

ORIGINAL RESEARCH

Reforms on medical education: the case of Kyrgyzstan

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ABSTRACT

Introduction: The Central Asian republics of the former Soviet Union gained their independence in 1991. Soon after this event, reforms in health care were planned in many of these countries. In Kyrgyzstan, the reforms included a mandatory health insurance system, a new provider payment system, licensing and accreditation, a national drug policy and rationalization of ambulatory services. Multi-profile polyclinics, or family medicine group practices were established. Reforms in health care are not always accompanied by changes in medical education, and so medical knowledge may lag behind that in other countries. This is especially prominent in rural areas, where new practices and regulations may arrive late, and are often misunderstood. The reforms in Kyrgyzstan necessitated a change in undergraduate medical education. The educational reform consisted of a unification of the separate tracks for pediatrics, medicine and public health into one track of general medicine; the introduction of teaching of pathophysiology according to body systems; the establishment of clinical clerkships; and a proposal for rotating internship.

Methods: World Health Organisation sent teams to Kyrgyzstan to work with the local committees as facilitators for the implementation of the health-care reform. This paper is based on the experience of the authors in conducting two such missions directed at the synergistic reform in medical education.

Results: Visit 1: Changes to the curriculum were suggested. It was decided not to recommend teaching in rural primary care settings at that stage, due to logistical difficulties. This subject was to be addressed at a later stage because medical services in rural areas were scarce. Visit 2: Among other interventions, the encouragement of doctors to practice in rural areas was discussed in detail, but the teachers of the medical school were not receptive to the idea of sending medical students to rural clinics. This was to be addressed at some time in the future.

Conclusion: The changes were aimed at facilitating the introduction of family medicine as a specialty and strengthening primary care, although measures to incorporate rural practice in the reform proved difficult to achieve. Reform in medical education can only be justified if it will contribute to the improvement of the health of the population. In order to achieve this goal, the production



of better physicians must be assured. In Kyrgyzstan, it was hoped that improved graduates would be the resource for the development of family medicine as a recognized specialty, with the potential to improve the health status of the whole population.

Key words: Kyrgyzstan, health service reforms, medical education, undergraduate program.

Introduction

The urge for reforms in health care is found in many countries. The reasons include reducing cost, increasing access to services, and improving the health outcomes of the population. These reforms are not always accompanied by changes in medical education¹. The discrepancy between what a physician is taught in medical school and the knowledge required in the new system is growing. Knowing about managed care or the importance of family medicine lags behind in medical curricula in countries where these are part of the reform. This is especially prominent in rural areas, where new practices and regulations may arrive late, and are often misunderstood. When political and economic changes in a country are a driving force behind reforms in health care, the changes in medical school curriculum are not advocated by the reform activists. Changes in the curriculum will have an effect on medical practice everywhere, in the central hospitals as well as in the periphery. Change is always difficult and painful. Many people resist the effort of the few who want to change a system, especially in the field of education. When the changes effect the daily practices and the revenue of individual physicians, handling resistance becomes part of the reform efforts.

These issues have been addressed by the World Health Organization (WHO), which stated that there is not enough literature elaborating guidelines for the development and implementation of change². They suggested that changes in medical education should follow several steps, including the establishment of a working group, assessment of the health needs, description of the graduate, assessment of the usefulness of the present curriculum, assessment of the student evaluation system, assessment of faculty and staff, assessment of the organizational structure, assessment of the

enbursement system, estimate the chances for success and preparation appropriate leaders.

This paper describes the attempts of one country, Kyrgyzstan, to undertake such medical education reform. It is presented as a case study of change, in the hope that it may assist others who may be about to embark on similar initiatives.

Context

Kyrgyzstan is one of the Central Asian republics which gained independence in 1991. It is a mountainous country, with 4.5 million inhabitants, 57% of them Kyrgyz, 21% Slavs, 13% Uzbeks, and 9% others. The economy of the country is difficult: GDP per capita is US\$1200, annual growth was minus 6% in 1997, with 30% inflation. Health measures are not encouraging: Infant mortality: 28.6/1000 (compared with 21.1 in Russia, and 5.7 in the European Union). Maternal death: 62.7/100,000 (compared with 39.4 in Russia). Tuberculosis is a serious problem, 114 cases per 100,000, (compared with 67.4 in Russia).

Health care services are installed according to the former Soviet system, with an emphasis on specialists and in-patient treatment, and a total lack of a holistic, family medicine approach. This makes health services in the towns and the cities flourish, while in rural areas the services are scarce. Health care professionals have no incentive to work in the rural regions. There are 7.5 beds for acute care per 1000 people, and 16.5 admissions annually per 1000 people. The average hospital stay is 12.8 days, and occupancy is 83.6%. The country has an abundance of medical doctors, 3.05 per 1000 population. This figure excludes stomatologists, hygienists and pharmacists. However, the distribution of



these professionals in uneven, as is the allocation of resources.

There are three medical schools in the country: In the capital Bishkek, the National Academy of Medicine, which is the largest and most prestigious of the schools; an MD program at the Slavic University, sponsored by the Russian government; and a school in the distant Fergana valley, with very little communication with the capital. The government is supporting the Academy, and its curriculum and methodology are acknowledged and used by the Ministries of health and education.

The Ministry of Health identified the problems in 1996, and started a health care reform based on the following principles:

1. Problems in health care financing and delivery system.
2. Over-specialization, excess and uneven distribution of human resources in the health sector.
3. Need for developments in medical education.

These were summarized in a position paper³. The commitment of the Kyrgyz government was strong, which allowed the WHO in a regional meeting to choose this country as a pilot for the region⁴. Involvement of the World Bank in executing the reform was asked for, and their positive response is reflected in their report⁵.

A comprehensive health care reform program was developed, and progress was made in the following areas:

- Mandatory Health Insurance System has been introduced in 1997.
- New provider payment systems have been introduced since 1997.
- National Drug Policy has been developed.
- Rationalization of ambulatory services by the establishment of multi-profile polyclinics, or family medicine group practices. These proliferated in the capital Bishkek, but unfortunately, this model has not yet been extended to the rural regions.

- Licensing and Accreditation has been introduced in 1997.

With this progress, the time came for a reform in medical education. This task was given to the National Academy of Medicine, which is a comprehensive school for the health professions. The rector appointed a curriculum committee, which commenced work on reforming the curriculum.

The existing medical education system is modeled according to the Soviet system: six years of under-graduate training, most of which takes place in the class-room, and two years of specialization or internship, which are practical. During the six years all teaching is done according to subjects. No integrated teaching is given, and no clinical clerkships exist. Future specialty is determined before entering medical school. One is trained as a pediatrician, or an internist during undergraduate education. There is no certification mechanism for specialists. Family doctors do not exist. Certain specialties, such as anesthesiology or surgery, are taught after graduation, in accordance with the track chosen, e.g. an anesthetist for children is derived from the track of pediatrics. This system does not encourage physicians to work in rural areas. The first step in solving this problem has been taken in introducing a track in medical school for family physicians, doing away with the predetermined specialists who work exclusively in the city.

Methods

WHO has sent teams to Kyrgyzstan to work with the local committees as facilitators for the implementation of the health care reform⁵⁻⁹. This paper is based on the experience of the authors in conducting two such missions directed at the synergistic reform in medical education.

Two teachers from different medical schools (Z.O. and M.L.A.) were invited to Kyrgyzstan in November 2000 and April 2001. They worked with the local curriculum committee, which reported its progress, and discussed the problems with the development of the new curriculum and



its implementation. The group worked with the facilitators for 10 days each time.

Results

Visit 1

Three immediate issues became clear during the first mission:

1. The multitude of tracks in the medical school fractionates teaching, and promotes specialist rather than general medicine training.
2. There is no multi-disciplinary teaching, and no system approach is used.
3. The balance between class-room teaching and bedside teaching needs to be changed. Direct patient care, longitudinal follow-up and student responsibility have to be introduced.

The following activities took place:

1. The existing curriculum committee was enlarged to include junior teachers, family physicians and medical students.
2. The Committee developed the profile of the graduate in general terms, enumerating desired qualities of the future physician, with an emphasis on a holistic approach.
3. A list of questions was designed by the facilitators for discussion regarding the interphase between the existing curriculum and the new one.
4. Student evaluation methods were discussed by the group.
5. The need for recruiting clinical teachers and winning the confidence of senior staff for change was another of the topics.

The structure of the existing curriculum was assessed (Table 1). The new curriculum was planned step by step by the Committee. First, the current status of the program was presented by the committee, and an English translation of the draft was made. A long discussion followed, regarding the

anticipation of problems which might be encountered by implementing change. The members of the group identified problems related to the financial aspects of the proposed change, internal and external political problems, methodological and logistical difficulties. The facilitators added the issue of the dissemination of the innovations to the rural regions, which was met with scepticism by the curriculum committee.

Table1: Current six year medical curriculum

Subjects	Hours
Non-medical	892
Basic sciences	2633
Clinical (Lectures)	3974
Total	7499

Specific steps were taken in order to promote these ideas. Visits to putative clinical teaching sites were made by members of the group, the library and the computer center were visited, and each of these visits was discussed in the group. Meetings with the Rector of the Academy and the Minister of Health, at the beginning and the end of the mission, were held to assure the support and the backing of these key people for the curriculum committee.

The following changes in the curriculum were suggested during the first mission:

1. Integrate the tracks of Internal Medicine, Pediatrics, General Medicine and Family Medicine into one track.
2. Encourage the committee to continue its work on multi-disciplinary modules for the third year of the curriculum. It was suggested to take material from the basic sciences and 'transplant' it into the integrated body system modules.
3. Introduce the concept of clinical clerkships, with direct, supervised student responsibility for patient care. The first clerkships will be in the four core-subjects, medicine, pediatrics, surgery and obstetrics, followed by shorter clerkships in the sub-



specialties of medicine and surgery. The last clerkship will be a full length, full time clerkship in family medicine.

4. Consider changing the post-graduate curriculum to include a rotating internship and specialty training.
5. Take the necessary steps to assure that Family Medicine is a recognized and prestigious specialty.
6. A draft for the new curriculum was drawn (Table 2).
7. The many hours spent by the students on non-medical subjects were disturbing, but as this is due to state law, it will be difficult to change.
8. Look for venues for clinical teaching, including primary care facilities ('polyclinics') and hospitals.
9. It was decided not to recommend teaching in rural primary care settings at this stage, due to logistical difficulties. This subject will have to be addressed again at a later stage, as medical services in rural areas are scarce.
10. The method of 'problem based learning' (P.B.L.) was presented to the group, and it has been decided that this method can be used, but everybody agreed that this should not be the backbone of the program. Case studies will be introduced wherever possible.

Table 2: Draft for the new curriculum

Year	Subject matter
One	Basic sciences, non-medical subjects, teaching by discipline
Two	Basic sciences non-medical subjects, teaching by discipline
Three	Modules by body-system ¹¹
Four	Core clerkships: medicine, paediatrics, surgery, OBGYN
Five	Clerkship in neurology and psychiatry, other specialties: ophthalmology, ENT, dermatology, orthopaedics, physiotherapy, urology. Two of the following: cardiac surgery, neurosurgery, cosmetic, maxillo-facial surgery, altitude medicine, alternative medicine
Six	Electives, fields that were not covered in the curriculum, or fields the student wishes to study in depth. Emergency medicine, full clerkship in family medicine, final examinations.

ENT, Ear, nose and throat; OBGYN, obstetrics and gynaecology

Visit 2

Upon arrival for the second mission, the consultants received a progress report, which showed that the curriculum for the third year was changed according to previous recommendations, and teaching by body systems was developed. This became the focus of the work in April 2001. The recommendation included eight modules, and the committee suggested eleven. Development of clinical clerkships was deferred at this stage.

During the second mission, the coordinators of the eleven modules were added to the curriculum committee, and each

of them described his/her module in detail (Table 3). They developed a job description for the module coordinator, which was approved by the rector of the Academy. This was the first time that this group worked together. On top of the recognition of duplications and the ability to coordinate teaching between modules, the group developed during the 10 days of work a capacity to work together in the future. The curriculum for the two first years was discussed in detail, eliminating duplications. The concept of clinical clerkships was introduced in a seminar for the teachers of the Medical Academy.



Table 3: Subjects of eleven modules for third year curriculum

Module	Length (weeks)
Introduction to clinical medicine [†]	NA
Cardiology	5
Respiratory	5
Endocrinology	2
Digestive	3
Liver & Pancreas	2
Reproduction	6
Urinary	3
Musculo-skeletal	4
Neuroscience	4
Public health	4

NA, Not applicable.

[†] This module is taught during the second year, once a week for one semester.

The issue of internship and timing of licensure were discussed. It was suggested that graduates of the six year program in its new format will be licensed and eligible for residency programs.

The encouragement of doctors to practice in rural areas was discussed in detail, but the teachers of the medical school were not receptive to the idea of sending medical students out to rural clinics. This will have to be addressed in the future.

Discussion

From this case study, it would appear that several factors were important in achieving success to this point. The first was a firm commitment of the government, in this case the ministries of health, education and finance. Once this was assured, a competent curriculum committee, which was both functional and politically accepted, was integral to the reform process. The implementation of the reform primarily depended on the support, both financial and political, provided by the government. As the reform in medical education was part of a reform in health care services, the

issue of financing health care was tackled, and an increment of the health care budget was ear-marked for medical education.

The success of the reform will be assessed by follow-up. This could be done by the authorities themselves, or by an external, impartial party. Criteria for such follow-up and the technique for its execution should be planned ahead, as these plans will serve as guidelines for the reform process itself.

The reform in medical education needed to be appropriately advertised. Allies were needed in all departments in order to initiate change and overcome the existing resistance. This was not only done by members of the curriculum committee, but involved other teaching staff, and had the backing of the authorities. Presentations to the whole body of teachers of the Academy were important in this regard. The module coordinators prepared and executed these presentations.

Progress in medical education reform is affected by progress in other arms of reform, such as health care financing, access to care, or re-structuring of health care facilities. In this case, the progress made in these two arms of the reform was



impressive, and increased the feasibility of the reform in medical education.

Upgrading the skills and the rewards of health care workers is an important component of any health care reform. Likewise, there is a requirement for resources and continuous support for clinical and basic sciences teachers. In this case, more emphasis needed to be given to teaching in rural settings in order to address the maldistribution of doctors in Kyrgyzstan. To achieve this, there must be a willingness of the medical school to pursue this goal, incentives for the medical staff working in these rural regions to become involved in education, and resources provided to the medical school to engage with these regions. Other countries have achieved this through government sponsored multifaceted rural incentives programs^{10,11}.

A decision on the pace of reform should be taken. It is possible to make all the changes on one date. For example, the class that starts in the year 2000 will study according to the new curriculum and everyone entering medical school after that date will be taught according to the new curriculum. It is also possible to take an evolutionary approach to the process, changing third year teaching this year, and postponing the introduction of clinical clerkships for later. This approach will make the process very long, but the gradual implementation may assure better collaboration of teachers and students.

The elimination of the internship and its replacement by more bedside teaching in the undergraduate curriculum may allow for the development of improved residency programs specifically tailored for graduates who have been educated to have a more holistic approach to health care.

A major stimulus for reform is globalization. A country can not remain isolated from the rest of the world, but needs international recognition of its professional training level. This reform will facilitate such recognition, as it makes the curriculum more similar to curricula in other countries. The urge for international recognition was expressed by the local

faculty members repeatedly. Engaging consultants from other countries is clearly one way to better understand current international standards in medical education

Conclusion:

Reform in medical education can only be justified if it will contribute to the improvement of the health of the population. In order to achieve this goal, one needs to ensure the production of better physicians, with a more holistic approach, working in an improved health care system. In Kyrgyzstan, it is hoped that these improved graduates will be the resource for the development of family medicine as a recognized specialty, which has the potential to improve the health status of the whole population.

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