

Initiatives of Uzbekistan in Medical Scientific Research and Reforms

1. Introduction

In line with social and economic reforms in Uzbekistan, last year the system of health care underwent radical change. It was reorganized from a rigidly centralized and, in some respects, exclusive system to one that provides decentralized management and financing. The modernization of the health care system will be carried out by maintaining and reorganizing medical establishments that existed before the centralized infrastructure was introduced. The programmes for the development of health care adopted by the State during the first years of national independence made provision for action to protect health in the short term. Taking into account the pressure of demographic factors and the health status of the population, the allocation of priorities envisaged better health for women and children. It emphasized efforts to combat disease, and the protection of the environment. As one of the health determinants, the health policy provided for the maintenance of equal access of the population to medical services. Special measures were taken to protect vulnerable groups of society through medical care, to protect patients with tuberculosis and those suffering from cancer. One of the main tasks of health care during this period was the quest for methods to redistribute the volume of medical care from inpatient to outpatient services. The process of reorienting primary health care towards family and general medical practice was introduced. The programme of health care reforms in Uzbekistan carried out by the Government required complex solutions to regional health care problems and was inconceivable without putting in place a proper control system for medical science.

2. Achievements and problems of medical science in Uzbekistan

Before considering the future role of scientific research in health care, we must take stock of the situation in the scientific sphere in the recent past. For many years the development of science and the scientific potential of health care in the country, as for other countries which were part of the structure of the former Soviet Union, operated under monopolistic conditions and authoritarian centralism. By 1991, 17 research institutes and 9 central laboratories of medical institutions were operating in the medical sciences. The personnel of these establishments consisted of 4620 scientific employees, of whom 426 had a doctoral degree in science and 2334 were candidates of science. Among the number of scientific research institutes there were institutes of cardiology, pediatrics, obstetrics and gynaecology, a centre working in collaboration with WHO, phthisiatrition and pulmonology, oncology and radiology, dermatology and venerology, hematology and blood transfusion, epidemiology, microbiology and infectious diseases. There was the Research Institute of

Sanitary, Hygiene and Professional Diseases. There was also the Institute of Health Restoration and Physiotherapy. There was also an Institute of Medical Parasitology that collaborated successfully with WHO in Samarkand. Some of these institutes were branches of the Academy of Sciences of USSR. These are the Uzbek branches of the Central Institutes of virology, immunology, USSR Science Centre of Surgery etc. The development of science was determined by the plan approved in Moscow.

During 1986-1990 the plan for medical scientific research in Uzbekistan included 159 large-scale projects, of which 50 were carried out within the framework of USSR scientific technical programmes, 65 were branch-allied and 18 were under Republican branch programmes. 115 large projects were linked to 18 basic areas of medical science. Thus, it is easy to see that the majority of scientific medical research was carried out under instructions from above and did not always meet regional health needs of the population. The principle of financing the activities of research institutes and the scientific work carried out by them, was determined by where the Institute belonged. If it was a branch of the allied centre, the majority of its scientific research work was financed by Moscow. If the institute had importance in the Republic, the financing came out of the budget of Uzbekistan. Medical science in the country thus developed in two ways. A significant portion was done as fundamental research, and a part of the work was applied research. The majority of its fundamental scientific research was carried out in the framework of complex scientific projects of the Academy of Sciences of USSR under the title of "Fundamental sciences of medicine". This research was in the fields of biotechnology, immunology, virology, hematology and blood transfusion, endocrinology, psychiatry and narcology, gastroenterology and cardiac surgery.

Medical science in Uzbekistan achieved certain successes in the study of the fundamentals of vital activity of healthy and sick persons, in the development of preventive measures, diagnostics and treatment of various diseases. For example, the Scientific Research Institute of Oncology carried out work on receptors of inteleukin and monoclonal bodies and developed a set of radioimmunological markers of diagnostic and therapeutic importance. There was separate research on improving diagnosis viral hepatitis.

The majority of such work was financed by the USSR centre. However, a lot of work did not result in any application in health care and for a long time remained without any practical application. The situation with scientific achievements of an applied nature was more favorable. Complex types of operations with applications in microsurgical and laser engineering, X-ray, vascular surgery etc were elaborated and introduced by cardiac surgeons in Uzbekistan. The clear successes in the use of the helium-neon and nitrogen laser in the treatment of tuberculosis, urological and some

gynaecological diseases were achieved. Other research had a practical use in pediatrics and in combating infectious diseases.

Many scientific employees were trained during their degrees and doctoral studies at the central institutes of science in Moscow and other Russian cities, and they obtained their scientific degrees there. The themes of scientific work usually corresponded to the subjects of those institutes, and did not meet the urgent health needs of the population of Uzbekistan.

Thus, the development of scientific medical research in Uzbekistan was determined by the scientists sitting at the top of a "science pyramid" in Moscow and by the basic levers of management – the distribution of resources, including information, and the award of scientific degrees. It was enough that the scientist belonged to this or that hierarchy and was obliged to show loyalty to it. It created conditions which interfered with the blossoming of alternative approaches and frequently resulted in stagnation in science, reduced creative potential and innovative research, interfered with the interests of practical health care and put a brake on the development of scientific research appropriate for the health needs of the population of the region. It all served to magnify scientific conformism.

Financial and material resources were distributed by officials of the USSR ministries and leading institutes. The heads of many research institutes found themselves in the unenviable role of applicants required to show loyalty to those upon whom the material well-being and existence of their institute or centre depended. In fact, in these conditions a culture of scientific topics that directly depended upon scientists in Moscow grew up. But financial facilities were still insufficient. And medical science in Uzbekistan, as well as in the majority of the other USSR republics, was financed by the residual principle: what was left over from scientific projects after the distribution of financial facilities and material resources among medical centres of science in Russia. Therefore, the majority of the equipment for scientific projects was out-of-date and did not allow Uzbek scientists to develop new medical technologies at a global level.

In the same way, the majority of heads of medical institutes in Uzbekistan, in dealing with the distribution of resources in their institute, were careful to finance the areas where there were commitments. In such conditions creative potential was decreased. During these years, among scientists in Uzbekistan, who were developing this dependency approach, there was an absence of innovation and personal conviction.

The other lever of management of medical science was the formulation of topics and the planned structure of medical science. The planning of topics already stipulated the conditions in which work would be done and often programmed the expected results. The conduct of research required scientific work to be completed on time and any extension of the deadline required special approval and additional financing. The administration of science from above did not always promote objectivity in the results achieved and sometimes interfered with a highly scientific level of medical research. The impossibility to go against the manager in science often resulted in false or fictitious co-authorship.

There were also no material incentives for the development of science. The average pay for science officers is much less than for science officers in the advanced countries of Europe and America. On the other hand there are no opportunities to use the results of the activity. Frequently our researchers had no rights to the intellectual property produced, since any scientific results and inventions immediately became common property. Thus, a strong stimulus was missing. Similarly the situation bred indifference and quite often gave rise to a lack of initiative on the part of scientists. The USSR management system, authoritarianism and financial dependence also gave rise to another extreme in scientific circles of health care, the absence of academic freedom, which is the basis of theoretical and legal self-awareness of scientists.

As a result, the mechanisms produced little motivation for quality scientific work and had as its ultimate goal only the protection of their dissertation. Very rarely did Uzbek scientists have the chance to travel abroad to participate in international conferences, congresses and symposiums. In these conditions, international cooperation was not feasible in the field of medical science. All these factors came together to prevent the positive development of science and resulted in science, which instead of always moving forward, appeared to fall far behind general practice.

3. Medical science at the stage of health care reform

3.1. The period from 1991 to 1995

Since the very beginning the young independent State has set medical science the task of achieving practical expediency and economic efficiency in health research. Each scientific topic was considered from the point of view of expediency, its material

capacity to pay its way, and to conform to principles of unity between science and the practice of health care. Financial, material and personnel resources were necessary to perform the tasks that medical science faces. It was necessary to reject old administrative command methods of managing science and to develop new mechanisms using optimal organizational, economic forms for the management of medical science.

At the same time, in reorienting the economy along market lines the existing scientific system has experienced appreciable failures.

- In the complex conditions of transition and restrictive financial opportunities, the existence of some scientific research institutes has come under threat. First of all, branches of USSR centres of science were involved, since their financing directly depended on Moscow.
- Basic research equipment in the majority of research institutes is virtually obsolete and has created the need for basic operating expenditures. To carry out scientific work in keeping with global standards it was necessary to re-equip institutes with modern medical engineering, reagents and drugs, that required significant financial outlays, including payments in foreign currency.
- The depreciation of material conditions has resulted in young future scientists leaving to work in the private sector and cooperative societies.

Economic and social reforms were required to carry out urgent measures to reorganize medical science in conformity with accepted standards. The main task of this period was the search for methods to enhance the quality of medical research. Each medical scientific centre faced the task of making health production competitive and financially rewarding. The task is obviously impracticable without the support of the State.

Taking into account the severity of the problem, the Government is promoting the concept of basic fields of development in science. A State Committee on Science and Engineering has been set up. The financial mechanisms of medical science management have been reformed. The management of science and engineering has been established in the Ministry of Health Care, with most of the research institutes serving as structural divisions, and they have become a part of the medical establishment structure of the Ministry. Four health research institutes received academic status and have become the Academy of Sciences of Uzbekistan. These are the Institute of Endocrinology and Regional Pathology, of Oncology and Radiology, of

Phthisiatry and pulmonology and the Institute of Virology. The supervision of the above research activities is assigned to the Scientific Medical Council of the Ministry.

The following areas have been identified as priority areas for scientific research:

- infectious diseases and their complications;
- health of the mother and child;
- child and maternal mortality;
- diseases of the blood system;
- protection of the environment and preventive maintenance of diseases.

The need for further development of applied research in other areas of medical science is clear, in view of their importance in solving regional health care problems. The formulation of a State social order in carrying out health research in this area was entrusted to the Senior Department of Science and Engineering. Then the Committee of Science at a meeting of Ministers determined the funding requirements for research. For all research the translation of its findings into the practice of health care has become obligatory. In spite of the fact that practically all the checks and balances of the management of science were involved in the problem of applying research results to practical health care, a system for introducing it has remained multi-stage, has no economic leverage and has not produced wide-scale use of research developments. The decision needed new criteria to assess research findings and define their suitability for use in practical health care. As a basis for a start to implementing it in practical health care, the fundamental principle of calculating economic efficiency was agreed upon, and the social and medical importance of the work done were taken as subsidiary criteria. Thus, for the first time medical science in Uzbekistan has begun to gauge an intellectual product in monetary terms.

Alongside the target of State financing of research done in the institutes, self-financing is also encouraged. In the framework of the setting up of a system of institutes in certain branches of medical science, a number of scientific/practical centres have been opened. The activity of the majority of these centres is directed towards the study of prevalence of certain diseases among the population, elaboration of mechanisms for early diagnosis, and the use of new methods of treatment and rehabilitation. During the period 1991-1995, science teaching and practical centres and associations of phthisiatry, dermatology, stomatology, orthopedics-traumatology were organized and operated successfully. Scientific centres for laser therapy for tuberculosis and mycology and protozoal diseases were also in operation. The

measures taken have allowed medical research institutes to introduce incentives for the staff and to direct the development of scientific activity in a practical way. In the conditions of the transition period from a command economy to market relations and restrictive financial opportunities for the State, these measures, to a certain extent, have helped to keep scientific collectives afloat and have allowed them to function at a high level.

The expansion of international contacts and integration into global science through international cooperation and information exchange between countries has had a significant influence on the development of medical science in Uzbekistan. The number of scientists living abroad has grown annually, and their reports at symposia and scientific congresses have promoted the inclusion of Uzbek scientific outputs on the world market.

3.2 The period from 1995 to 2000

By this time, as a result of the subsequent pursuit of State policy in the field of health protection of the population, the first positive results were achieved. Health care focused on preserving quality in protecting the health of the population and the allocation of priority to problem areas by making medical and preventive services stable and operational in the context of new financial mechanisms. Decentralization of branches and the rational use of resources have allowed us to develop health care in response to the population's needs. The main reference points of demographic policy for the optimization of the population and transition to the family with the average number of children, improvement of the quality of women's health and that of children have allowed us to reach stable parameters for the reduction of maternal and child mortality and of the birth rate. Research on obstetrics has helped and its application in practical health care has promoted these improvements. The guaranteed help in carrying out this work was made possible by the international programmes of the World Health Organization. The CARK programme on the protection of women's health promoted the supportive research on "Effective help to the pregnant woman". Initial work on the various approaches to defining the burden of diseases has appeared, for example, from the point of view of making the connection between disease and mortality of the population with an unhealthy lifestyle or chronic conditions.

In conditions of market relations, there is a growing need for economic methods of administrative influence on the subjects of public and individual health. Health

research in this area was also carried out under the influence of the programmes of the Central-Asian Republics carried out by World Health Organization. CARNET and CARINFONET developed many parameters. With their help it is possible to determine the economic and social effects of implementing the complex target programmes on reproduction of public health. With the assistance of a World Bank loan their experimental use in a primary part of health care was begun. However, similar work is obviously insufficient and the need to develop a science that deals with the economy of health care becomes an essential requirement of health care itself. Regular monitoring of the indicators for mortality and sickness among the population and their analysis, carried out with the help of WHO programmes, have allowed us to determine the health status of the population and the basic causes of mortality and sickness among the population and their comparative differences with other countries. Fluctuations in the levels of sickness in the population are connected with infectious diseases depending upon the quality of drinking water and food. The "double burden" of disease is still an urgent question in Uzbekistan, given the chronic burden of vascular diseases and the pathology of the respiratory system. However, research carried out in this area does not always compare in quality to the static data. Reforms and the results achieved have allowed us to advance further and to set ourselves new tasks in the field of protection of the health of the population of Uzbekistan

For this period, the prevalence of applied science over fundamental research has become unequivocal. It should probably be so in the making of a young state, when it makes more sense for the economy of the State to use results of fundamental research carried out in the rich countries, where there are powerful scientific technologies and large financial assets to carry out expensive fundamental scientific research.

In November 1998 by Decree of the President of the Republic of Uzbekistan, I.A. Karimov, the State programme of reform of the health care system was approved. The purpose of the reforms is the creation of a national model of health care ensuring the preservation and improvement of the health of the population, creating the conditions for the education of a healthy generation on the basis of the following principles:

- observance of constitutional right of all citizens to receive quality health services and social protection;
- equal access of the population to all forms of medical services;
- in-depth reform of the health care system on the basis of market mechanisms;
- creation of an effective system for the protection of maternal and child health;

- priority development of preventive health care, the broad promotion of a healthy life style, rational eating habits, physical culture and sports;
- combination of free health services with step-by-step stage transition of medical establishments and forms of medical care to paid forms of service and the development of a system of medical insurance;
- fostering of development of private medical practice;
- increased efficiency in the use of budget allocations for the protection of the health of the population.

The State programme provides for further reforms in medical science and undertakes to finance fundamental and individual applied research according to the targets of national programmes aimed at strengthening the health of the population of Uzbekistan. The implementation of mechanisms is envisaged for the competitive distribution of budgetary resources based on protection and the receipt of State grants for applied and fundamental research. To achieve these objectives the challenges in the near future for medical science are as follows:

- definition of priorities in the field of fundamental and applied research;
- mobilization of scientific technical potential in creating competitive technologies;
- creation of financial, social and ethical conditions for effective work of research staff and creative initiatives on the part of young scientists;
- development of modern information and analytical systems;
- expansion of international contacts and cooperation with a view to greater integration into global science.