PART II. SITUATIONS OF HEALTH SECTOR

CHAPTER 4
HEALTH ADMINISTRATION

PART II SITUATIONS OF HEALTH SECTORS

4. HEALTH ADMINISTRATION

4.1 Health Administration and Organization

In Uzbekistan, the role of organizing and managing the health care system are filled by the President, Cabinet of Ministers, Ministry of Health, Ministry of Finance and Ministry of Macroeconomic and Statistics. The Oblast and Rayon health department are implementing health care administration in rural area. Ministry of Health is a major implementation body for the medical and health care administration in this country.

The Cabinet of Minister chaired by the President has responsibility for developing health policies and strategies. The health finance is determined by the Ministry of Health. Administrative mechanism does not give ordinary ministries including Ministry of Health authority to make final decision on finance and policies. The structure of health management in Uzbekistan is shown below;

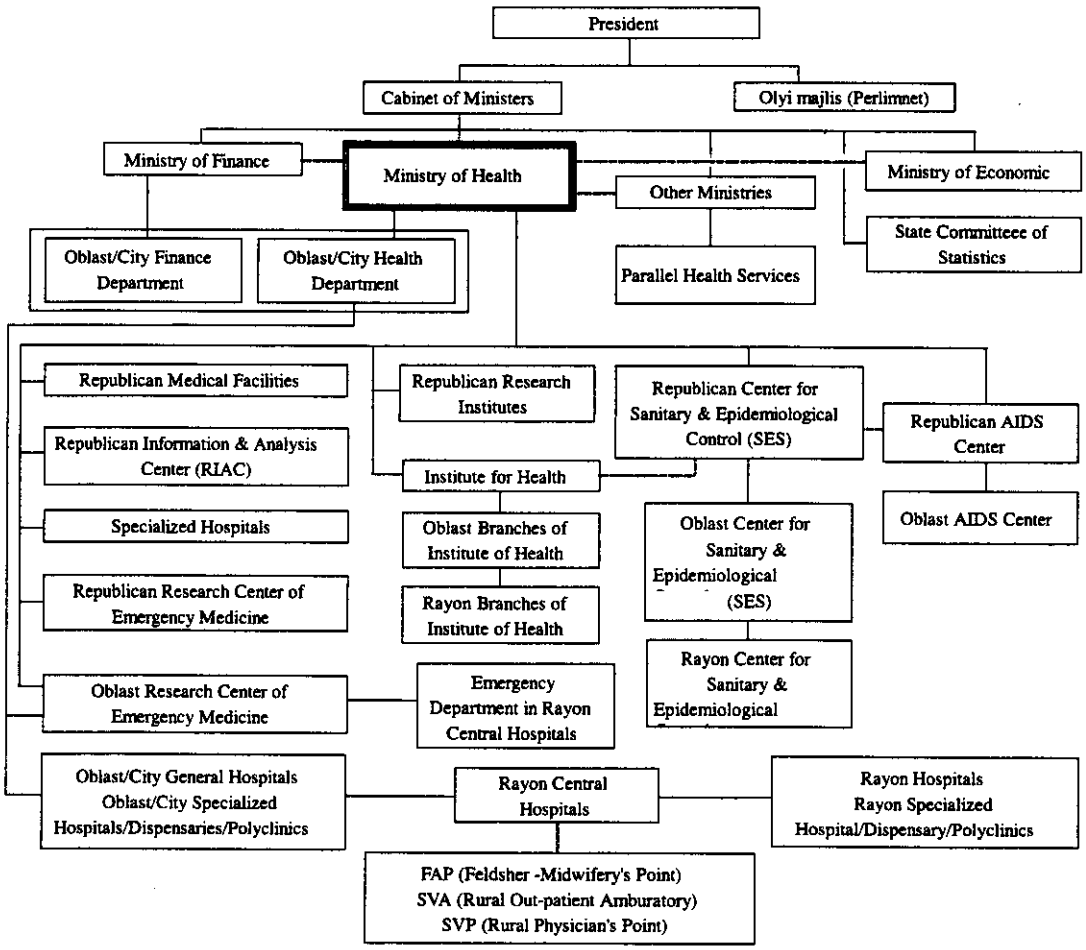


Figure 4.1 Structure of Health Management in Uzbekistan

The main activities of the Ministry of Health are listed as follows;

1) Development of health care legislation and regulation
2) Determination of standard for quality and components of health services
3) Monitoring the quality of health care
4) Identification of priorities for medical research
5) Monitoring the population health
6) Development of curriculum for training on health personals
7) Issuing the licenses and certificates for the health providers

The functions of main department in the Ministry of Health are shown below;

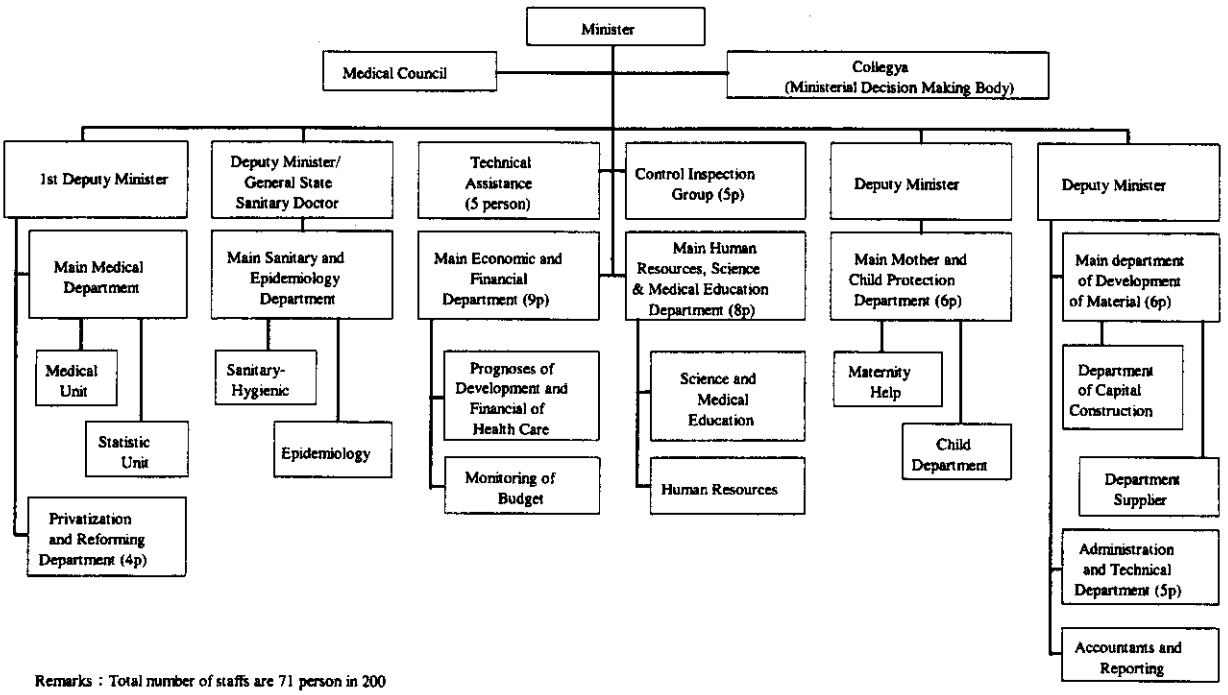
1) The central decision making body of the Ministry of Health is called "Collegya". Collegya consists of Health Minister, Deputy Ministers and leading officials of the Ministry of Health, who are assigned by the Cabinet of Ministers.
2) Main Medical Department has a responsibility for overall management and supervision of healthcare services.
3) Main Sanitary and Epidemiology Department is responsible for overall control of sanitation and infectious diseases.
4) Main Economic and Financing Department manages the budget for Ministry of Health and state level medical facilities, and monitors health financing.
5) Main Resources, Science and Medical Education Department has a role of training health personnel and fostering human resources for health sector.
6) Main Mother and Child Protection Department supervises maternal and child healthcare services and facilities.
7) Main Department of Development of Material manages programs for medical equipment and medical facilities.
8) Control Inspection Group has responsibilities for controlling the implementation of healthcare reform, ensuring legal drugs supply system, and inspecting legal and reporting documents submitted from other departments.

After the restructuring of Ministry of Health, the Ministry has affiliated with semi-private companies like Dori-Darman and Medtechnica. Dori-Darman is a drug supply company and Meditechnica is an agent of medical equipment.

Since independence, the Government of Uzbekistan has been adopting the decentralization system. Budgetary and administrative responsibilities were transferred from central to the Oblast governments. Accordingly, the health administration in rural areas are also organized and managed by Oblast governments. Each Oblast government is called "Hokimiat". The governor of Hokimiat is called as "hokim" who is appointed by the President.

For health administration in the rural areas, the Ministry of Health of autonomous Republic has a role in health administration in Karakalpakstan and Oblast health department has a responsibility in managing health care in Oblast and Tashkent city. The Ministry of Health is closely related with above-mentioned rural organizations. As for the health development programs in each Oblast, according to the program formulated by the central government (Ministry of Health), the each Oblast health department has been preparing the oblast level development program and action plan matching the actual condition of each Oblast.

The organizations of health administration at the central and rural levels are shown in the following figures.



Remarks : Total number of staffs are 71 person in 200

Figure 4.2 Organization Chart of Ministry of Health

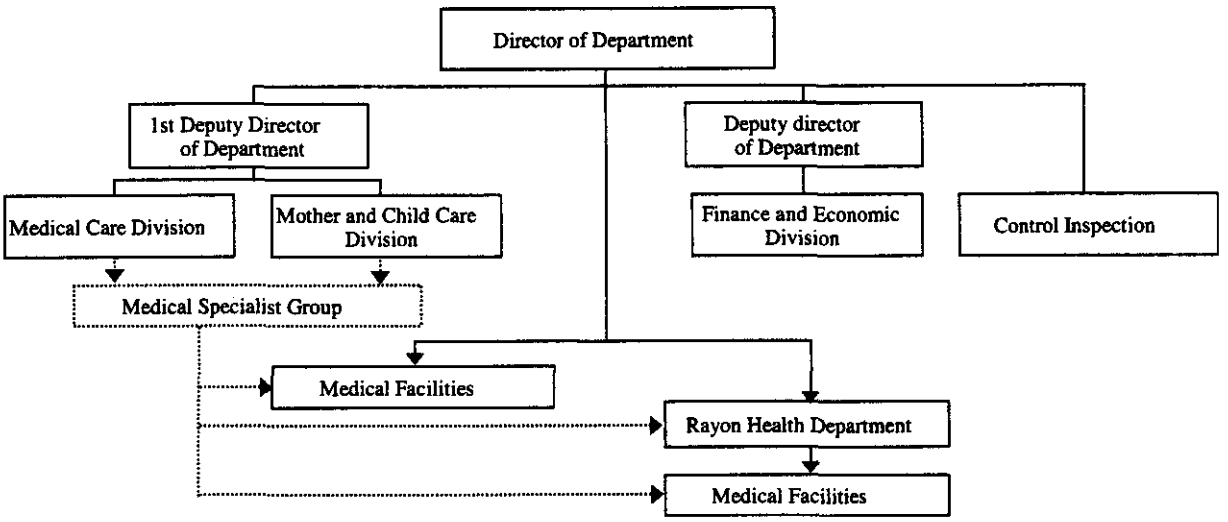


Figure 4.3 Organization Chart of Oblast Health Department

4.2 Development Programs and Related Legislation

(1) National Program

In accordance with the Constitution in 1992, the rights of the population for the qualified medical services and social protection are guaranteed.

The Government of Uzbekistan formulated a law on "the protection of the health of the citizens of the Republic of Uzbekistan" on August 29, 1996, based on the problem of the health and medical services in the former Soviet Union period. Its objective is to provide sufficient medical services to the Uzbekistan people. The main concepts of the law are shown below:

1) Rights of citizens for health care
2) Availability of medical services to all population
3) Focus on preventive medicine
4) Social security for citizens
5) Integration of theory and practice

The Government of Uzbekistan formulated a presidential decree No.2107 on the "National Program of Health Care Reform (1998~2005)", on November 10, 1998, which aimed to strengthen the medical and health care system for the people of Uzbekistan (see the Supporting Report 4.1). The main concepts and objectives of heath care reform are:

1) Better quality of health services and social protection
2) Equal access to health and medical services
3) Introduction of market principles and mechanisms to health system
4) Effective system for mother and child health care services
5) Development of preventive health services
6) Improvement of health financing system
7) Provision of PHC in guaranteed quality
8) Strengthening of the emergency medical system
9) Improvement of referral system
10) Improvement of effective health management system
11) Establishment of legal base for health reform
12) Improvement of quality of training for medical personnel

In accordance with the above reform program, since 1998, World Bank has been implementing the 5 year- program "Health 1 Project", which aims to strengthen PHC in rural areas.

Prior to the formulation of the reform program, a Decree of the Cabinet of Minister No. 182 "Program for Rural Infrastructure Development" was issued in May 1996. The improvement of PHC level medical facilities and retraining of the medical personnel are stipulated in the decree.

(2) Oblast Level Programs

Oblast level health departments are responsible for managing healthcare and providing medical services to its oblast. Therefore, each Oblast Health Department formulates its own five- year development program and annual action plan.

(3) Related Legislations

The Ministry of Health formulates legislation, regulations, and standards for the quality and volume of healthcare and medical services. The Cabinet of Ministers approves legislation on the healthcare and medical services. The Ministry of Health issues guidelines for distribution of medical resources to medical facilities at Oblast and Rayon level.

The Oblast level health departments are responsible for management of their healthcare and medical services and allocation of medical resources to the medical facilities based on the

guidelines formulated by the Ministry of Health.

Gradual transition has been in procedure, nevertheless, legislation and systems of the former Soviet period still remain in some parts and inefficiency is observed. Thus, it is difficult to conduct rational use of medical resources; activities of medical personnel and medical services are restricted by the existing standard and guidelines.

(4) Decentralization and Privatization

Presidential Decree No. 36 was formulated on January 26, 1994. The main principle of this decree is to develop the process of decentralization and privatization. In addition, Decree of the Cabinet of Minister No. 378, July 1994 on decentralization and privatization of Ministry of Health, and No. 354, July 1994 on the establishment of private medical services were formulated. As a result, the private pharmacies and the private medical facilities were established. Also, health care administration in rural areas was transferred to Oblast governments.

The implementation of the decentralization policy, allocation of budget and appointment of medical personnel are appropriately done in the viewpoint of rural situations. Moreover, the Ministry of Health has a close relation with Oblast governments and is making an effort in healthcare and medical services development. In health administration, however, what relatively lacks is a comprehensive view from the standpoint of nation as a whole. In addition, some Oblasts are less efficient in management of healthcare services by the level of their socio-economic situations. Therefore, these Oblasts should have legislative bases of support or strategies by central government.

According to the privatization policy, Ministry of Health issued more than 2,500 private medical practitioner licenses; 2,653 of private medical facilities and more than 4,000 private drug stores were established by 2002. However, private organizations are out of governmental structure. In private sector, standards and guidelines for management of facility and personnel, and quality control of services is rarely in place.

CHAPTER 5
HEALTH FINANCING

5. HEALTH FINANCING

5.1 Introduction

In Uzbekistan, unlike in the more open economies, economic and health data is not easily accessible due to central controls. The data used in this chapter has been culled from interviews granted and data provided by the Uzbekistan Government. It does reveal though that if accurate data is appropriately collected and made accessible, it can strengthen decision-making in the health sector in general and health financing in particular. Reports from donor and aid agencies were also used to fill up the gaps. This section summarizes views elaborated in the interim report.

Uzbekistan recently embarked on a process of health reforms to improve the health status of its citizens. An important part of the reform process is health financing, with nearly half of the reform provisions affecting or directed at the economic organization and building of the material base of the health sector. It does reflect a seriousness of purpose by the government to continue and improve on the gains in health that has long been enjoyed by its population.

5.2 Framework of Discussion

Figure 5.1 presents an overview of the important role played by financing issues in the health system. Health financing mediates between the demand and supply elements in a market framework. Under a socialist system, the system of entitlements drives the flow of funds towards the supply side. Patients and households are passive actors, and do not require purchasing power to access health care. The supply structure is built around the perceived health needs of the population, with the material base provided largely by taxes and state revenues. The impact of such a system on utilization, population coverage, organization of care and the quality of care are the objects of analysis. This chapter examines the financing issues, providing context to the discussion on the plan framework in another sector of this report.

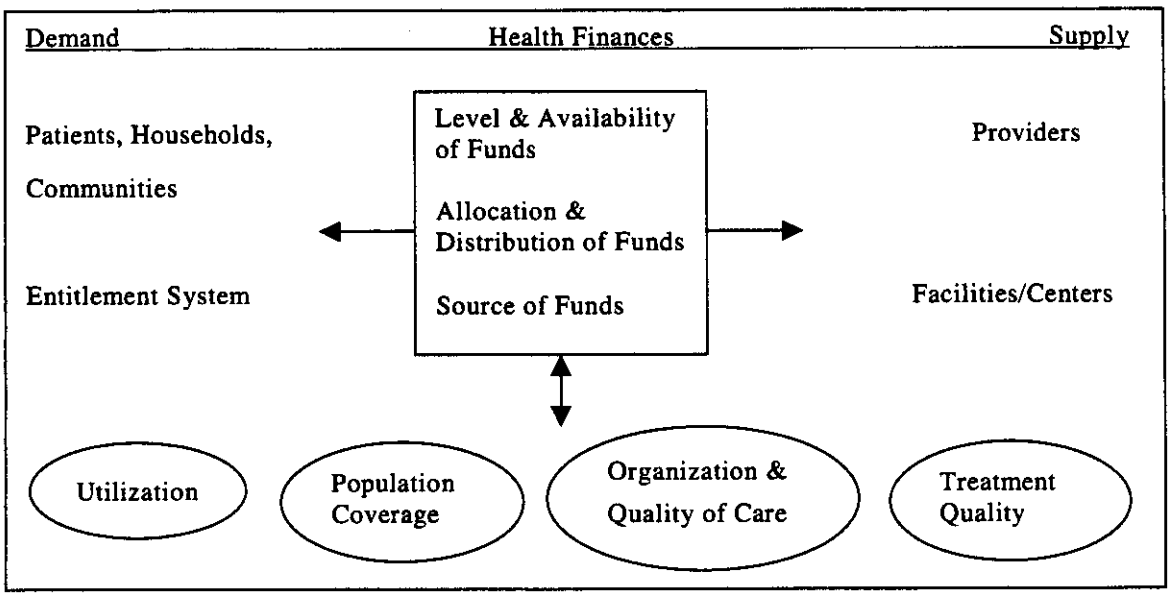


Figure 5.1 Health Financing: An Overview

5.3 Health Financing Issues

5.3.1 Level of Funding

The Uzbekistan government allotted 173.5 billion soms in 2002 for health care, which translates to a per capita public spending of 6,831 soms. There was a 45.3 percent increase over the previous year's (2001) budget allocation of 119.4 billion soms. At the macro level, the health budget constituted 9.3 percent of the government expenditure and about 2.4 percent of the Gross Domestic Product (GDP), which is low by international standards, widely held to be around 5-6 percent. The Commission on Macroeconomics and Health of the World Health Organization (WHO) recommends that the country should have been spending around 4.5% of GDP in 2002 and should aim for increases of 0.5% per year to target a 5.5 percent health spending share by 2007. Given this current shortfall a doubling up of the share of health spending on the country's GDP must be made priority in the next budget years. This is largely possible as the country has been showing GDP growth around 4.2 percent for the past years.

5.3.2 Budget Allocation and Distribution

Table 5.1 shows that salaries constituted the major component of the health budget at 63 percent. In fact, the allocation for salaries rose by 27 percent over 1998 (the year when the reforms were introduced). The reduction in salary allocations between 2000-2001 was more than made up for in 2002. The share of pharmaceuticals remained steady at 10% and unchanged for the past three years, which is way below the 12% share in 1998. During the same period, equipment budgets have declined from 8.0 percent in 1998 to 2 percent in 2002. This decline in budget allocation may have been due to its transfer to credit and humanitarian sources, which are separate budget sources.

Table 5.1 Ministry of Health's (MoH) Budget Allocations (1998–2002)

(%)

	1998	1999	2000	2001	2002
Total (millrd Soms)	41.7	56.7	82.1	119.4	173.5
Salaries	36.0	58.0	58.0	42.0	63.0
Utility Expenses	12.0	12.0	9.0	9.0	7.0
Food	10.0	9.0	9.0	9.0	9.0
Pharmaceuticals	12.0	11.0	10.0	10.0	10.0
Equipment	8.0	2.0	3.0	2.0	2.0
Supplies	2.0	1.0	1.0	1.0	0.0
Capital Repairs	3.0	3.0	5.0	4.0	2.0
Miscellaneous	17.0	4.0	6.0	23.0	6.0

Dept. of Economy, Ministry of Health, GoU

The pattern of allocation indicates that with staff salaries constituting the major budget expenditure, very little remains for pharmaceuticals, consumables and equipment. Undoubtedly the quality of care will suffer.

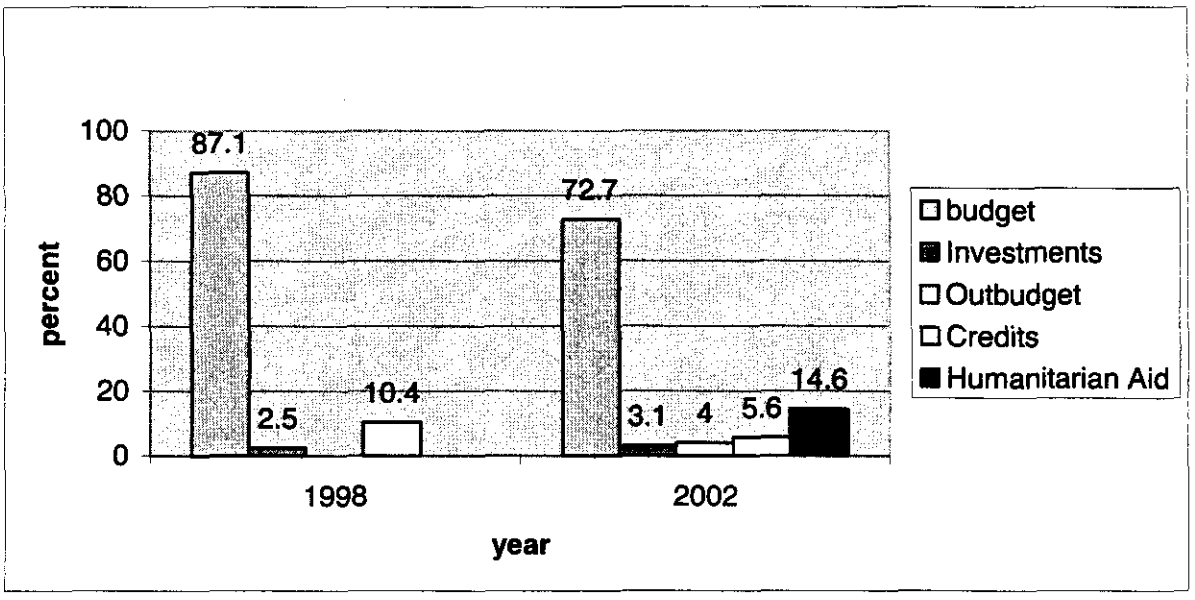
This budget allocation process exhibits a distribution based largely on population distribution. Regions or provinces with lower populations show lower spending levels and those with bigger population exhibit higher spending. This is possible mainly because regional budgets comprise 89% of budget sources. Budget allocations seem to be based on population size rather than need. *The allocations do not seem to reflect the differing health needs.* Regions with a smaller population may also be poorer, with bigger health care needs, requiring higher allocations.

Through out the country, the health infrastructure across the regions is more or less similar. The health care infrastructure, which has largely been inherited from the former Soviet Union, is planned in such a way that each administrative level (oblasts, cities and rayons) has facilities that can be considered 'branches' of what is at the top. There are adult, children and maternity hospitals, and facilities and clinics devoted to specific specializations, at each level across the country. These facilities are staffed in such a way that the staff-to-population ratios in the country rival that of the richer countries. But, *given the declining tax revenues, the duplication and redundancy is enormous and unsustainable.* An examination of the oblast-level budgets reveals little difference in budgeting patterns across oblasts, nor is there any significant deviation between planned budgets and actual expenditure (see interim report).

The inherited budget system calls for allocations to facilities on the basis of capacities and bed-sizes. This has spawned not only larger and larger facilities, but also *inefficient utilization rates*. The average length of stay for inpatient admissions is 12.1 days. This figure is, in fact, an improvement over longer lengths of stay before 1998. The ratio of inpatient expenditure to total medical expenditure at 45.7 percent is also much higher than that of the richer countries.

5.3.3 Fund Sources

For the budget items that have recently seen a sharp decline in allocation, like pharmaceuticals and equipment, the government of Uzbekistan has increasingly sourced funds through loans and humanitarian aid (Figure 5.2). These sources are clearly *non-stable and subject to priorities determined elsewhere.* Off-budget sources shown in the figure mirror the increasing share of revenues from facility charges. However, the amounts involved are likely to be insufficient, given the high fixed costs of the system in terms of the large number of facilities and manpower. Investment sources also refer to capital budget sourced separately from the MoH budget and used largely to finance the construction of emergency care hospitals and primary care facilities known as SVPs.



Department of Economy, MoH, GoU, May 2003

Figure 5.2 Sources of Health Sector Funding and Share in Funding

5.3.4 Extensive Guarantee System

The 1998 Presidential Edict, which contains the objectives and an outline of the health reform process, identifies the following as being guaranteed by the state, that is provided for free:

- urgent medical aid[1];
- primary health care facilities and some government facilities, particularly in rural areas;
- specialized medical care for socially significant diseases/problems like TB, cancer, psychiatric illness , substance abuse, endocrinology and professional diseases;
- deliveries in facilities rendering free services only;
- children's examinations in facilities rendering free services only;
- adolescent (15-17 years) health care and care for recognized army recruits;
- treatment of 'benefited' population groups (disabled, war veterans, orphans) in government health care facilities.

[1] This refers to care provided in emergency medical centers.

According to the recent World Bank report (2003), the selection of benefited groups for guaranteed and free provision does not appear to be correlated with poverty or income status. The poor are likely from rural areas and some low wage earners. The broad grouping and service entitlements reflect the principle that the state has the primary responsibility to provide for its population's health needs. However, the same edict specifies the adoption of the market system, and the introduction of a pricing system and mixed financing for state facilities. **However, introducing prices without concomitant changes in the quality of services will not likely lead to improving the revenue base.** The actual implementation of this part of the edict is confusing staff and patients alike. The implementation of the mixed charging portion of the Edict calls for a segmentation of an already complex system into fee-charging, mixed financing and free facilities. Payments and patients are expected to flow to certain facilities instead of funds following where patients go. *There is a need to shift from a facility-based mentality to a benefits-based thinking.*

There are no estimates of how much this system of exemptions costs and how it can be funded, given the current and potential sources of financing. To guarantee urgent medical care, the government has established 218 well-staffed and well-equipped facilities. The budget for this is unclear. With the pace of primary care reforms, through the consolidation of a 5-tier rural system into the so-called SVP system, being slower than the reforms in emergency care, a perverse incentive is created. There is a likelihood that emergency care centers will 'crowd out' the use of and support for primary care facilities. Further, emergency care is also expensive. The focus on emergency care has introduced an expensive and unsustainable element in the health system. A feasible alternative is the integration of the oblast hospital facility with the emergency care center, as in Navoi.

The matter is further complicated because a wide range of diseases can be treated free of charge. *There is clearly a need for a finer delineation of this guaranteed package to reflect basic services and highly vulnerable groups. The system of entitlements should also reflect the need to instill in the population the primary responsibility of one's health through appropriate lifestyles and behavior.* Clearly, a well-designed incentive system must be put in place to support the desired changes.

5.3.5 Out-of-Pocket Payments and Informal Payments

Despite the extensive state-supported health system, users often have to pay for the health care they access. Out-of-pocket payment refers to what households or patients pay when they seek care. In the recent World Bank Report (WB 2003), 81 percent of the households who made at least one consultation made payments from their own pockets. In another survey, in Ferghana, cited in the same report, 86 percent paid for accessing health care. Surprisingly, poorer households were less likely to report having made any out-of-pocket payments than the relatively well-off households, and those coming from poorer regions were also less likely to make payments. These observations indicate place of residence as a strong explanatory factor in determining of who pays and who does not pay and somehow reflect on the relative equity of the system. However, for the poor households who reported making payments, the burden (as measured by health expenditures as a proportion of food expenditures) to them was greater compared to richer households.

Place of residence was observed to be a strong correlate of likelihood of payment. Payments were likely to be made at higher-end facilities. It appears that the rise in out-of-pocket payments is due to the system of charges imposed, which did not distinguish between rich or poor clients. Instead, individuals were allowed to select for themselves—with the poor opting for free facilities and the well-off going for the high-end facilities. *This indicates the need for investing more, in improving the services of facilities utilized by the poor.*

Those with chronic conditions were likely to pay for the treatment. They were likely to incur expenditure on medicines, which, as discussed earlier, had low allocation in the national budget. That out of pocket payments are being made does not appear to be an over-all failure of the system but a budget failure. There is low budget provision for medicines, and therefore, patients have to pay for them.

The JICA survey, conducted with this current report, showed that only a quarter of the respondents reported making any payments. There was also much confusion regarding the source of payment. A high proportion reported paying through insurance. For the employed, care is free because they pay taxes and the amount they pay for social security is perceived as a form of health insurance. *Clearly, free care is the only*

understood system. Exemptions and social security and insurance systems are less understood, signifying the *importance of information and education activities linked to health reforms.*

The phenomenon of informal payments, or unofficial charges, has been observed for many of the countries in the region by the donor agencies. If these informal payments and out-of-pocket payments were included in the over-all health expenditure, World Bank (2002) reported the total health expenditures as a proportion of the GDP would be around 6-8 percent. This is likely to be an exaggeration, but one made in order to press the urgency of reforms to plug these leakages from the health system. *It also highlights the importance of having a system of national health accounts, the system increasing adopted even by the developing world to track the sources and uses of health funds.*

The absence of medical insurance in the system to absorb the catastrophic costs associated with illness is likely to contribute to increasing informal payments. The pilot tests in Kyrgyztan on mandatory health insurance have shown the positive role of insurance in the reduction of informal payments (Kutzin, et. al, 2003). These payments were made to secure what is perceived to be better quality care. But insurance by itself will not eliminate informal payments; it will only provide an alternative structure to absorb the increasing costs of care. In the absence of such a system, payments are likely to be informal and unreported by recipients and therefore will not flow back into the health system for the needed investments. Instead it will go into the pockets of medical staff and undermine the whole system of entitlements that the state has guaranteed for its citizens.

5.3.6 Other Issues

The predominantly state-provided system of health care in Uzbekistan, despite its extensiveness, does not appear to provide much choice to its inhabitants. More than one-fourth of the responses on choice of facility in the JICA survey indicated that they chose a facility because 'it was the only source available'. Health reforms must therefore take into account expanding the choice set for households. With the reforms requiring users to make some contribution toward their health care, when the system of charges is fully underway, household health-seeking behavior will determine whether some facilities will still be attractive to patients.

On the other hand, revenue from patients alone is insufficient for the survival of some facilities. Certain facilities, like rural health centers, need the support of communities for their survival. Since these centers were historically associated with the collective system in the rural areas, *providing mechanisms for these communities to support their health centers will be key to active health promotion and disease prevention in these areas.* Some mechanism must be instituted to foster community support and participation to energize the primary health care reform process.

Private sector development in health care has lagged behind, mirroring the situation in other sectors as well. Licenses to practice do not make a private sector in health care. If the private sector is to participate in health care, the players should have the confidence that investments will be recouped through sufficient returns. Market uncertainties, strict financial controls, lack of funds and restrictive import duties and customs policies do not augur well for the private sector. Mergers and consolidations, much needed beyond primary care facilities, have to be implemented through strong incentives and liberal financial policies. Till now, privatization efforts have largely been limited to the setting up of small-scale pharmacies and dental practices. This trend towards small-scale enterprises will require a regulatory framework that allows for easy monitoring of quality. *Alternative sale or contract mechanisms need to be explored to promote larger investments in the sector.*

5.4 New Initiatives in Health Financing

Recently, several initiatives have been taken in health financing. A critical part of the reforms to strengthen the primary care system has been the use of capitation payments (fixed per head payment). This is the first step in ensuring that budgets are more responsive to needs, and the initiative particularly seeks to promote appropriate behavior among providers. Per capita payments ensure that services will be available when needed by the population; and assures the providers a steady and predictable flow of income. The challenge that remains is the monitoring of the quality of services in the newly established or reformed primary care facilities. The ZdravReform and the ZdravPlus program has led in this initiative and continues to spin off reforms towards the next level of care, through improvements of hospital systems.

The per capita system at the SVP levels is the beginning of a process that seeks to correct the residual allocation to lower levels and reverse it by pooling funds from administrative sources (rayon, cities, oblasts and republican) at the oblast-level, before allocation to providers. There is a need to reverse the budgeting process from the residual system towards more comprehensive allocation. The old Soviet system allocation formula was based on bed-days and capacities of facilities, with no flexibility for re-allocation within allowed budget chapters. Part of the SVP reforms was the reduction of budget chapters, from 18 to 4 (World Bank, 2002).

Replacing the current budget allocation process with one that seeks to promote alternative provider payment systems, and includes insurance functions will provide the much needed dynamism in Uzbekistan's health sector. Whether this structure can be incorporated into the current budget system or needs to be spun-off independently is discussed in the chapter on new directions for the master plan.

To summarize, reforms in Uzbekistan's health sector have failed to take off because the financial system suffers from low levels of spending, non-rational criteria for fund allocation, and unstable funding sources. Reforms that seek to introduce more market elements like a pricing system and private provision of health care are not supported by appropriate mechanisms to protect the more vulnerable groups. Reforms are necessary in the budget allocation process too; an alternative system of funding that pools risks and costs across a population undergoing significant societal changes has to be established. These reforms must seek to foster the necessary accountability, in terms of not only the use of resources, but also promoting healthy lifestyle choices to the population. These reforms must necessarily retain the equitable features of the 'old' system, and at the same time provide it with the resources and systems necessary to cope with the growing health challenges of the new century.

CHAPTER 6
REFERRAL SYSTEM

6. REFERRAL SYSTEM

6.1 General Medical Services

In the former Soviet Union period, medical service system was standardized regardless of the characteristics of the regions. Therefore, the number and the scale of the medical facilities did not always meet the demand of the patient and actual health situations.

Even after independence, the influence of the former Soviet period still remains; medical facilities and doctors are redundant in number, departments are extremely segmented. On the other hand, the budget is allocated to the each medical facility only in accordance with the number of beds, as a result the number of medical facilities are over-supplied. In short, medical referral system is still subdivided and complicated. It is necessary to establish a model of medical supply system, in line with the characteristic of Uzbekistan.

According to the "National Program of Health Care Reform (1998-2005)", and Presidential Decree No. 2107 in 1998, referral system is being restructured. Especially, facilities at the PHC level have been focused. World Bank is implementing "Health I Project" in Ferghana, Sry-Darya and Navoi Oblast to strengthen the PHC in rural areas. This program is to restructure the complicated PHC facilities to more simplified form, and to establish the first referral facility of SVP (rural physician's post) according to the number of population in the covering area.

The national program aims to construct or renovate 2,800 SVPs by the end of 2005. Till now, 1,950 SVPs have already been in place. The structure of reformed referral system at the first and secondary level is shown below.

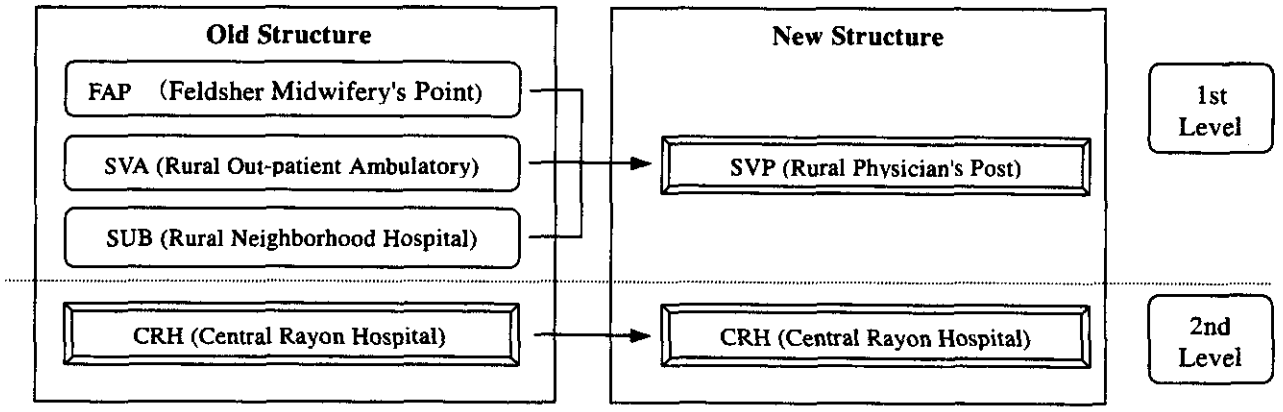


Figure 6.1 Reform of Referral System in First and Secondary Level

SVP is classified into the three types as follows.

Table 6.1 Type of SVPs

	No. of Inhabitants
Type 1	1,500~2,500
Type 2	2,500~3,500
Type 3	3,500~

On the other hand, World Bank recommended SVP type 4 which is established for educational purposes. They will function mainly as sites for general physicians and nurses. However, urban area polyclinics represent a more complex issue. The concept of primary level reform in urban areas hasn't been developed yet. It should be also pointed out that in the existing system urban area polyclinics perform two main functions: urban area doctors and family doctors are providing primary care while specialized doctors are involved on the secondary specialized care level. The other hand, secondary Level includes a number of out- and in-patient facilities. In accordance with reforms concept, on the Rayon level, it is planned to shift specialized hospital level to CRH and provide close coordination and efficient referral mechanism between SVP and CRH. As for the rest, changes in to secondary as well as in tertiary level have not been planned.

In present time, there is three level of medical facility referral system; Primary, Secondary and Tertiary (see the Appendix Figure 6.1 "The structure of medical service of the Republic of Uzbekistan").

The primary level is presented several types of facilities; a) in rural area, FAP (Feldsher Midwifery's Point), SVA (Rural Out-patient Ambulatory), SVP (Rural Physician's Point) and Rayon Hospital, b) in urban area, Family Polyclinics, City Polyclinics, Rayon Hospital, and Rayon Pediatric Polyclinics which is narrow to the secondary level.

The secondary level is Central City Hospital (CCH), Central Rayon Hospital (CRH) and Rayon Specialized Dispensary and Polyclinics. The specialized facility in Rayon level is four types, dermatology and venereal disease, psychiatric, tuberculosis and endocrinology. The capacity of CCH and CRH is 100 to 300 beds covered services areas' inhabitants of each facilitiy. Those hospitals have network with specialized hospitals/dispensaries, most common in pediatric and infectious disease hospitals.

The tertiary level is separated State level and Oblast level. The tertiary level facilities in

State are Republican hospital, institutes, specialized institutes and university hospital which are top referral facilities of the all the Uzbekistan. They provide high level of medical services, medical searches and training for the specialized doctors. In Oblast level, there are Oblast General Hospital, City General Hospital, Oblast Specialized Hospitals/ Dispensaries and City Specialized Hospitals/ Dispensaries. They are implementing high level of medical services to the Oblast people as the top referral medical facilities in Oblast level.

The number of medical facilities is shown below;

Table 6.2 Number of Medical Facilities

	1994	1997	2000
Oblast & Republican Hospital/institute	12	18	20
Central City Hospital	166	112	98
Central Rayon Hospital	192	238	197
Rayon Hospital	464	299	197
Pediatric Hospital	47	41	35
Maternal Hospital	43	11	10
Other Hospital (including Specilized)	68	45	56
Polyclinic/Dispensary	250	247	241
Non Oblast Level Outpatient Polyclinic	1,678	2,309	2,653
SVP	0	701	1,522
SVA	1,400	1,217	831
Independent Dental Facility	157	109	100
Emergency Center	0	0	12
Total	3,271	3,333	3,679

Source : RIAC, Statistic data on Health Facility's Activity

6.2 Emergency Medical Services

6.2.1 Background

The system of Emergency Medical Care has undergone significant qualitative changes in recent years. Previously, emergency patients were serviced in different specialized divisions and doctors were on the compulsory duty in each sub-division. The patients were directed to the Admission department, where a doctor and 1-2 Medical nurses were on duty. At the same time the Admission department fulfilled the functions of the dispatcher, the volume of observations was limited to the general analysis of blood and urine. Frequently, in case of unclear or questionable diagnosis, the patients had to visit several departments or admission departments, or even hospitals. This situation created great

discomfort to patients, and increased transportation expenses. Quite often after the admission the patients went through complex observation in 3-5 days, and only after that the clinical diagnosis was made.

The reformation of Emergency Care started in accordance with the Presidential Decree in 1998. The central idea of reforms has become the centralization of Emergency Care in rayon centers and major cities in order to create a uniform system of pre-hospitalization, as well as on hospitalization stages so that the patients of different profile could receive emergency care services in every situation in these departments. The Emergency Care, in accordance with the Presidential Decree, must be provided free of charge.

6.2.2 The Centers of Emergency Care

The Republican Center for Emergency Care, with its 13 regional affiliates, was established on the basis of the biggest clinics in Tashkent and oblast centers. It offered tertiary level services. The Center and its affiliates so far are adequately equipped with new medical equipment at the expense of government budget funds and credit lines, as well as by grants.

In more than 170 Central Rayon Hospitals (CRH) the departments of Emergency Care were established by means of bed fund restructuring, that provide the Emergency Care of Secondary Level. The intensive care and resuscitation beds were transferred into these departments in the majority of CRHs. Emergency operating rooms and bandage rooms were established there, as well as 20-30, 24-hour beds.

Such centralization of Emergency Care raised the efficiency of the service, simplified management and provided better control of the service. However, there are certain problems in the service.

The key problem is the problem of organization and human resources. The model of Emergency Care of developed countries was taken as a guideline for the model of Emergency care in Uzbekistan. However this model has been implemented only partially and was not adapted. The crucial condition for modern classical models of Emergency care systems is the existence of such specialties as the doctor and the Medical Nurse of Emergency Care. Only in this case the necessary organization and cost efficiency of this service is accomplished. Recently the issue has been discussed, however in reality, no

concepts of these specialties have been developed, therefore, there are no corresponding training programs and standards, and the system of Emergency Care specialists has not been created.

The key factor of the Emergency Care system functioning is the clear definition of emergency patients' category, and also the corresponding financing system. Today there is no clear definition of what is Emergency, Urgent Care and Ambulance, and this is the source of various problems.

A related problem is the duration of hospitalization and free medication. Now this duration is limited to 5-7 days in the majority of cases. Although this duration is a statistical mean standard, doctors undergo certain pressure by facilities' management, so that the duration of hospitalization would not exceed this limit in each case.

This condition imposes difficulties for severe case patients, those who need longer medication. Clear criteria should be developed to define the duration of free medication, based on the condition of a patient, the type of the illness and other medical –social factors, rather than statistic mean.

One of the serious problems is the problem of financing. The significant deficit of funds for drug supply is revealed, that covers 40-70 % of the needed drugs. This problem is practically unsolvable with existing level and model of financing.

Although oblast centers of emergency care received new equipment in recent years, the majority of rayon centers lack medical equipment. The most acute problem with equipment is the absence of modern means of radiotelephone and paging communication. Like in other types of facilities, the centers and departments of emergency healthcare have the problem of insufficient drug supply, despite the fact that the government pays great attention to this sphere.

All above-mentioned problems lead to organizational difficulties that cause discomfort to medical staff and patients and create reasons for complaints on the part of population. For instance, the patient has enjoyed good conditions and free medication in the center of emergency care during 3-5-7 days. Immediately after that he is transferred to another facility for treatment course completion, where the conditions are worse in comparison to

the center of emergency care and there is some fee to pay for medication. Quite often the transfer requires additional expenses on transportation, as this issue has no juridical resolution, and in a number of cases hospitals bears these costs. In CRH the situation is similar, although it has a slightly different pattern. The patient there stays in the department of emergency care for several days having free medication and then he is transferred to the specialized department on charged basis. This causes misunderstanding and negative reaction of patients, creates discomfort for a patient and medical staff.

In RRCEM and its regional affiliates the majority of patients stay in the Admission Department for a couple of hours, undergoing comprehensive observation and urgent medication in case of necessity. After that the patients are transferred to the specialized departments and have the main treatment course there.

In the CRH, the departments of emergency care accept and conduct the treatment during several days, then transfer patients to the specialized departments. At the same time, departments of emergency care often have independent reception wards, separate surgery beds, separate children beds, separate therapeutic beds (usually 10 beds each). This creates a sub-hospital within the CRH structure, it is not rational from the efficient organization point of view. It should be especially noted that in different Rayons depending on the situation, different schemes of emergency care services provision can be observed. In a number of cases, majority of patients in the emergency care department have surgery profile and in other cases the profile is mainly therapeutic. Quite often children are serviced in other departments or other rayon hospitals. The patients of gynecology profile are treated in CRH emergency department, and in a number of cases in an obstetric-gynecological department. All of above-mentioned enables one to state that there is no uniform model of emergency care on rayon level and there are no uniform approaches to the organization of emergency care on rayon and oblast levels.

A special situation has arisen in big cities, particularly in Tashkent. The centers of emergency care cannot provide the population of the city with emergency care services, that is the reason why this service is also provided by a number of city hospitals. But there have not been any attempts to create the departments of emergency care in city hospitals.

As for the provision of emergency care to the patients in primary care facilities, its volume

is insignificant due to insufficient qualification and insufficient equipment of GP doctors. Here the question of what to be considered emergency care, which categories of patients, diseases, can be referred to as emergency arises again.

6.2.3 "03"Ambulance Service

(1) The Structure and Organization

"03" service exists within centers of emergency care and CRH on oblast and rayon levels. As a rule, the central station functions in the context of regional affiliates of RRCEM, and usually there are several more city substations. In Rayons, the service is represented by CRH departments. "03" service of Tashkent city is an independent facility with a main station and 13 substations, at the same time the garage with vehicles is an independent facility and medical staff brigades are an independent facility as well.

"03" service is divided into 2 parts according to its functions: linear brigades, that drive out upon ordinary calls, fulfilling the functions of PMSC, and the brigades for adults and children. Specialized brigades that provide services to the very ill and severe case patients called "Reanimobiles". The dispatcher service "03" exists independently and separately from the dispatcher service of sanitary aviation, however their unification is being planned.

It has been established that the "03" service is obligated to fulfill all calls they receive, regardless of the patient condition's risk to his life. That's why the service is overloaded by calls not posing risk to life, that could be handled by the primary care facilities. The hardest and most urgent cases are being served in 15-30 minutes around the city, in the country-side it takes 0.5-1.5 hours depending on distance. Other cases are serviced in 2-3 hours. There are no examples of any classification of calls according to urgency, degree of complexity of the case and other medical factors.

The main part of the ambulance services is mainly represented by government service which is funded from the budget. In recent years private ambulance has emerged. It should be said that despite the high price for the population, the number of referrals to private ambulance have increased, which is connected with a more operative care, a more diversified range of available drugs and probably a higher level of service.

(2) Equipment and Drugs

According to the standards, one brigade of linear ambulance is assigned to service a population of one thousand. However, there is a significant gap between the number of vehicles and brigades and stated standards. At present, DAMAS cars comprise the main park of ambulance vehicles. With its parameters, this vehicle is not adapted to such kind of functions, although its introduction resolved the problem of vehicles' deficiency significantly. There are special ambulance vehicles such as RAF, GAZEL. There are also modern cars such as FORD and MERCEDES, but their number is not enough yet.

The ambulance vehicles do not have the sufficient equipment, practically everywhere there is a lack of modern trunk communication means; existing means of communication are outdated radio-telephone communication; and the vehicles are equipped with these means partially. The dispatcher offices are not equipped with modern computer and telecommunication, there is no audio recording equipment.

There are also problems with the drugs supply, quite often traveling brigades don't have the standard list of drugs in possession. The linear brigades don't have anti-shock medicine and modern means of transport immobilization. Even the specialized brigades cannot use narcotic drugs to traumatic and cordial shocks because of strict limitation on their use. Quite often doctors buy drugs in pharmacies to resell them to the patients, in order to provide adequate home care, and this causes suspicions among the population that the medical staffs sell them government supplied drugs. Because of inadequate drugs provision, the MSU (Medical sanitary units) have to fulfill the functions of a transporter, without providing the necessary care on the spot.

(3) Normative-legislative base, Functions

Nowadays, there is no legislative base, that clearly regulates the rights and obligations of the "03" service medical staff during disasters and emergency situations, and their interaction with other service representatives. The system of social protection of the staff, connected with their getting injured, disabilities and the death of the workers of ambulance during the fulfillment of professional duties, including catastrophes and emergency situations, has not been developed.

There is the duplication or unclear definition of functions of "03" service, for example during the calls to Units of Medication and Preventive Care. In particular, it is not defined

whether "03" service should conduct patients transportation from one facility to another within the city, if those facilities have their own means of transportation. In a number of regions the ambulance vehicles have functions of the corps transporters, as the latter have been dismissed due to insufficient financing.

(4) Finance

The financing of the service is conduct from budget source. In Tashkent city the ambulance service has out-budget funds coming from their servicing massive events like big concerts and sport competitions. However in a majority of cases the ambulance service has to be on duty during various massive events for free, in accordance with the resolutions of local authorities, although this situation is not indicated in any documents.

At present, there is no differentiated approach to the standards of the brigades number according to the serviced population and the radius of servicing.

There is no sufficient financial motivation of workers, in particular the bonuses for tension and work complexity. The individual workload of workers and the quality of their work are not taken into account.

(5) Human Resources

There is no higher education institution (HEI) that specially supplies the doctors for ambulance. There is one department of anesthesiology and intensive care in the Tashkent Institute of Post-Graduate study together with the ambulance courses. The existing department is not capable to train all ambulance doctors needed. At the same the special training system for ambulance feldshers needs to be developed. The modern programs of ambulance doctors training have not been introduced, that would use the up-to-date international experience, as it requires the change in the pattern and equipment of the ambulance service. Although the system of the medical nurses with higher education is developing, it has not yet become the part of the ambulance service.

6.2.4 "Catastrophe Medicine" Service

Nowadays there is a service called the Medical Service of Civil Protection (MSCP). It is the part of MOH and has mainly out-staff subdivisions – the brigades of emergency care (BEC) and the brigades of specialized emergency care (BSEC). The concepts of these

brigades were developed in the 1960 -70s, during the Age of Nuclear Opposition, and were designed for the cases of nuclear attack. However, this concept and the service were not justified even in Soviet times, for instance during the Chernobyl catastrophe and Spitak earthquake. The modern concept and the model of "Catastrophe Medicine" is not yet developed, and is on the stage of discussion.

6.2.5 Sanitary Aviation

The republican and oblasts sanitary aviation services are parts of the Republican Sanitary Aviation under RRCEM and its branches. The republican sanitary aviation services Oblast facilities, and Oblast sanitary aviations service the CRH and rayon hospitals. The main function is providing specialized medical consultations to patients in their facilities.

This service provides consultative care to emergency as well as to non-emergency patients, who stay in hospitals for a course of medication. At the same time, the share of emergency patients comprises 45-50%, and the share of patients, that had operational interference is 8-9% for oblast sanitary aviation and 15-16% for the republican. The doctors-consultants travel to the locations by sanitary vehicles or by plane, occupying specially booked places (the republican sanitary aviation). Also the transportation of patients is carried out, but only for a minority, about 2-3 % for republican and about 3-5 % for oblast sanitary aviation.

Usually the vehicles of sanitary aviation have no special equipment, although the vehicles belong to the category of sanitary vehicles. The standard of cars is 1 for 100,000 of population.

The number of staff doctors in sanitary aviation is not big, usually the specialists from leading facilities are invited. For every trip the doctors receive a special payment. However, the additional payment is made only for those hours outside of the regular office hours. The level of additional payments is relatively low, that causes the problem of attraction the specialists to conduct consultations.

It should be noted that the majority of calls received are "re-assuring" calls, that is, the doctor according to his qualification level doesn't need the consultations of another specialist, but calls him upon the claims of relatives to confirm the words said by that

doctor. This type of business comprises 50-70% of calls for sanitary aviation services.

6.3 System of Specialized Medical Care

6.3.1 Situation and Constraints

Historically, the system of specialized care started its development in 1930-1940s through the establishment of separate types of dispensaries for rendering out-patient specialized care. However, these dispensaries at oblast and republican level started rendering hospital care as well. Presently there are the five types of dispensaries – dermato-venerologic, tuberculosis, oncology, endocrinology, psychiatric. The system of polyclinics for rendering out-patient polyclinic care was also established along with multi-profile and specialized hospitals. Further development of out-patient specialized care led to the establishment of so-called consultative and diagnostic centers, well equipped with different diagnostic outfit. Also reproductive health centers and screening centers appeared within past several years.

All the stated types of facilities remained up until the present, which complicates with the existing situation, creates duplication of functions and impedes management. Naturally, the number of service stages while rendering specialized care increases for patients as well.

At the Republican level there are several scientific and research institutes on separate spheres of medicine as well as specialized centers on the base of certain leading republican clinics. In 2003 special Edict of the President of Uzbekistan proclaimed the beginning of reforms in specialized care and the establishment of 4 Republican specialized centers – surgery, urology, cardiology, micro-surgery of an eye.

Specialized care has mixed type of financing – partially at the expense of budget, for socially vulnerable groups of population and socially important groups of diseases, as well as at the expense of payments from patients. Several types of specialized care, for instance, stomatology, is financed practically completely at the expense of payment from patients.

6.3.2 Main Understanding and Functions of Specialized Care

Dispensary system is a complex of activities on serving patients conducted by the personnel of medical facilities with preventive and rehabilitation purpose. Dispensary system is conducted among patients as well as the healthy.

Box 6.1 Groups of Dispensary-Record:

D1 – Medical examination of practically healthy people, target group: *children under 14, teenagers, fertile age women, workers of separate groups of enterprises, etc.*

D2 - Medical examination of practically healthy, but weakened people and the at- risk group.

D3 – Medical examination of patients: *prevention of chronic acute disease, treatment of chronic disease,*

DR – *Medical examination rehabilitation or medical rehabilitation.*

1) Primary prophylaxis – measures, preventing disease generation, or healthy life style programs.
   It is the activity directed towards prevention of the disease and its harm. Nature protection activity can also be considered as a measure of primary prevention. The implementers are facilities of primary medical care, State Sanitation and Epidemiologic Surveillance Service, and "Health" institute.

2) Secondary prophylaxis – detection and effective treatment of early stages of the disease for prevention of its development and serious complications. These are the measures of early diagnostics and treatment of disease, preferably at pre-clinical stage, in order to prevent complications. Facilities of primary medical care, specialized out-patient and hospital facilities implement these activities.

3) Tertiary prophylaxis – prevention of complications and disability or undesirable consequences, rehabilitation of optimal organism after the transmitted disease, stabilization and prevention of deterioration of the disease. Execution of these activities are specialized out-patient and hospital facilities.

4) Medical rehabilitation – measures on maximal possible recovery of organism functions after transmitted disease or trauma and their complications conducted by facilities of primary medical care, specialized out-patient and hospital facilities, special rehabilitation centers, including those on the line with the Ministry of Labor and Social Security.

5) Primary screening, mass health examination – a part of primary and secondary prophylaxis directed towards the detection of diseases and risk group. These activities are undertaken in facilities of primary medical care.

6) Periodical, monitoring medical examination– a part of primary and secondary prophylaxis, directed towards the detection of diseases and risk groups among decreed categories of patients done in facilities of primary medical care.

7) Periodical, monitoring medical examination– a part of primary and secondary prophylaxis, directed towards diseases control. These are conducted in facilities of primary medical care, specialized facilities, mainly dispensaries.

8) Main tasks of primary medical and sanitary care:
   - Primary prophylaxis, primary screening (prophylactic medical examinations)
   - Conduction of secondary prophylaxis,
   - Diagnostics and treatment of most common diseases under typical options of disease course;
   - Common rehabilitation after transmittance of most common diseases;
   - Analysis of morbidity and quality of medical care at served areas.

9) Main tasks of specialized medical care:
   - Supervision of primary level physicians
   - Special types of diagnostics and treatment requiring application of special equipment and/or methods including patient's stay at hospital bed;
   - Diagnostics and treatment of different diseases under various options of disease course;
   - Special types of tertiary prophylaxis and rehabilitation treatment requiring special equipment and/or hospitalization
   - Analysis of morbidity and the quality of medical care at served areas.

6.4 Blood Transfusion System

6.4.1 Structure and Function

In Uzbekistan, Republic Blood Transfusion Station (Rep.BTS) has a role as central blood center. Also in each Oblast and/or city, Blood Transfusion Station (BTS) and Blood Transfusion Unit within public hospital (Oblast, Rayon, and City) are situated.

There are 23 BTS including one Republican BTS and 235 BTU throughout the country. BTU is one of the departments assisted by the hospital. Rep.BTS manages and gives technical support for BTS; BTS do likewise for BTU. In addition, Rep. BTS offers training for the staff of BTS and BTU in various regions.

BTS collects and supplies whole blood, and manufactures various blood component products and plasma fraction products which are supplied to all medical facilities; main target of supply is medical facility with no BTU. BTU collets blood volume required by the hospital, and supplies it to in-hospital departments, as well as manufacturing red cell concentrate and fresh frozen plasma. Many BTSs manufacture plasma fraction products.

In structure, all BTSs and BTUs are under the supervision of Rep. BTS, however in reality, they are fairly independent in its own activities. BTS and BTU are categorized into four types according to their annual volume of collected blood.

Blood donor is restricted to be over 18 years of age, and donation is to be within 400ml (+20ml) in volume, although 200ml is collected from time to time.

Table 6.3 Category by Annual Volume of Collected Blood

Category	Volume (L)	Number of donor (400mL at each donation)
=BTS=		
1	6,000 8,000	15,000 20,000
2	4,000 6,000	10,000 15,000
3	2,000 4,000	5,000 10,000
4	1,200 2,000	3,000 5,000
=BTU=		
1	1,001 1,500	2,500 3,750
2	701 1,000	1,750 2,500
3	501 700	1,250 1,750
4	251 500	625 1,250

6.4.2 Reconstruction of Blood Transfusion System (BTS)

Blood Centers should basically be divided into 4 levels by the function as follows;

Level	Function				
	Collection	Supply (storage)	Testing	Preparation	Look back
1	○	○	○	○	○
2	○	○	X	○	○
3	○	○	X	X	○
4	○	X	X	X	(○)
BTD (BTU)	X	X	X	X	(○)

When the recent blood donated was found out to have any infectious marker(s), the blood previously collected should be checked and the patient(s) transfused followed, if any adverse reaction(s) occurred.

It will be recommended that one Level 1 BC in more than 5 million population be set up. However, at level 1 or 2, blood centers might be established by number of blood donors and distance (transportation time is more important) from the neighboring blood centers, in addition to the above definition. At that time it should be considered that blood testing can be performed overnight in Level 1 BCs and reported the results by Fax or e-mail to the other Level BCs until next morning, and blood samples which are packaged in so small sizes, can easily be sent to Level 1 BCs from far remote BCs by cars, trains or airplanes (fortunately there is the national Uzbekistan airline).

Why blood centers should be consolidated is to supply safer blood in high quality nationwide. The present function of BTUs is very convenient to clinical demand, but the quality of the blood is very questionable, and it would not easily work to level up and sustain the quality of all the BTUs. Moreover, clinical urgency is often apt to neglect the safety of blood. It would be very serious, for example, that although safer blood could be supplied from the blood center, a patient was transfused blood collected and tested inadequately in a BTU in emergency situation, and thereafter developed a complication by the blood transfusion, from which the patient might suffer so long.

Blood transfusion units (BTUs) within medical facilities do not collect blood, but request blood to BCs, store the blood and perform blood typing, unexpected antibody screening of patients and select safer blood for certain specific patients with cross-matching before

transfusion, as well as checking whether any adverse reactions occur in the patients transfused and report them to BCs (hemovigilance).

This reconstruction of the blood transfusion system would be successful, if adequate number of blood donors (3 % of population at least) could be collected by voluntary donations. There are 2 reasons why voluntary blood donation systems should be promoted. One of them is to provide safer blood. It is well known that voluntary blood donors can give safer blood than family and/or relatives as well as paid donors.
The other is to collect more blood. All the persons can become voluntary donors, although family donors or paid donors are very limited as usual. In addition, voluntary donation is reasonable from the standpoint of ethical issues, because blood comes from human body.

6.4.3 Blood Donor and the Number of Blood Collection

At both BTS and BTU, donors are mainly patient's family, acquaintance, and partially blood seller. The number of HIV tests at National AIDS Center can show the trend of blood donors in number for the last 5 years; 275,000 in 1997, decreased by 60,000 to 215,000 in 2002, therefore rate of blood donation is approximately 1%. Blood donation in Uzbekistan is patient-specific; however, it is hard to regard it as pure "Directed donation", because donated blood is accepted anyway, regardless of whether it matches with the patient's blood type or not.
Doctor informs patient's family about the blood volume necessary to be donated (in other words, how many donors are needed if one donates 400ml at a time), as well as communicating with BTU. Blood donors are acquired solely by the patient or his family.
BTS and BTU both accept blood sellers; 1L (volume of two- time donation) was sold at 1,500sum, but it rose to 2,100 sum in 2003. Blood sellers are recorded on the donation slip, and if infectious disease test appears to be positive, nearby BTS and BTU will be informed.
The issue is, whether family blood donation is able to solely support the demand. Blood donation that is heavily dependant on family underlies the potential shortage of blood in this country. Shortage can be presumed by the widely known fact that volume desired for sufficient blood supply should be equivalent to 3% in blood donation rate. Family-dependant mechanism limits sound blood supply system of Uzbekistan.

6.4.4 Frozen Red Cell and Plasma Fraction Products

Rep. BTS stores 5,000 bags of frozen red cells in liquid nitrogen in case of emergency disaster, and several big storages are currently operating. Most BTSs have equipment for manufacturing plasma fraction products, but Rep. BTS still uses 10-year old equipment (manufactured in the Soviet era), and plasma process capacity at a time is very small.

6.4.5 Safety Measure (Test)

Measures for keeping safety in blood are; to give donor a medical examination by interview; to test the collected blood; to strictly supervise the process of manufacturing; to inactivate blood product; and to observe Haemovigilance of patient after blood transfusion. For infectious diseases, tests on HBV, HCV, HIV, STS, and Brucellosis are conducted. HIV is screened with ELISA at BTS or BTU. If the result is positive or suspicious, same test is again given. Then, if the result is still positive or suspicious, it will be sent to AIDS Center for another test. Final result is confirmed by using Western Blot method. However, the reliability of test result is questionable, because quality of test equipment, sensitivity of reagent and skill of technicians give rise to the chance of overlooking the critical data.

Positive rate of each infectious test on blood donors are, for HBs antigen 2-3%, HCV antigen from 11% to 6.8% in 2002, HIV antigen with screening 2-3/1,000samples. As the table below points out, the number of HIV carriers has been rapidly increasing recently, and therefore securing safety in blood has to be taken as a critical issue.

Table 6.4 Recent Trend of HIV Positive Rates among Blood Donors

Year	No. of Tested	Positive No.	Definitive No.	Positive/100,000
1998	261,723	71	2	0.76
1999	247,908	78	0	0
2000	224,345	87	6	2.68
2001	233,517	198	22	9.40
2002	215,287	343	100	46.05

Source: Reported by the AIDS Center in Tashkent city on June 17, 2003
HIV testing result of blood donors as of May in 2003
(positive by ELISA, definitive by Western Blot)

Remark: 1) * Total No. of positive cases: 1140, of which 343 were blood donors.
2) Until November in 2002, the sensitivity of reagents was poor, but specificity good (according to the recent report from the CDC office).
Then, the definitive No. should be correct, which could be the minimum No. of positive cases at least, and pretty No. of undetected cases would exist, so as to develop HIV infection to patients by transfusion.

CHAPTER 7
MEDICAL FACILITIES AND EQUIPMENT

7. MEDICAL FACILITIES AND EQUIPMENT

7.1 General Situation

7.1.1 Access Situation

In the state (Oblast) capitals, Bukhara, Samarqand, Navoi, and Karkarpakstan including Taskent, main roads are maintained properly. SVP covers the area of 2km in radius and most patients visit SVP regularly by walk. Outpatients in Rayon local hospitals use street bus as means of transportation. In the cities of the Oblasts, outpatients use 1) shuttle bus 2) tram 3) subway 4) taxi or private cars.

7.1.2 Condition of Health Facility Building. Oblast, Rayon and SVP

(1) Floor Plan for Oblast and Rayon Hospital Building Complex

SVP facilities are categorized into three types. In each Oblast city, "Policlinic" is located and called No.4 SVP.

Oblast and Rayon hospitals are constructed in "Complex Style", with some buildings on relatively large site. Departments are not located in the same building, but rather scattered on the hospital site. There is no standardized hospital building layout plan, and some layout plans were designed in the former Soviet period and still remain at present time.

(2) Level of Power Supply Stability, Electric Facility, Power Failure and Emergency Power Generator.

The nominal voltage rate at Oblast, Rayon hospitals and each facility is 220 single phase/V/50Hz, and 380 three phase/V/50Hz. When the study team randomly checked the actual voltage in some facilities, most voltage was measured within allowance. But as for the actual voltage value in some facilities where they have AC230V-238V was much higher than nominal voltage value of AC220V. The measured voltage was 10% higher than the nominal voltage and this indicates that the voltage get fluctuated by time zone. Usually, the malfunction occurs in various medical equipment when ±10% of the supply voltage is exceeded. As for the actual voltages in three phase in each hospital, problem was not seen and the measurement value was within allowance (±5%).

SVPs do not have the power station. Power supply is steady though some voltage

fluctuations occur because of excessive electric demand in the region. The power failure was not observed during the investigation at any facilities.

According to the engineers in two hospitals, the power failure occurs once or twice a year due to an accident. These facilities do not have their own electrical power generators as the source for emergency power supply. They have different emergency power supply system for the power failure, which has been available since the former Soviet age.

The power supply system from the Soviet age is shown below:

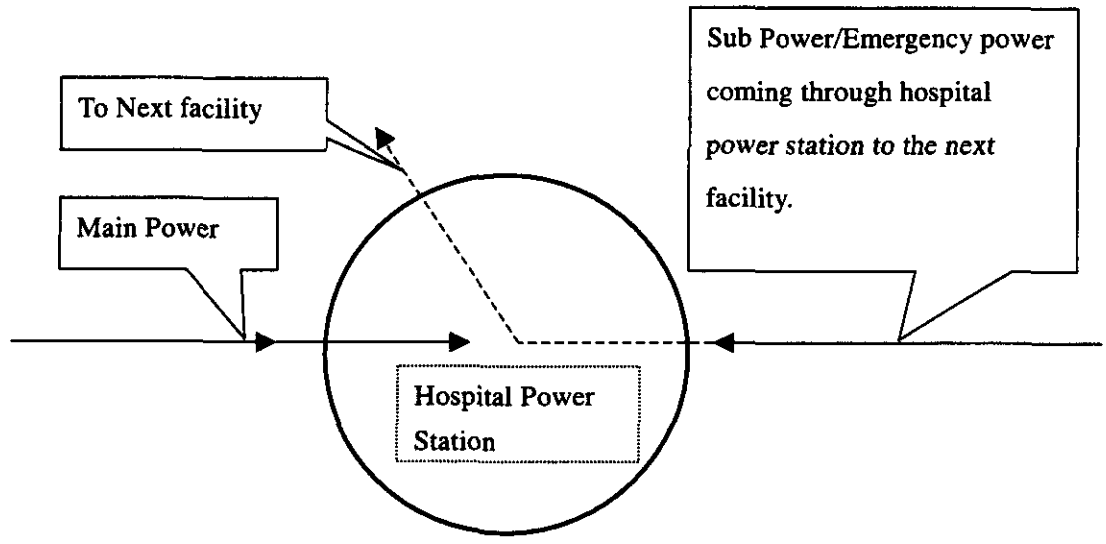


Figure 7.1 Power Supply System

As described above, there are main power supply and sub power supply in hospitals to obtain steady power supply. Normally, the main power supply is in operation, but in case of power failure, an emergency power supply become active.

In Navoi Rayon hospital, peculiar case was observed. Because power supply is insufficient, particularly when the water for agriculture is supplied and huge pump located nearby consumes large volume of electricity, power supply within the hospital is switched to the generator (380 KVA) as a source for emergency power on a regular basis.

(3) Present situation on water supply, sewage and water quality

Several SVPs use piped water, but some do not. Sewage is saved in the dirty water tank in the site and carried to the waste-treatment plant regularly by vacuum car. No SVPs is equipped with sewage system. Rest rooms locate outside.

Some Rayon hospitals have public piped water system. Drain at most facilities are discharged directly to the public sewerage. Each facility in the Oblast hospital has public water supply and sewerage, and there is no shortage of water throughout the year.
The water supply is connected directly with public piped water service as most facilities do not have the receiving water tank. Scientific research center of endocrinology hospital in Tashkent, is the only facility that discharges water to the public sewerage after self-treatment. However, practically there is no equipment for drain disposal, and everything is discharged directly to the public sewerage.

The supply water pressure is 2.5 kg/f or more in most hospital facilities and this figure is enough for using of medical equipment.

There are two types of water, hard and soft, depending on the regions. High density of salinity water near the northern part Aral of sea (Republic of Karkarpakstan) causes damage on the use of the medical equipment. The soil in Nukus province (Republic of Karkarpakstan) contains a large amount of salinity. Owing to this, the water supply and drainage pipe are rusted. Because water is hard in quality, soap can make very little bubble. Tap water in a glass becomes cloudy next day and detailed precipitation can be observed.

(4) Medical gas

There is no central medical gas system at Rayon hospital that we visited. Gas cylinder (oxygen) is set up in operation theatre and ICU. Facilities with central medical gas system are also few at the Oblast level hospitals.
Central medical gas system is seen at the third level hospital, emergency hospital and the gynecological hospital. The supply of gas is oxygen only and it covers the operating room and ICU.

(5) Heating facility

For heating, many buildings use the equipment constructed in the Soviet age. Throughout the country, there are many plants for making boiled water, and it is sent to each hospital through the pipeline.

Most SVPs use gas heating (Individual) in their facilities. Gas heating and Central heating were used for the SVP that we visited.

Most Rayon hospitals use central heating, but some use gas heating. Central heating is used in all facilities at the Oblast hospitals.

(6) Communication

Communication equipment is maintained well and there is no problem at present. At SVP, there is a telephone line for local call but not long distance call. Most Hospitals at Oblast and Rayon levels have only one line long distance call. The local call can be made by the telephone in each department.

(7) Radiation protection

All facilities have walls made of the barium mortar in X-rays room. Radiation protection by this method has generally been used in Uzbekistan up to the present time, and it is approved by radiation protection regulations (GOST) of this country. The lead sheeting is given to the door of the gateway, and the leakage of the radiation to upper and lower floors is protected with concrete. "Radiologist" of the government is responsible for operating the radiation protection regulations, inspecting X-ray facilities twice a year.

(8) Patient transportation equipment

Rayon hospital does not have elevators. The elevator for the patient transportation is set up at the Oblast hospital level.

(9) Hospital waste disposal

The hospital waste is carried by a public garbage collection. Used plastic syringes and the injection needles are collected by special trader of the government. The Study Team observed at 2 hospitals that the waste disposal was done by their own incinerator.

(10) Wastewater and sewage disposal

The medical treatment waste water and sewage are thrown directly into drainage.

7.1.3 Present Situation of Medical Equipment

The delivery of medical equipment to each hospital was started in 1965 during the Soviet age. At that time, quite the same equipment was granted by the central government (MOH) in Moscow for hospitals in each CIS country, and they have been in use since then. Most of the medical equipment was manufactured by the Soviet Union between 1980-1990.

Present situation of medical equipment is as follows.

(1) X-ray Dept

1) Because the X-ray tube and the main body have become superannuated, the sharp photograph (image) cannot be taken. Particularly, X-ray tube has not being replaced since 1986), and amount of X-ray is expected to decline due to deterioration. Most of X-ray machines are in Russia.
2) X-ray machines have become superannuated in most hospitals.
3) Film processor (manual type) is rusted heavily and has become superannuated.
4) Film illuminators have also become superannuated. Most hospitals is using single film viewer.

(2) Laboratory

1) The capacity of distilled water is 4 liter/h, which is insufficient.
2) The instrument such as glass test tubes, test tube racks, and glass pipettes have become superannuated.
3) Half of the microscopes are out of order and impossible to use. Most hospitals use single microscope.
4) Incubator and water bath are necessary. Present model for drying oven and sterilizer have become superannuated.

(3) OB/GY

1) Examination tables (for pregnant woman) have become superannuated
2) Quantity of the instrument medical examination is not enough.
3) Equipment for examination, fetal monitor, Vacuum Extractor, coloposcope are necessary.
4) Sterilizer and suction units have become superannuated.

(4) General Practice, Internal Medicine, Minor Surgery

1) ECG units have become superannuated and the number of equipment is short.
2) Medicine Trolley, vat, cotton case, even small articles for sanitary apparatus are necessary.
3) There is neither a collecting blood stand nor a disinfect washbasin

(5) Emergency

1) Small apparatus, emergency instrument (Trolley, etc) are necessary.
2) Equipment for reanimation set, defibrillator, oxygen musk are also necessary.
3) Patient stretchers and wheel chairs have become superannuated
4) Sterilizers have become superannuated.
5) Disinfect washbasin is necessary.

(6) Ambulance

1) Ambulance is not equipped with defibrillator, oxygen musk reanimation set
2) It is dirty and unsanitary in the car.
3) There is no equipment for (radio) communication between ambulance and emergency center.

7.1.4 Operation and Maintenance

(1) Tibitechnica

Tibtechnika is a Joint Stock Company with Department of Health established in 1996. They are engaged in sales of the medical equipment, installation, operation and maintenance, repair, and the trial operation. They have a contract with Uzbekstan Department of Health. 10-15 engineers are allocated to each Oblast Blanch under the management of the Tashkent office, and repair and maintenance work are done by them in the Oblast hospital and SVP. Tashkent Tibtechnika has 53 engineers. 32 out of 53 engineers have university degree. Remaining 21 engineers are the graduates of medical equipment college at middle level.
The engineers of Tibitechnica completed the education of the maintenance for medical equipment in the foreign country (refer to the attached organization chart of Tibitechnica; see the Appendix Figure 7.1).

(2) Metarologyst

As for the equipment installed in the old Soviet age, the performance inspection was done once a year by the inspector who is called Metarologyst. Metarologyst belongs to Uzbekistan GOST (a similar organization to JIS in Japan). When medical equipment passes the performance test, the stamp is given as approved mark on the main body. GOST inspection is executed in each Oblast regularly.

7.1.5 Mobilization of Ambulance

Tashkent emergency center was established in 1999 and the emergency hospital was set up in each Oblast. Emergency call "03" for ambulance Station was established in the urban and the rural area under the organization. Department of emergency call is 24 -hour standby, and doctor, nurse, and other necessary number of staff will be dispatched to the site bringing necessary equipment.

7.1.6 Local Agent and Domestic Production of Medical Equipment

Local agents and manufacturers of medical products, main products of each company are shown as follows.

Local Agent

No.	Name of Agent	Country of Origin	Equipment
1	Siemens	Germany	X-ray equipment, Ultrasound diagnostic unit, Dental Chair, etc
2	Dina	Germany	Operation, Dental, Surgery, Cardio, Lab, Medical instrument, etc
3	Pribory Oy	USA	Labratory equipment,
4	Fresenius	Germany	Hemodialysis equipment
5	Altonika	Russia	Stress test system, Cardio monitor, ECG, Blood cell counter, etc
6	Philips	Germany	X-ray equipment, Ultrasound diagnostic unit, Dental Chair, etc
	Drager	Germany	Anestethia, ventilator equipment, etc
7	Schiller	Switzerland	Cardio, ICU, Medical care emergency equipment
8	PTO "Medtehnika" Russia	Russia	Medical instrument,
9	Hospitex	Italy	Cardio, ICU, Medical care emergency equipment, Lab equipment, etc

Companies producing medical equipment

No.	Name of Agent	Country of Origin	Equipment
1	Private Product Company "Media"	Uzbekistan	Medical stands, couches, stands for infusion, screens, height-measure, bactericidal X-ray unit, functional beds, tables for instruments etc.
2	Scientific Product Company "Supromed"	Uzbekistan	physiotherapy equipment medical stands, functional beds and etc.
3	Scientific Product enterprise "Tibbiy Asbob Service"	Uzbekistan	Plastic chamber-pot, gynecological mirrors - Kusko, obstetrical stethoscopes, pincers.

7.1.7 Purchase of New Medical Equipment

The budget is allocated for the Oblast Department of Health when each hospital buys new Medical equipment. When it is not possible to buy within the budget of the Oblast Department of Health, the Oblast Department of Health submits the extra budget application letter to Tashkent Department of Health. Medical equipment can be usually bought by the budget of Tashkent Department of Health and Tashkent Department of Health is allocating the Ministry of Finance for a special budget when the budget is short. There are some cases when equipment with high price such as X-ray is purchased by credit or the loan from another country.

7.1.8 Medical Equipment Grant from Donors

SVPs and Rayon Hospitals in 3-oblast described below received medical equipment from the World Bank (Health Care Project 1) in August, 2002.

Medical equipment:	Binocular microscope, refrigerator, centrifuge, instrument cabinet, lab table, ECG/3ch, distiller, vertical sterilizer, and medical examination stand for gynecology
1) Navoi oblast	Kanimekh, Kiziltepa, Navoi, Nurata, Navbakhor, Uchkuduk, Khatirchi, Tamdy
2) Sirdarya oblast	Guliston city, Havast, Mekhnatobod, Mirzaobod, Sirdarya Sh.Rashidov, Ok-Oltyn, Bayavut, Guliston, Saikhunobod,

3) Fergana oblast	Bagdad, Dangara, Besh-Arik, Yazyovon, Olty-Arik, Sukh Buvaida, Rishton, Kuva, Kuvasay, Okhunboboev, Zarafshan, Uch-Kuprik, Fergana, Uzbekistan, Tashlok, Furkat,

The diagnostic Center of Rayon hospital in Navoi locates 4 km from the Rayon hospital. The following medical equipment is installed by the World Bank in August, 2002.

Equipment for diagnosis:	Equipment for ECG/3ch, ultrasound apparatus/B&W, Defibrillator, and ergometer
Laboratory equipment:	Blood cell counter, Binocular microscope, Refrigerator, Draft chamber, Centrifuge, Instrument cabinet, Lab table, and Biochemistry analyzer with printer and Distiller

Granted medical equipment listed above have 2-year guarantee of operation and also necessary consumables are supplied free of charge for 4-5 years.

7.2 Investigation for Next Step

Most medical equipment used in the hospital was installed in the old Soviet age.
The equipment are getting 10-15 years old or more and have become superannuated. Moreover, the hospital composition and system still remain the same as the old Soviet age. It is necessary to examine the hospital system so that the cost is reduced by improving efficiency in running the hospital. Based on this field research, the following items will be again examined and discussed with MOH, to be included in the next investigation.

1) Medical equipment plan
   - Medical equipment necessary to be updated

2) Balance of facilities and Medical equipment grade
   - Quantity of medical equipment in the hospital and the number of patients will be compared in detail and necessary medical equipment will be sought.
   - Level of medical equipment meeting the hospital.
   - Medical equipment for diagnosis and test, necessary for hospital at the present time.

3) Ambulance

- Necessary medical equipment and quantity for ambulance.

4) Operation and maintenance

- Technical problem concerning medical equipment in hospital.
- Improvement of repair and maintenance by hospital engineer
- The amount and kinds of minimum spare parts and consumables desirable to be kept in hospital.

5) Facility plan

- Measures on unstable power supply
- Measures on hard water
- Cleaning and rest room maintenance in hospital.

CHAPTER 8
HUMAN RESOURCES DEVELOPMENT

8. HUMAN RESOURCES DEVELOPMENT

8.1 Introduction

Health care reforms have brought about changes in the health labor market, and concomitant changes in the concept of medical education, educational management, human resource policy and employment. Hence, these changes brought new and ambiguous situations in this sector. Approaches to personnel training, medical education system, and education models are in a flux. The extent, to which these reforms influenced the utilization of health personnel and the social organization of care, as well as the future of medical practice in the country, needs to be examined. These challenges must be studied to give a comprehensive view of human resources and medical education in the country and identify key problems for further planning of reforms stages. This part of the report seeks :

- To study the initial resources and condition of human resources allocation
- To present the situation of medical education system
- To study the structure, financing and management of medical education
- To study the legislative base of medical education reforms.
- To define the positive and negative aspects of reform process.

8.1.1 Methodology

The study utilized interviews, document reviews, direct observations and survey data to examine the situation and prepare the Master Plan. At the time of preparation of this report, survey data was not processed to the extent useful for the report. Specifically, the following documents and references were examined:

1) Legislative and sub-legislative deeds, legislative documents of Cabinet of Ministers.
2) Healthcare Ministry of the Republic of Uzbekistan.
3) Available and received statistical data of RIAC, Department of economics and finance of Healthcare Ministry, Department of human recourses, education facilities and science of Healthcare Ministry, State Statistics Committee of the Republic of Uzbekistan.
4) Reports of international organizations experts.
5) Interviewing of healthcare policy makers, specialists, physicians and teachers.
6) Data of field survey.

8.1.2 Framework and Scope

Human resources development (HRD) refers to the process of education and training, recruitment and deployment of manpower and retention through conditions of work or practice. Human resource development plays a crucial role in the health reform process as the goals of efficiency, effectiveness and equity for the health sector are influenced largely by the way human resources are trained, utilized, motivated, recruited and educated. Human resources issues affect the performance of the health care market being the most essential input to the production of health. However, much of the production of the input itself takes place outside the health sector – in the educational market. The interaction between the educational and health care market as well as the nature of social partnerships among stakeholders, i.e. government, medical personnel, administrators and policy markets is crucial in the efficient and effective operations of both healthcare and educational markets. Box 1 illustrates the nature of interaction between the two markets.

Box 8.1: The Educational and Health Care Markets Interactions

Demand Factors

Education:
-Attractiveness of medical profession
-Monetary costs of medical education
-Financial costs: length of education,
-Economic returns from profession

Health Manpower:
-Health needs
-Needs for administration
-Teaching
-Research

Educational/ Training Market (Medical Education) ⟷ Health Care Market (Deployment and Utilization of Manpower)

Supply Factors

-Availability of school places,
-Other inputs: teachers, materials
-Budget for Education

-Organization of care
-Health care budget

8.2 Health Human Resources in Uzbekistan

8.2.1 Types and Distribution of Health Manpower

There are 3 categories of medical personnel in the health care system of Uzbekistan based on their educational qualifications. There are high level personnel, comprising mainly of

physicians; middle level personnel or those without postgraduate qualifications, and low level personnel who refer to those who have satisfied basic college or technical courses for allied medical support services like low level nursing, laboratory technicians and midwives. These educational qualifications however do not reflect specialization in medical practice.

Physicians

Based on data provided by the Republic Information and Analysis Center (RIAC) for 1999, there was a ratio of 29.9 physicians per 10,000 population. This ratio slightly declined in 2000 to 29.6 per 10,000 population. During the past five years, the number of physicians in the country has been relatively stable. In 1997, there were 73,540 and in 2000 there were 73,389 physicians in the Republic. These figures do not include physicians employed by medical facilities, out of subordinated to the Ministry of Health

The distribution in terms of age indicates whether there is automatic replacement of declining stock of manpower, such that there is a stable relative increase in manpower number from year to year. Between 1999 and 2000 there was a slight decline in the number of physicians with working experience of less than 5 years, from 5.1 to 4.7 per 10,000 population. Figure 8.1 shows a fairly well-distributed profile of physicians by age.

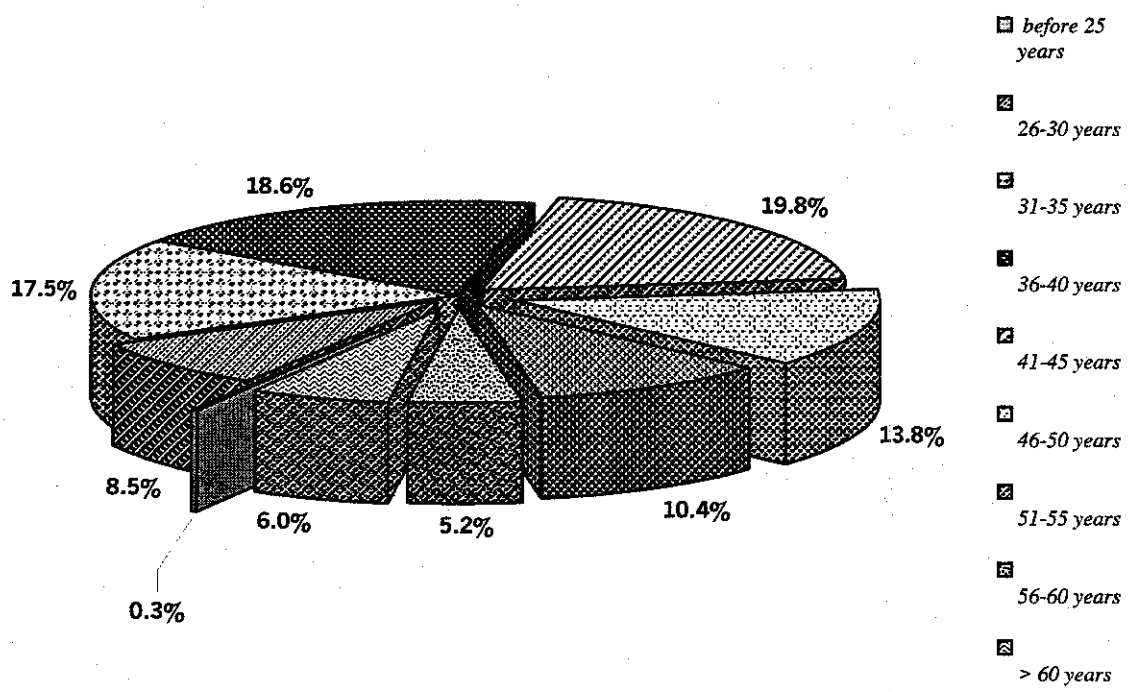


Figure 8.1 Distribution of Doctors by Different Age Group (on the 1 of January 2003)

However, the 0.3% share of physicians under 25 appears relatively thin and may cause some problems in the future, especially as working pensioners already constitute 6% of the workforce.

Middle level Medical Workforce

Middle level medical personnel include medical nurse specialists, feldshers or midwives, pharmacists assistants, and medical technicians. Unlike physicians, which showed a slight decline in numbers, the number of nurse medical staff increased between 1991 and 2001 -- from around 228 thousand to 252 thousand. At present the population coverage rate of nurses is 100.5 for every 10,000 population. Compared to other CIS countries, this coverage rate is high and is similar to the number of middle level medical personnel in some western countries.

There had been no significant change in the ratio of physicians to middle level medical personnel from 1995 to 2002. The rate varied around 1:3.3 to 1:3.5. Based on the National Program for Personnel Training report, there is a perceptible yearly increase in the number of admissions to secondary specialized educational institutions. However, in 2003, there was a limit of 18,000 admissions imposed on secondary vocational educational institutions.

Service Technicians

There is no exact estimate on the number of service technicians as it is usually lumped under the 'others' category of medical personnel. A lot of these technicians are non-profiled specialists and were also informally trained on the job as arrival of a new piece of equipment would merit some staff training from the suppliers of the equipment.

Pharmacists

Since pharmacy work was one of the first to be privatized upon independence, there is no reliable data on the number currently operating. A report from the Tashkent Pharmaceutical Institute indicated that on average, the supply of pharmacists with graduate degree was 27.5 per 100,000. This is way below the currently accepted norm of 46 per 100,000 population. Since pharmaceutical industry development is on full swing, the yearly admission capacity of 40 new entrants into pharmacy school does not appear to be enough to fill the need for pharmacy specialists, particularly industrial pharmacists. There are presently 68 government shareholder enterprises and more than 16 joint-ventures, import

firms and trading houses in Uzbekistan and CIS countries and they comprise a demand of about 12 – 15 percent of specialists with graduate degrees. Table 8.1 shows the distribution of pharmacists with higher education for the drugstore network across the country.

Table 8.1 The Provision of the Pharmacy with Qualified Pharmacist per 100,000 Population

Oblasts	Population as of 1.01.2002	The number of pharmacists with graduate degree	The number of pharmacists for 100,000 of population
Karakalpakistan Republic	1546,1	382	24,7
Andijan	2265,3	590	26,0
Bukhara	1464,3	455	31,0
Djizzak	1012,0	2,9	21,6
Kashkadarya	2274,2	434	19,0
Navoi	797,6	229	28,7
Namangan	1997,8	441	22,0
Samarkand	2769,2	537	19,3
Surhandarya	1817,9	402	22,1
Syrdarya	660,6	291	44,0
Tashkent	2401,4	642	26,7
Fergana	2747,3	599	21,8
Khorezm	1379,9	275	20,0
Tachkent city	2137,7	1471	68,8
Total in republic	25271,3	6967	27,5

Financial Managers

In connection to the per capitation in pilot Oblasts of the Health 1 Project, as well as the assistance of Zdruvplus Project, the preparation of Financial Managers on short-term trainings mainly from the mid-level medical personnel was started. Qualification characteristics of the Financial Manager was described in the Prikaz of the Ministry of Health in the Republic of Uzbekistan №169 March, 16, 1999. A number of problems were identified during the interviews with a range of Chiefs of some medical facilities, teachers and specialists, as well as during familiarization with qualification characteristics: the level of acceptance such a wide range of functional responsibilities and tasks, especially on strategic planning of the facility's activities, tactics, policy and routine procedures in SVPs; and till present there is no unique opinion about the people who have to be educated as Managers, as well as the stage of education, under – or post-graduate. Besides, these specialists are included neither included in the Register of Specialties nor in the Tariffs of the Ministry of Finance. The regulating documents for them are Decrees of the Ministry of

Health, concerning the activities of SVP in pilot Oblasts, as well guidance letters.

8.2.2 Structure of Employment

A preliminary analysis of data and interviews with specialists revealed a number of significant disproportions in the workforce, by territory and age distribution. In cities, there are an observed high number of obstetrician-gynecologists (Ob-Gy) and dermatologists. However, in remote areas and rayons, there is a lack of TB doctors, infectious disease specialists, ambulance physicians, laboratory physicians, radiologists, Ob-gy, anesthesiologists, among others. RIAC data, for example, showed that there was a significant deficit of physicians in Surkhandarya during the past 10 year period (1992-2001). Personnel staffing constituted 64% in 1992 and in 2001, the percentage slightly improved to 80% of over-all oblast need. The trend is mirrored in other Oblasts. The deficit of personnel indicates that overtime and multi-tasking is common among staff. However, personnel numbers may have declined in general because of reduction in facilities, especially hospital units and beds.

8.2.3 Policy Issues

The wide-ranging health care reforms began in 1998 has brought about major changes that have prompted radical restructuring of the organization of care in the country -- the strengthening of the primary health care structure in the country. It has a huge impact on human resource development (HRD), but unfortunately, HRD has not kept pace with the reforms, especially in terms of labor market policies, the determination of manpower requirements, deployment policies and the interaction between units of health care, health needs and educational needs.

The immediate effect of these reforms have been the massive undertaking of GP (General Practitioner) training and developing a new field of educational specialization, family medicine or general practice. The last two years saw a surplus in the number of GP doctors graduating from medical institutions, which do not have primary post-graduate specialization. At best, they are employable only in ambulatory polyclinic facilities. Oblasts interviews conducted for this study showed that administrators were still worried by the deficit of specialist personnel in outpatient facilities, such as ob-gy, gastroenterologists, teen-age physicians, district pediatricians, otolaringologists, and

cardiologists. However, these specializations are the same areas in which GPs can be trained on more intensively than at present. The absence of primary post-graduate specialization has led to a lack of practical experience among graduates. Moreover, the different levels of skills and the absence of approved qualification requirements and health care standards make it impossible to define the range of medical services needed for human resource requirements estimation.

Current manpower deficits and facility reduction, have led to re-training and re-education for many. For example the lack of anesthesiologists in the Republic of Karakalpakstan led to 20 doctors being trained for 3 months at TIPME in the fields of anesthesiology, ICU and emergency care. Secondary post-graduate education (or Clinical Ordinaturas, the 5th level of the International Standards for Classification of Education (ISCED) of UNESCO) at Republican Scientific Centers appears appropriate for this need. However, the number being sent for study is not enough for the need of specialists in the future.

Other Issues:

1) The abolition of regional enrolment quota restricted access to education of children from the rural areas;
2) Compensation for medical personnel. The Ministry of Economy data showed that medical personnel are among the lowest-paid workers in the labor market, this despite having the highest costs of education. It was reported that during the past 10 years, some 30,000 health care workers, including 7,000 physicians, changed jobs. Some 3,000 physicians and 7,000 nurses moved to the private sector; many left the health care sector for jobs elsewhere; and a substantial number moved to other countries. Since education has been publicly provided, the loss of personnel is an investment loss for the country. Clearly, there is a need for wage adjustments in the sector to retain the best and attract the brightest for the nation's population's health.
3) Education and labor Ministries' data revealed that 50% of medical personnel do not work on received specialty. This waste of resources can be attributed to the lack of close coordination between the producers (educators) and the main beneficiaries (healthcare departments) and employers. No actual social partnership exists because there is no appropriate regulatory framework, which contains a state workforce policy and strategy for the formation, development and rational use of human resources. There is a need to define the criteria for selection, evaluation

and rotation of the workforce, training and re-training programs, raising staff qualifications and maximization of workforce potentials.

8.3 The System of Medical Education and Training

8.3.1 The Structure of Medical Education

Figure 8.2 presents the structure of undergraduate and postgraduate medical education, set against international standards contained in the ISCED of UNESCO. There has been an observed decline in admissions of enrollees to higher education institutions (HEI). However, as new HEI and their branches were established, there was an observed increase in the number of students recently. At present, there are 7 medical HEI, 3 regional branches of medical HEI and one institute for postgraduate medical education. There are also faculties of advanced professional re-training in Samarkhand and Andijon medical institutes. There is an independent Pediatrician Medical Institute in Tashkent. Every regional HEI has curative, medical-pedagogical, pediatrics, stomatological, pharmaceutical and sanitary and hygiene faculties. Four (4) HEIs have internal disease departments. All these departments implement specialists training. There is an examination or attestation that has to be passed on four subject areas before admission to HEI is offered. The number of admission places in these faculties is controlled.

The situation of the over-all educational structure in the country is shown in Figure 8.3.

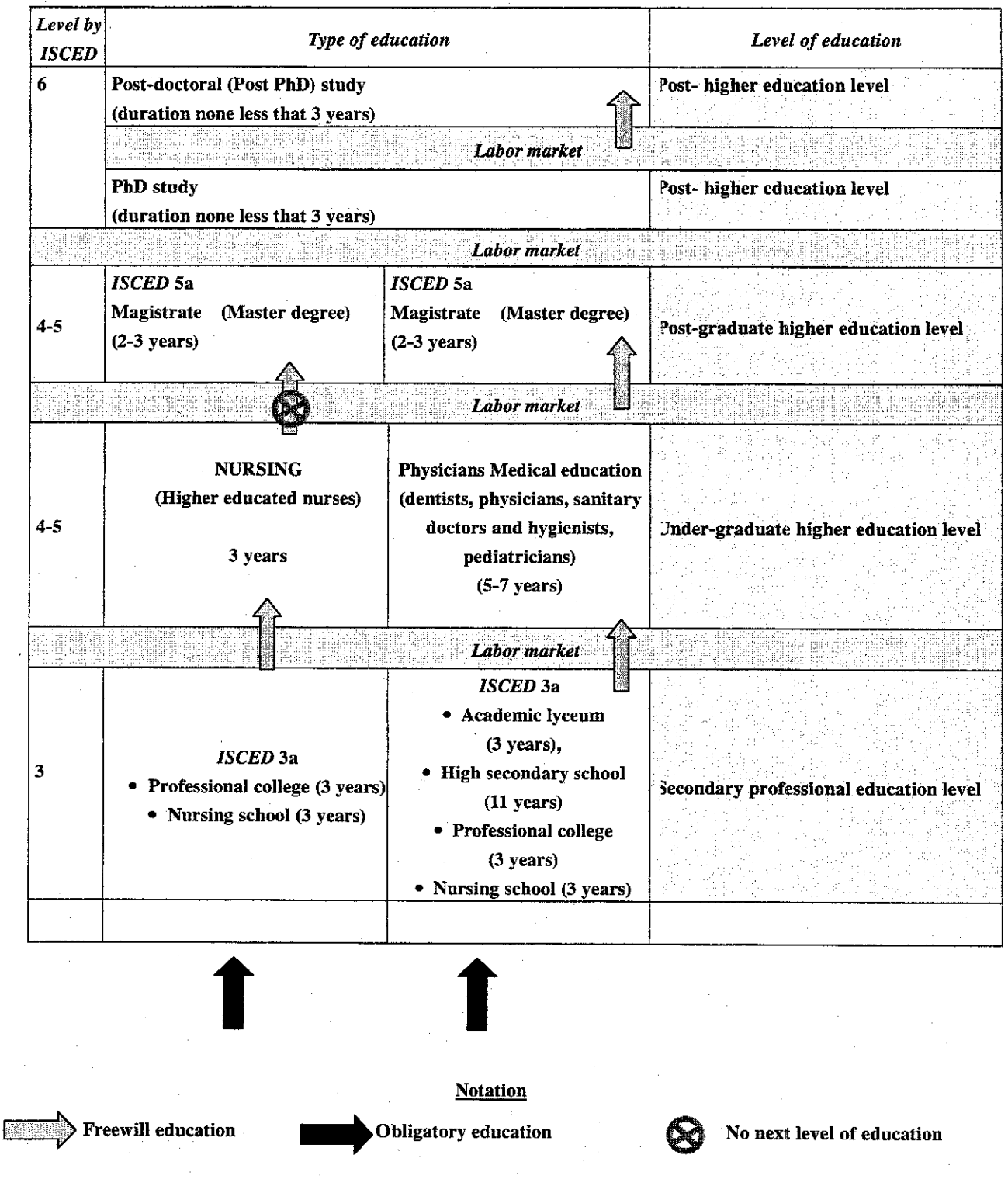


Figure 8.2 Structure of Under-Graduate and Post-Graduate Medical Education

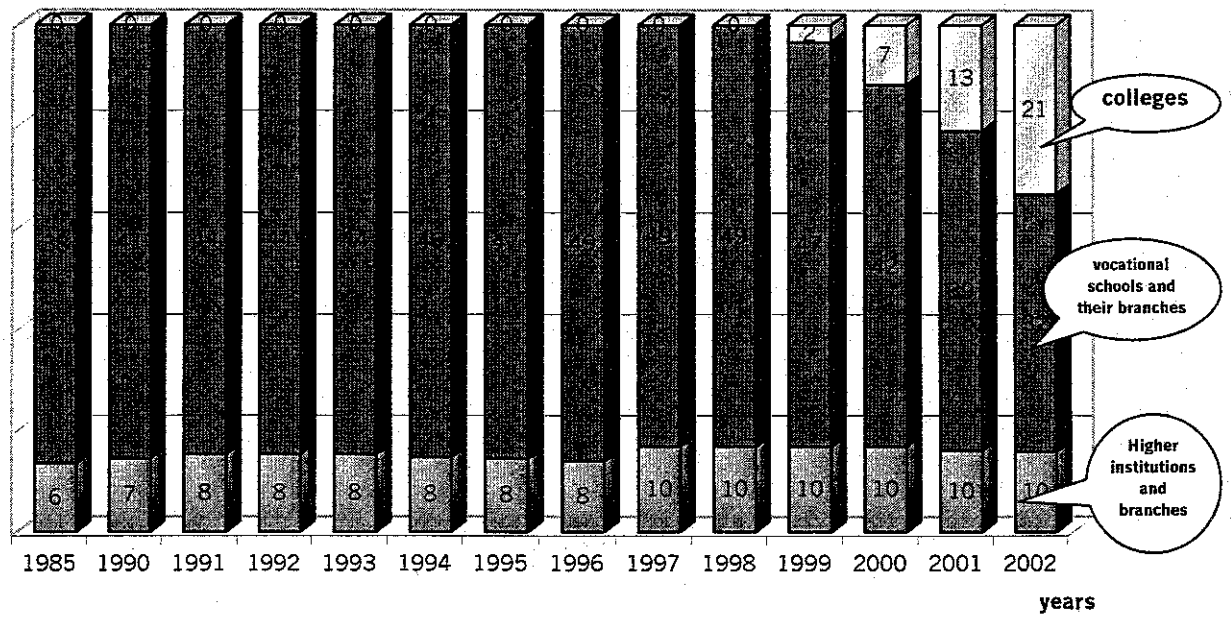


Figure 8.3 Distribution of Educational Medical Facilities, 1985, 1990-2002

From the diagram, it is shown that higher education institutions and branches have remained the same since 1997. Vocational schools and their branches are declining, and compensated for by the increase in the number of colleges.

(1) Doctor Training

The training of physicians or doctors is conducted in 7 HEIs and its 3 branches, as well as in the Tashkent Institute of Post-graduate Medical Education. The faculties under these HEIs are outlined below.

1) Tashkent State Medical Institute #1 (faculties – curative, medical and pedagogical, stomatological, medical nurses with higher education, faculty of raising the level of lecturer's skills);
2) Tashkent State Medical Institute #2 (faculties – curative, medical and pedagogical, medical preventive, medical nurses with higher education);
3) Tashkent Pediatric Medical Institute (faculties – pediatric, medical and pedagogical, medical nurses with higher education);
4) Tashkent Pharmaceutical Institute (faculties – pharmaceutical, bio-technological, agro-ecological, pharmacy-pedagogical, industrial pharmacy);
5) Samarkand Medical Institute (faculties – curative, pediatric, medical and pedagogical, medical nurses with higher education, skills improvement faculty);
6) Bukhara Medical Institute (faculties – curative and stomatological, 2 departments – medical and pedagogical as well as for nurses with higher education);
7) Andijan Medical Institute (faculties – curative, pediatric, skills improvement

faculty and the department for nurses with higher education);

8) Fergana Branch of Tashkent State Medical Institute-2 (medical and pedagogical faculty);
9) Nukus Branch of Tashkent Pediatric Medical Institute (pediatric faculty);
10) Urgench Branch of Tashkent State Medical Institute-1 (curative)
11) Tashkent Institute of Post-graduate Medical Education (faculties – therapeutic, pediatric, surgical, medical and preventive)

There are 2 stages in physician training: the Bachelor's degree, ranging from 5 (stomatology) to 7 years; and the masters' or magistrate training, for 2-3 years depending on the profile of the Department. Residency takes place at Clinical ordinatura levels, where admission is based on having 3 years or more training in medical facilities.

1) Issues on Doctors' Training

The current two-stage training scheme has its problems. The current graduate education is 7 years, for all specialties except stomatology. However, this does not correspond to international standards, where undergraduate training is 4-5 years, after which a Bachelor's degree is given. Thereafter, 2-5 years postgraduate training takes place. Students in Russia receive basic medical education for 4 years, proceed to specialization on the 5-6th years and complete the program with internship. There is no Bachelor's diploma given after the basic medical education phase. The current system in Uzbekistan is 7 years for a Bachelor's/ doctor's degree. This is not cost-effective at all. After 7 years, they cannot do independent practical work because of the abolition of primary specialty, a component of professional education offered at the next level beyond bachelors by higher medical institutes/ institutes of internship and residency. This phase is critical as it is where doctors are trained under the leadership of an independent tutor for independent work upon completion of basic medical education and includes pre-license training, specialization or sub-specialization and other formal educational programs. After 7-years training, there is no real infrastructure for job placement. It has been instituted in a Cabinet of Ministers' order that the graduates of the 7-year program receive diplomas of GP.

In order to resolve the problem of human resources deficiency in the regions, Ministry of Health took a decision to introduce several changes into the system of pre-diploma training and medical resources allocation from the beginning of the school year, i.e.: to introduce separate programs on 3 referrals: obstetrics and gynecology (25% of

students), surgery (25% of students), general physician practice (50% of students) starting from the 6th course. At the same time the criteria will be the initial place of student's residence (for surgery and obstetrics and gynecology will admit mainly students from the regions of the Republic), availability of contract on employment after completion of education concluded with Oblast healthcare departments as well as the progress and rating at previous courses. However, such innovation should not be considered as an introduction of the institute of primary specialty.

Unfortunately, the desire to support human resources problem and to introduce new educational concept as soon as possible without considering all the above listed stages of governmental human resource policy formation can lead to discredit the idea in general due to incompletion of realization and implementation control mechanisms. The introduction of educational programs revised and prepared by higher education institutions for 6th course students training on the above referrals can be brought as an example. In the concept, designed by the Council of Rectors, it mentions the introduction of residency/internship institute at 6-7 course and it intends the stage of education, as it was stated before, where the doctors are working under the leadership of a tutor and are preparing for an independent work after completion of their basic medical education, including per-license training, training on specialty and sub-specialty, as well as other formalized educational programs on adjacent specialties. However, a comparison of old educational programs with new ones showed, that actually there was re-allocation of hours for students, being trained on different profiles without a thoroughly prepared system of tutorship, and restructuring of educational system in general. The example can be anew developed program for 6th course students on therapeutic block, which repeats significantly subjects being studied at previous courses. Work plan analysis shows not a rather irrational approach towards the study time usage as well as periodical reiteration in the study of disciplines, for instance, radio-diagnostics was studied at curative faculty by students at 4th course, and it is again included in the 6th course program, "infectious diseases" block is separated into 2 to be studied at 5th and 6th courses. Such examples sufficiently exist.

Besides, it would be noted, that subjects of humanity and socio-economical block take 12.64% of study time at primary courses, which is a significant scope of the whole study time. Study of educational plans and programs on the above subjects showed, that there is a necessity of revising the programs of this block to optimize education

and make more rational approach of study time utilization.

The criteria of education efficiency, stated by T. Parson and N. Storer, are professional responsibility for multiplying knowledge, where the activity of a lecturer of higher educational institution combines the functions of training and research, while this process should involve the trainees as co-researchers. It is necessary to note, that higher educational medical institutions added this principle to their armoury, which should be positively mirrored on further results of work and training. In order to support this process, it is necessary to make closer contacts with other educational and scientific centers as inside of the Republic, so abroad, which will empower to enrich the educational system in general.

(2) Middle-level Personnel Training

According to the National Educational Standards approved in the Republic, colleges and vocational schools educate on 11 specialties, which are considered for lower-level medical personnel. At present, there are 53 secondary-vocational educational institutions (SVEI). Enrolment in the SVEIs has increased sharply in the last two years, possibly due to the opening of medical colleges, as shown in figure 8.3 (above). In accordance with the national program on personnel training, secondary-vocational education is compulsory, and 90% of graduates of the 9^{th} level continue their study in the colleges, acquire profession and finish secondary education. The perceptible increase in the number of enrollees can also be explained by the free education extended until the 11^{th} grade, thereafter, education is on pay-basis.

The growth in enrolment figures for secondary vocational educational and higher educational institutes is shown in Figure 8.4.

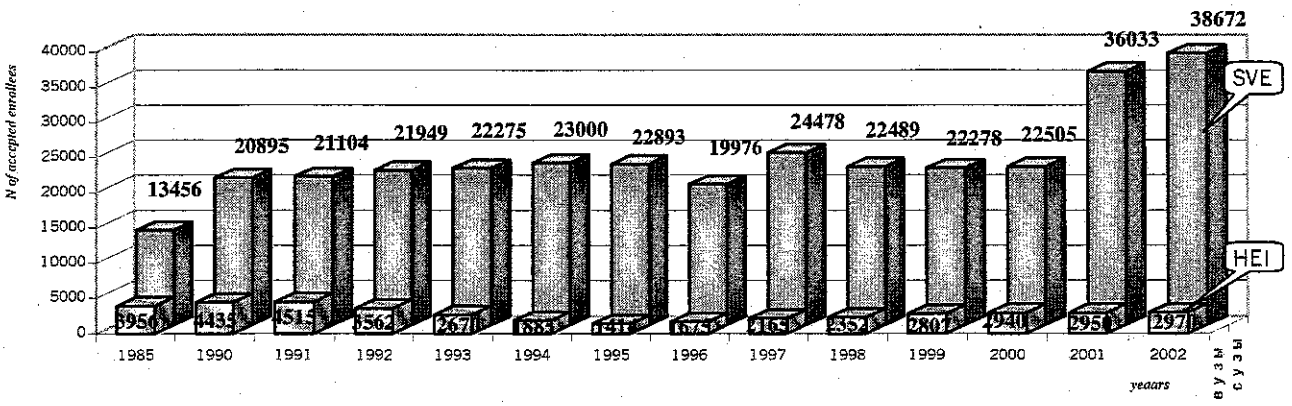


Figure 8.4 Change of Entrants' Acception Number to SVEI and HEI in 10 Years

Middle medical personnel training today is undertaken in 2 stages. The first stage corresponds to the 3rd to 4th level of education according to the ISCED. It is the provision of training on the basis of professional schools, colleges and technical secondary schools. There is no entrance examination for entry into this level as it is compulsory. The second stage requires entrance tests for admission. Medical colleges and professional schools enjoy wide popularity, and annual competition on different specialties is from 1.5 to 4 people per place. Internal tests are prepared by teachers of professional schools and colleges themselves. The 3-year study is taken up by 1 to 1.5 years general education subjects for the completion of general secondary education. The next 1.5 years are for students of secondary specialized institutions for undergoing preparation on specialty. Experts are of the opinion that this period of specialization is relatively short. For example, the training program for nurses in medical colleges is comprised by 1,958 hours out of the total 4,463 hours marked out for the whole college period. The second part, comprising 641 hours, is the introduction of specialty, which covers general medical sections as well as new education subjects, such as "Skills of relationships with Patients", and "Healthy Lifestyle," public health, etc. Specialty-related sector includes clinical sections and covers 432 hours.

Since 1999, part of the health reform initiatives was the opening of nursing training at higher education levels in the HEIs. It is the second stage of middle-medical personnel training. The first graduates were in 2002 where 120 nurses received bachelor degrees. Under Decree No. 300 of the MOH, dated June 26, 2002, special working places were created for these nurses. There are several aspects of this nursing education that appear to be repetition of earlier programs taken earlier at the college.