to be taken.

Institution in the pilot MPI of the staff position of epidemiologist, whose key functions include epidemiological surveillance over both acute infectious diseases, and some top-priority non-infectious diseases, has proved its expediency and efficiency. For instance, over the pilot project period the system of infection control (IC) was introduced in MPI. All health care professionals of the experimental locality have been trained on the IC fundamentals. Epidemiologist’s actions enabled arrangement of continuity in epidemiological observation between territorial institutions of PHC and sanitary-epidemiological surveillance within the area being served, which will ultimately raise the level of preventive medical services being rendered to the public.

Therefore, improvement of the quality of public health services is mainly dependent on enhancement of training of health care professionals in prevention matters, complete provision with relevant information and methodological literature, incentive plans for preventive work and arrangement of the coordinated preventive activities of all elements of the public health system.

**Conclusion**

As a result of coordinated actions with professionals of sanitary-epidemiological service, healthy lifestyle promotion specialists and social workers of non-governmental organizations, functioning of the medical prevention center in the system of PHC had a certain positive effect on the preventive care rendered by health care professionals. This confirms the fact that PHC is a flexible and responsive system reacting positively and in a short space of time to its optimization efforts. However, it should be noted that despite the fact that preventive medicine exists for centuries, its medical, social and economic efficiency is not fully assessed. It is still a challenge to identify the best strategy for disease prevention and health promotion, for reducing medical cost, disability and mortality prevention among population. Training in preventive care and reinforcement of a public health workforce should be considered. In this regard, research aimed at developing sustainable public health services on the basis of integration of prevention and health promotion efforts, wide intersectoral collaboration and the public’s engagement deserves close attention and continuation as well as its application in practice.

**References**


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