

**PART II**  
**RESULTS OF BASIC STUDY**

## **Part II. Result of Basic Study**

### **Chapter 4 Provision of Health Care Services**

#### **4-1 Introduction**

It is the first step to grasp the gap between supply and demand of health care services in considering their improvement. This chapter introduces the actual situation on the supply side of the services in Navoi Oblast. Analysis of health services has both quantitative and qualitative aspects, and this report describes the former. The preparatory study pointed out the supply-demand gap, so it is necessary to analyze this in detail.

The allocation of health facilities, referral system, allocation of health personnel, current condition of facilities and equipment, major diseases and referred patients are assessed. The information was collected through the health facility survey.

Since hospital management, covered by another survey, is to provide the health care services, it is also analyzed in this report. Indicators representing functionality and profitability such as bed occupancy rate, average length of stay, number of patients per doctor and/or nurse, income and expenditure, ratio of income by user fee, percentage of fixed and variable cost, average expenditure per patient, etc. are utilized for analysis. In addition, the report also mentions the components of the system for hospital management like the organizational structure for the provision of services, progress on the introduction of a user fee scheme, procurement of pharmaceuticals and consumables, maintenance of facilities and medical equipment, information management, etc.

#### **4-2 Methods**

Information and data were collected by the surveys of health facilities and hospital management, being composed of three components: (1) collection of information from Navoi Oblast Health Administration (NOHA), (2) use of two separate questionnaires to hospitals/oblast dispensaries/oblast centers and primary health care (PHC) facilities, and (3) interview and observation of hospitals/oblast dispensaries/oblast centers.

##### **4-2-1 Collection of Information from NOHA**

Whenever necessary, the Study Team requested information for the Basic Study to NOHA. The information collected includes indicators on health status, disease patterns, socioeconomic characteristics, number and geographical allocation of health facilities, annual budgets to be allocated to facilities and form of statistics that the facilities submit regularly.

#### 4-2-2 Questionnaire to Hospitals/Dispensaries/Centers

Draft questionnaires prepared by the Study Team in charge of hospital management were finalized through discussion with local experts and a counterpart of NOHA, after partial revision on the training of staff.

Prior to the start of Field Mission 1, the Study Team planned to distribute questionnaires to 29 facilities. However, based on discussion with a counterpart and the list of attendants of monthly Directors' Meetings in NOHA, 31 hospitals/dispensaries/centers were specified to receive the questionnaires, including 4 hospitals not under the Ministry of Health, namely 3 Navoi mining and metallurgy complex (NGMK) hospitals and Navoiazot Hospital.

Questionnaires were distributed on the occasion of the monthly Director's Meeting on 3 February, 2007. A total of 28 hospitals/dispensaries/centers replied to the questionnaires at the end of Field Mission 1.

#### 4-2-3 Questionnaire to PHC Facilities

Currently there are 135 SVPs and 106 FAPs in Navoi Oblast. It was confirmed that all SVPs in the oblast have been covered by the Health-1 and Health-2 Project with the assistance of the World Bank and that existing FAPs are branches of SVPs. Considering the total schedule of Field Mission 1, the interview with PHC facilities was determined to cover 100-120 SVPs within two weeks of late February 2007.

The questionnaire drafted by the Japanese consultant was finalized through the discussion with local experts, especially concerning the category and way of counting staff, questions on how to collect disease statistics and medical equipment.

The Study Team recruited the enumerators from the graduates of Navoi Medical College. The Team gave them training for two days and sent them to all eight rayons in the oblast. Its local expert supervised the field survey including additional on-the-job training and data entry. As a result, a total of 112 PHC facilities were visited from 20 February to 1 March, 2007.

#### 4-2-4 Interview and Observation of Hospitals/Dispensaries/Centers

As a consequence of discussion with a counterpart based on the list of health facilities in Navoi Oblast, 6 oblast hospitals including the Emergency Center, 6 oblast dispensaries, 5 oblast centers, the Oblast Sanitary Epidemiology Center and the Health Institute were specified as major health facilities to be interviewed in Navoi City. It was also found that polyclinics play the role of the outpatient department in the hospitals and dispensaries, and that TB clinics are a part of hospitals outside Navoi City. Therefore, the information on these facilities was covered by the survey for the hospitals.

A total of 28 hospitals/oblast dispensaries/oblast centers, including the NGMK Hospital of Zarafshan, were visited by the Japanese consultants of the Team to collect non-numerical information concerning hospital management and observe the current situation of facilities and medical equipment.

The consultants in charge of hospital management and equipment planning also interviewed “Medservice,” a company that handles the maintenance of medical equipment, and “Medteknika,” a company that procures consumables and spare parts.

#### 4-2-5 Data Analysis

Numerical data collected through the surveys were analyzed mainly by Microsoft Excel to simplify the process of analysis. The input of handwritten data with no electronic data in the PC was completed during Field Mission 1. Non-numerical information through the interview also complemented the analysis.

#### 4-3 Findings

##### 4-3-1 Health Care Facilities in Navoi Oblast

###### (1) Secondary/Tertiary Care

In Navoi Oblast, facilities for secondary and tertiary care are classified into the following three categories: hospitals, oblast dispensaries and oblast centers. Their allocation by rayon and city is shown in Table 4-1.

**Table 4-1: Allocation of Health Facilities for Secondary/Tertiary Care in Navoi Oblast**

Rayon/City	Oblast Hospital	Oblast Dispensary	Oblast Center	Rayon Central Hospital (RCH)	Major Non-MoH Hospital
Navoi City	Emergency Center <sup>1</sup>	TB	AIDS Center		NGMK-Navoi
	Pediatric <sup>1</sup>	Cancer	Screening Center		Navoiazot
	Pediatric Infectious Diseases	Neuropsychiatry	Adolescent Center		
	Maternal	Endocrinology	Blood Transfusion Station		
Karmana		Narcology	Forensic Medicine Bureau		
	Eye <sup>1</sup>	Dermatology/STI		RCH <sup>1</sup>	
	Special Medical Prophylactic				
Kiziltepa				RCH <sup>1</sup>	
Khatirchi				RCH <sup>1</sup>	
Nurata				RCH <sup>1</sup>	
Navbakhor				RCH <sup>1</sup>	
Kanimekh				RCH <sup>1</sup>	
Uchkuduk				RCH <sup>1</sup>	NGMK-Uchkuduk
Tomdi				RCH <sup>1</sup>	
Zarafshan City			Rehabilitation Center		NGMK-Zarafshan
<b>TOTAL</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>8</b>	<b>4</b>

Note: 1. Polyclinic available

Source: NOHA

i) Hospital

Hospital provides only inpatients care for one or more categories of diseases. Some polyclinics are located within the premises of the hospitals and play the role of an outpatient department, but they are defined as separate facilities. The Navoi Branch of the Republican Emergency Center (Emergency Center) is also categorized as a hospital. Hospital is divided into two groups in the oblast: rayon central hospitals (RCH), secondary care providers; and oblast hospitals for tertiary care.

a. Rayon Central Hospital (RCH)

There are eight rayons in Navoi Oblast, and each has an RCH with at least one polyclinic. They are located at the center of the rayons, and many RCHs and polyclinics are on the same premises. They commonly have departments of internal medicine, surgery, pediatrics, OBGYN and infectious diseases (Table 4-2), and some of them receive TB inpatients. . However, Uchkuduk does not have any operating theaters and there are no surgeons exclusively working for Tomdi. Regarding other specialties, Karmana is the only RCH to have a neurosurgeon, an orthopedist and a hematologist. Therefore, it also receives referred patients for neurosurgery even from Navoi City.

They also provide blood transfusion services, radiology diagnosis (mainly general X-ray, fluoroscopy and abdominal ultrasonography), physiology tests (ECG) and laboratories.

**Table 4-2: Services Provided by RCHs in Navoi Oblast**

Name of RCHs	Clinical Departments													Laboratory				
	Policlinic	Internal Medicine	Surgery	Pediatrics	OBGYN	Infectious Diseases	TB	Others	24-hour Emergency Services	ICU	Blood Transfusion	Paid Services	Radiology Diagnosis	Endoscopy	Physiology Test	Clinical	Microbiology	Histopathology
Karmana	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	
Nurata	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x
Navbakhor	x	x	x	x	x	x			x	x	x	x	x	x	x	x		
Khatirchi	x	x	x	x	x	x		x	x	x	x		x	x	x	x		
Kiziltepa	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Kanimekh	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		
Tomdi	x	x	x	x	x	x	x		x	x	x		x		x	x		
Uchkuduk	x	x		x	x	x	x				x	x			x	x		

Source: Answers to questionnaires and Interviews of the Study Team

The performance of RCHs is presented in Table 4-3. The average number of beds per 1,000 people was 3.8 in 2006. In densely-populated rayons like Khatirchi, beds are comparatively fewer.

The number of inpatients for all RCHs is 123.9 per 1,000 people. Especially at Nurata and Tomdi, fewer patients came. There are a total of 6 SUBs (Rural Community Hospitals) in the two rayons, so most people frequently utilize them. On the other hand, Karmana RCH receives more patients even from other rayons/cities since it has unique departments such as neurosurgery, traumatology and hematology.

0.45 deaths per 1,000 people occurred at eight RCHs in 2006. Such low rates reflect deaths that mainly occurred at home. The rates are a little higher at Karmana, Kanimekh and Uchkuduk. Karmana RCH sometimes cares for referred patients with severe conditions, while the high death rates in Kanimekh and Uchkuduk is attributable to the tough living conditions.

**Table 4-3: Selected Indicators on Performance by RCH in Navoi Oblast in 2006**

Name of RCHs	No. of Beds <sup>1</sup>	No. of Beds (/ 1,000 pop)	No. of Inpatients	No. of Inpatients (/ 1,000 pop)	No. of deaths	No. of deaths (/ 1,000 pop)	Bed Occupancy Ratio (%)	Bed Occupancy Ratio (days <sup>2</sup> )	Average Length of Stay (days)	No. of Surgery	No. of Surgery (/1,000 pop)	No. of Delivery	No. of Delivery (/ 1,000 women in reproductive age)	No. of Cesarean Section	No. of Cesarean Section (/ 1,000 women in reproductive age)
Karmana	322	3.4	15,647	162.8	59	0.61	101.9	336.2	7.0	2,520	26.2	1,709	64.7	110	4.2
Nurata	326	4.3	6,225	81.7	33	0.43	94.6	312.1	10.5	1,050	13.8	1,600	76.4	74	3.5
Navbakhor	285	3.5	11,261	136.7	30	0.36	96.8	319.6	8.2	723	8.8	1,571	69.3	73	3.2
Khatirchi	460	3.0	18,156	118.8	49	0.32	95.2	314.1	7.2	2,990	19.6	3,002	71.4	129	3.1
Kiziltepa	465	4.1	15,100	133.5	51	0.45	102.6	338.7	9.4	2,234	19.8	2,180	70.1	142	4.6
Kanimekh	220	5.6	4,741	120.9	25	0.64	98.5	325.0	11.1	542	13.8	675	62.6	10	0.9
Tomdi	130	5.4	1,755	72.8	11	0.46	75.9	250.4	11.8	110	4.6	292	44.1	13	2.0
Uchkuduk <sup>3</sup>	100	4.0	2,584	103.4	16	0.64	86.7	286.1	10.9	0	0.0	325	47.3	0	0.0
<b>All RCHs</b>	<b>2,308</b>	<b>3.8</b>	<b>75,469</b>	<b>123.9</b>	<b>274</b>	<b>0.45</b>	<b>94.0</b>	<b>310.3</b>	<b>9.5</b>	<b>10,169</b>	<b>16.7</b>	<b>11,354</b>	<b>67.8</b>	<b>551</b>	<b>3.291</b>

Notes: 1. Number of beds includes those of SUBs in its rayon.

2. Bed occupancy ratio (BOR) as a percentage is the Japanese way of calculating, while bed occupancy as the number of days is the Uzbek way. By dividing Uzbek BOR by 330, it can be converted into Japanese BOR.

3. The population at Uchkuduk excludes 12,000 people covered by NGMK Hospital.

Source: Answers to questionnaires and Interviews of the Study Team

Definition of the bed occupancy ratio (BOR) in Uzbekistan is different from the Japanese one. Uzbek BOR denotes the number of days that one bed is occupied in a year. 330 days means full annual utilization since the remaining 35 days are used for repair and disinfection. On the other hand, Japanese BOR is defined as the daily average number of inpatients divided by the number of beds. Therefore, its unit is a percentage figure. Supposing 330 days equals 100%, Uzbek BOR can be converted into Japanese BOR with the actual Uzbek BOR divided by 330.

The BOR exceeds 280.5 days or 85% at all RCHs except Tomdi (250.4 days or 75.9%), and Karmana and Kiziltepa are over 330 days or 100%. Average lengths of stay (ALOS) are longer at Tomdi (11.8 days), Kanimekh (11.1), Uchkuduk (10.9) and Nurata (10.5). High BORs partly reflect departments that operate with minimal charges involved. People tend to seek a discharge because they are forced to pay after transfer from the emergency department to others. Therefore,

Karmana RCH, which has a fully-operational paid department, has over 330 days (100%) of BOR and low ALOS. The high ALOS of Tomdi and Uchkuduk stems from their having TB departments where patients stay more than 50 days.

As for the performance of surgery, Tomdi and Uchkuduk rank very low because of the absence of surgeons at Tomdi and no operating theaters at Uchkuduk. At Navbakhor, the lack of surgeons and surgical equipment results in low numbers of operations.

The birthrate is low in Tomdi and Uchkuduk. People in these rayons have to endure severe living condition with low nutritional status, and frequently use contraceptives. It is also believed that many people having to temporarily work in Kazakhstan adds to the low birthrate.

b. Oblast Hospital

There are six oblast hospitals in the Oblast: the Emergency Center, Pediatric Hospital, Eye Hospital, Pediatric Infectious Diseases Hospital, Maternal Hospital and Special Medical Prophylactic Hospital.

The services provided by these oblast hospitals are listed in Table 4-4. The Emergency Center, Pediatric Hospital and Eye Hospital have the polyclinics within their premises. Since there is no General Hospital in Navoi Oblast, the Emergency Center and Oblast Pediatric Hospital jointly play its role. The Pediatric Hospital receives patients aged under 15 years, while the Emergency Center serves other ages with the use of 30% of its functions. Other hospitals specialize in a single category of clinical department. The Pediatric Infectious Diseases Hospital provides services to adult patients as well. The Special Medical Prophylactic Hospital is for the long-term care of alcohol and narcotics abusers.

**Table 4-4: Services Provided by Oblast Hospitals in Navoi Oblast**

Name of Hospitals	Clinical Departments														Laboratory								
	Polyclinic	Internal Medicine	Surgery	OBGYN	Infectious Diseases	Cardiology	Neurology	Ophthalmology	ENT	Urology	Orthopedics/Traumatology	Others	24-hour Emergency Service	ICU	Blood Transfusion	Paid Services	Radiology Diagnosis	Endoscopy	Physiology Test	Clinical	Microbacteriology	Histopathology	Hemodialysis
Emergency Center	x	x	x	x		x	x			x	x	x	x	x	x		x	x	x	x		x	x
Pediatric	x	x	x			x	x		x	x	x	x	x	x			x	x	x	x			
Maternal				x									x	x	x	x	x	x	x		x	x	
Eye	x						x						x			x							
Pediatric Infectious Diseases					x								x				x	x	x	x			
Special Medical Prophylactic											x	x								x			

Source: Answers to questionnaires and Interviews of the Study Team

Table 4-5 shows the performance of Oblast Hospitals. It is easy to see that the numbers of beds are lower than RCHs. Many death cases at the Emergency Center and Pediatric Hospital partially reflect the case that they play the role in tertiary care of receiving difficult cases. BORs are over 330 days or 100% at the Emergency Center, Pediatric Hospital and Special Medical Prophylactic

Hospital. Average lengths of stay are 5-8 days except the Special Medical Prophylactic Hospital (99 days).

**Table 4-5: Selected Indicators on Performance by Oblast Hospital in Navoi Oblast in 2006**

Name of Hospitals	No. of Beds	No. of Inpatients	No. of deaths	Bed Occupancy Ratio (%)	Bed Occupancy Ratio (days)	Average Length of Stay (days)	No. of Delivery	No. of Cesarean Section	No. of Surgery	X-ray Diagnosis	Echography	Gastrofiberscopy	Erythrocyte Tests	Leukocyte Tests	Glucose Tests	Glaucoma Tests
Emergency Center	200	11,832	133	103.8	342.6	5.4	-	-	4,025	28,131	25,628	2,732	26,091	1,905	5,583	-
Pediatric	125	5,736	35	109.5	361.2	7.6	-	-	1,479	2,581	3,829	1,116	11,023	11,408	134	-
Maternal	150	6,354	1	92.4	305.0	7.0	2,464	272	1,870	185	11,108	34	12,000	12,000	817	-
Eye	40	1,797	0	98.3	324.3	6.9	-	-	793	-	-	-	-	-	-	61
Pediatric Infectious	75	2,604	4	95.5	315.0	8.0	-	-	-	400	900	400	3,500	800	800	-
Special Medical Prophylactic	39	136	0	104.2	344.0	99.0	-	-	-	-	-	-	-	-	-	-

Note: 1. Bed occupancy ratio (BOR) as a percentage is the Japanese way of calculating, while bed occupancy as the number of days is the Uzbek way. By dividing Uzbek BOR by 330, it can be converted into Japanese BOR.

Source: Answers to questionnaires and interviews of the Study Team

#### c. Company-owned Hospitals

One of the characteristics of the system of health service provision in Navoi Oblast is the existence of hospitals not under the supervision of the health administration. Major companies have their own health facilities: NGMK allocates three hospitals at Navoi City, Zarafshan City (200km northwest of Navoi) and Uchkuduk City (300km northwest of Navoi); Navoiastot (a chemical factory) has its hospital at Navoi City. The numbers of beds at NGMK Hospitals is around 900, while Navoiastot Hospital has 80 beds. Therefore, NGMK Hospitals, which are originally for workers of NGMK and their families (total population: 90,000), have the largest capacity for providing services in the oblast.

NGMK Hospitals also cover non-NGMK people at Zarafshan and Uchkuduk under contract with NOHA. At Zarafshan, all people are covered by the NGMK Hospital of Zarafshan since most of them work for NGMK. The NGMK Hospital of Uchkuduk provides emergency medicine, surgery and intensive care services that Uchkuduk RCH cannot cover. At Navoi City, there are no services with such contract basis. Therefore, when non-NGMK people need care at the NGMK Hospital in Navoi, they are burdened with all the costs.

According to the interview at the NGMK Hospital of Zarafshan, it receives 1,400 patients a day at its polyclinics and 14,000 inpatients yearly. Cardiovascular diseases, cerebrovascular accidents and acute respiratory infection are common cases in the hospital. With 380 beds, its BOR was 297 days or 90% and the ALOS was 9.1 days in 2006. It has 260 medical doctors and 702 nurses.



ii) Dispensaries

The Oblast dispensaries specialize in services for a single category of diseases. In principle, they have their own inpatient facilities and polyclinics as affiliated outpatient departments (Table 4-6). Six dispensaries, namely TB, cancer, dermatology/STI, endocrinology, neuropsychiatry and narcology, deliver tertiary care as the only service provider in Navoi Oblast.

**Table 4-6: Services Provided by Oblast Dispensaries in Navoi Oblast**

Name of Dispensaries	Clinical Departments													Laboratory							
	Polyclinic	TB	Surgery of Cancer	Chemotherapy of Cancer	Dermatology	Mycology	STI	Endocrinology	Ophthalmology	Neuropsychiatry	Narcology	24-hour Emergency Service	ICU	Blood Transfusion	Paid Services	Radiology Diagnosis	Endoscopy	Physiology Test	Clinical	Microbiology	Histopathology
TB	x	x										x				x		x			
Cancer	x		x	x												x		x			x
Dermatology/STI	x				x	x	x					x			x				x		x
Endocrinology	x							x	x										x		
Neuropsychiatry	x									x											
Narcology	x										x	x			x						

Source: Answers to questionnaires and interviews of the Study Team

The number of beds varies between facilities (Table 4-7). In 2007, the Cancer Dispensary will be removed to Karmana Rayon with an expansion in the number of beds from 25 to 50. Currently, the Endocrinology Dispensary does not have inpatient facilities, but it will have 20 beds after replacement measures. BORs are over 330 days or 100% at the TB Dispensary, Neuropsychiatry Dispensary and Narcology Dispensary. The Cancer Dispensary (308.1 days or 93.4%) and Dermatology/STI Dispensary (266.4 days or 80.7%) also exceed 260 days or 80%. Generally average lengths of stay are longer, especially for TB because of national regulations requiring that patients have to be hospitalized for the first 2 months.

**Table 4-7: Selected Indicators on Performance by Oblast Dispensary in Navoi Oblast in 2006**

Name of Dispensaries	No. of Outpatients	No. of Beds	No. of Inpatients	No. of deaths	Bed Occupancy Ratio (%)	Bed Occupancy Ratio (days)	Average Length of Stay (days)	No. of Surgery	X-ray Diagnosis	Erythrocyte Tests	Leukocyte Tests	Glucose Tests	Cholesterol Tests	Syphilis Tests	Gonorrhea Tests	Fungus Tests	Microscopy of Sputum Smear	Smear Culture Tests
TB	27,547	162	1,145	26	115.6	381.6	51.2	-	4,400	-	-	-	-	-	-	-	14,243	7,366
Cancer	41,408	25	757	8	93.4	308.1	9.2	879	3,274	2,068	-	-	-	-	-	-	-	-
Dermatology/STI	40,372	110	1,624	1	80.7	266.4	17.5	-	-	-	-	-	-	231,996	121,446	561	-	-
Endocrinology	5,280	0	-	0	-	-	-	-	-	3,340	3,340	3,922	918	-	-	-	-	-
Neuropsychiatry	3,328	50	464	1	102.9	339.7	36.6	-	-	-	-	-	-	-	-	-	-	-
Narcology	1,800	20	489	3	107.7	355.3	14.6	-	-	-	-	-	-	-	-	-	-	-

Note: 1. Bed occupancy ratio (BOR) as a percentage is the Japanese way of calculating, while bed occupancy as the number of days is the Uzbek way. By dividing Uzbek BOR by 330, it can be converted into Japanese BOR.

Source: Answers to questionnaires and interviews of the Study Team

### iii) Centers

Oblast centers provide local users with special services such as for HIV/AIDS, screening, adolescent health, blood transfusion and forensic medicine. They have no inpatient facilities.

At the AIDS Center, services for voluntary counseling and testing (VCT) and post counseling are available and antiretroviral treatment (ART) has been provided from 2006 with the assistance of the Global Fund to Fight AIDS, Tuberculosis and Malaria. The Screening Center has played the role of screening risk to give birth of anomaly since its establishment in 2005. The Adolescent Center targets youths aged from 14-18 years and college students, including performing their checkups before joining the military, taking care of children registered by the police because of committing crimes and health education including sex education. The Blood transfusion Station collects blood from donors and provides them with facilities required after testing. The Station is the only facility to test for the Hepatitis C virus (HCV). The Forensic Medicine Bureau deals with autopsies following requests from the police, prosecutors and courts, although the actual autopsy is done at the Anatomy Center of the Emergency Center.

### (2) Facilities for Primary Care

The first contact point for health services is primary health care (PHC) facilities, so-called SVPs. Previously, rural outpatient polyclinics (SVAs) and feldsher posts (FAPs) provided services, and they have been gradually transformed into SVPs. In remote rayons like Kanimekh, Uchkuduk and Tomdi and densely-populated rayons like Khatirchi, many FAPs remain as branches of SVPs.

In addition, rural community hospitals (SUBs) deliver a health services between primary and secondary care, equipped with inpatient facilities with 30-40 beds for day care.

The allocation of PHC facilities in Navoi Oblast is shown in Table 4-8. There is a total of 13 SUBs, 135 SVPs, 1 SVA, which will be converted into an SVP within 2007, and 106 FAPs in the oblast. Each SVP in remote areas is forced to cover a huge area: 185.6km<sup>2</sup>, 190km<sup>2</sup> and 545.1km<sup>2</sup> at Kanimekh, Uchkuduk and Tomdi, respectively.

**Table 4-8: Allocation of PHC Facilities in Navoi Oblast**

Rayon/City	SUB	SVP	SVA	FAP	Areas per SVP
Navoi		1			-
Karmana		16			75.6
Kiziltepa		33		7	12.8
Khatirchi	1	28	1	29	18.2
Nurata	4	16		9	155.5
Navbakhor	1	19		1	48.4
Kanimekh	2	9		22	185.6
Uchkuduk	3	4		14	190.0
Tomdi	2	6		24	545.1
Zarafshan		3			390.2
<b>TOTAL</b>	<b>13</b>	<b>135</b>	<b>1</b>	<b>106</b>	<b>82.4</b>

Source: 1. NOHA; and 2. Answers to questionnaires of the Study Team

In principle, doctors trained as general practitioners provide care at SVPs. Services for normal deliveries and laboratory testing are available, with assistance through the “Health I” Project of the World Bank. SVPs also undertake some activities on prevention of diseases such as checkups and vaccinations. They have beds for day care services.

Most of the SVPs open from 8:00 to 18:00 on weekdays (Mondays to Saturdays) and from 10:00 to 16:00 on Sundays and holidays.

Based on our survey covering 111 SVPs out of a total of 136 in Navoi Oblast, their performance is summarized in Table 4-9. The numbers of newly registered outpatients per SVP having been diagnosed with some disease vary from 484 at Kanimekh to 2,976 at Navbakhor in 2006. Therefore, 1 to 8 people per day newly receive care.

From the data on outpatients per SVP, low utilization is identified at Kanimekh (484), Tomdi (792) and Zarafshan (1,021). Low performance of the laboratory in Uchkuduk partially reflects the absence of laboratory assistants and their overall lack of competence.

The most common diseases at SVP level of Navoi Oblast are endocrine, nutritional and metabolic diseases, diseases of the respiratory system and diseases of the digestive system. In addition, many cases of anemia are detected there.

**Table 4-9: Performance of SVPs in Navoi Oblast in 2006**

Rayon/City	No. Outpatients per 10,000 pop.	No. Outpatients per SVP	No. Deliveries per 10,000 pop.	No. Deliveries per SVP	No. Lab Test per 10,000 pop.	No. Lab Test per SVP
Karmana	5,468	2,571	181	85	31,425	14,778
Kiziltepa	5,947	2,163	170	62	38,186	13,886
Khatirchi	3,666	1,779	169	82	30,448	14,780
Nurata	5,179	1,154	196	44	54,924	12,236
Navbakhor	6,577	2,976	174	79	32,143	14,545
Kanimekh	2,237	484	165	36	63,462	13,744
Uchkuduk	7,094	1,417	105	21	6,073	1,213
Tomdi	5,737	792	94	13	n.a.	n.a.
Zarafshan	2,356	1,021	181	79	46,046	19,954
<b>Navoi Oblast</b>	<b>5,107</b>	<b>1,967</b>	<b>172</b>	<b>66</b>	<b>35,086</b>	<b>13,511</b>

Source: Answers to questionnaires of the Study Team

#### 4-3-2 Referral System and Sanitary Aviation

##### (1) Current Situation of Referral

Our SVP survey reveals that the total number of referred patients from targeted SVPs to eight RCHs was 12,798 in 2006. The situation varies by rayon/city: 193 cases were referred at Zarafshan City, while there were more than 1,000 referred patients at Kiziltepa (3,657), Khatirchi (3,095), Karmana (1,894) and Navbakhor (1,255). A total of 1,089 cases were directly sent to oblast or republican facilities. The most common diseases for referred patients were diseases of the blood and blood-forming organs, endocrine/nutrition/metabolism, circulatory system, respiratory system and digestive system.

From RCHs to oblast health facilities, 20-50 cases per RCH were referred except Kiziltepa. In 2006, republican health facilities in the capital city received 24 cases from the Emergency Center and 32 cases from the Oblast Pediatric Hospital in Navoi City.

(2) Sanitary Aviation and Its Current Situation

Apart from the referral system, Uzbekistan has already established the system under which higher level health facilities, mainly Emergency Centers, dispatch specialized doctors to lower level facilities to provide care. This system is called sanitary aviation. In 2006, sanitary aviation was utilized a total of 625 times and 715 patients were cared for in 2006.

Table 4-10 shows the comparison between the number of patients referred with those cared by sanitary aviation. The surrounding rayons of Navoi City, such as Navbakhor and Khatirchi, tend to utilize more sanitary aviation than referrals. Only Kiziltepa refers many patients to Navoi City. As for the remote rayons like Tomdi and Uchkuduk, patients are referred more than cared for by sanitary aviation. In addition, Tomdi RCH sent 7 patients to the NGMK Hospital of Zarafshan, and Uchkuduk RCH referred 5 cases there.

**Table 4-10: Comparison of Utilization of Referral with Sanitary Aviation in 2006**

<b>No. of patients</b>	<b>Referred to Oblast Facilities</b>	<b>Sanitary aviation from Oblast Facilities</b>
<b>RCHs</b>		
Karmana	26	25
Nurata	46	62
Navbakhor	12	73
Khatirchi	30	53
Kiziltepa	322	55
Kanimekh	21	25
Tomdi	26	2
Uchkuduk	17	6
<b>All RCHs</b>	<b>500</b>	<b>301</b>

Source: Answers to questionnaires and interviews of the Study Team

As indicated above, RCHs refer 500 patients to oblast health facilities and care for 301 with sanitary aviation. Therefore, generally they utilize referral more than sanitary aviation. However, according to the interviews by the Study Team, very few patients are referred regarding major diseases in Navoi Oblast such as heart diseases (myocardial infarction, unstable angina, etc.), cerebrovascular accidents, head injury, pediatric pneumonia and prolonged labor. Mainly RCHs make use of sanitary aviation.

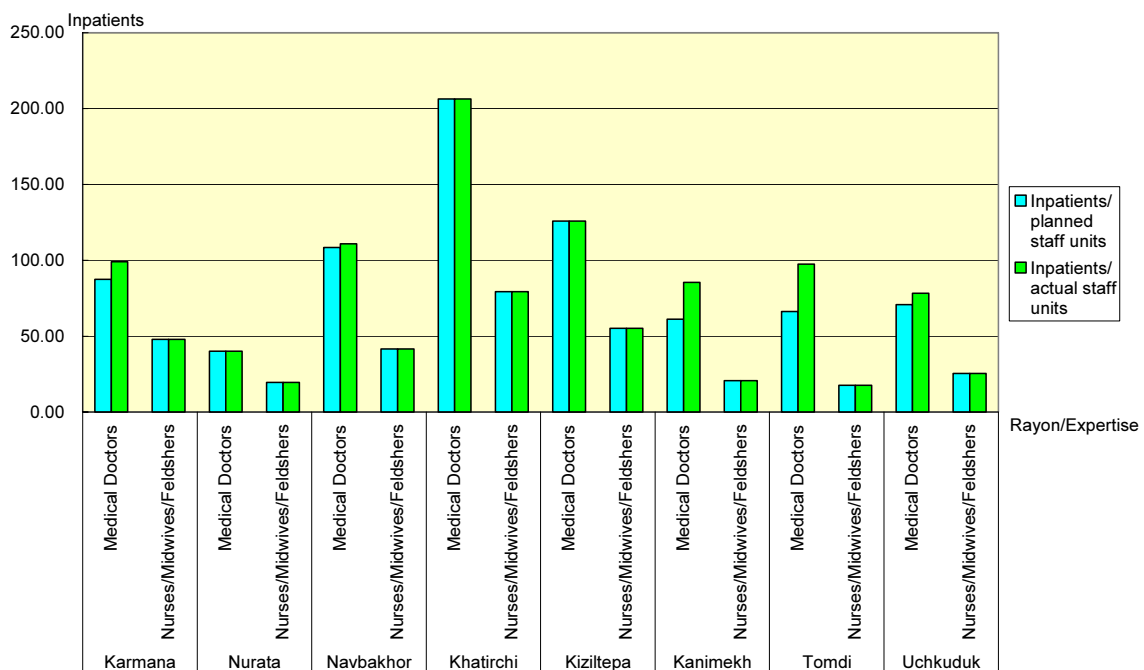
Concerning diabetes, all suspect cases are sent to the Endocrinology Dispensary in Navoi City and registered there. However, these patients are given treatment at RCHs of the original rayons, and severe cases like diabetic coma are cared for in the Emergency Center due to the absence of an inpatient facility at the Endocrinology Dispensary.

Sanitary aviation has a long history, dating from the Soviet era, and it has the functions to compensate for the specialties that the RCHs do not have. Additionally, currently there are not so many large differences regarding settings to provide health services between RCHs and oblast-level facilities. The size of Navoi Oblast also makes it very difficult for patients in remote areas like Tomdi to get to the city for care. Today’s tendency regarding the frequent utilization of sanitary aviation is attributable to these factors.

### 4-3-3 Management of Human Resources

In total, 1,544 medical doctors (not including NOHA and Medical College) and 7,510 co-medicals, including nurses, midwives, feldshers and related support staff, were working in Navoi Oblast in 2006. Navoi Oblast has the second lowest number of doctors (21.2 per 10,000 people) and the second lowest number of co-medicals (103.4 per 10,000).

Figures 4-1 and 1-2 describe the numbers of inpatients per doctor and nurse/midwife/feldsher by facility. As there are few differences between planned staff units and actual staff units, it can be said that every health facility allocates staff as planned.



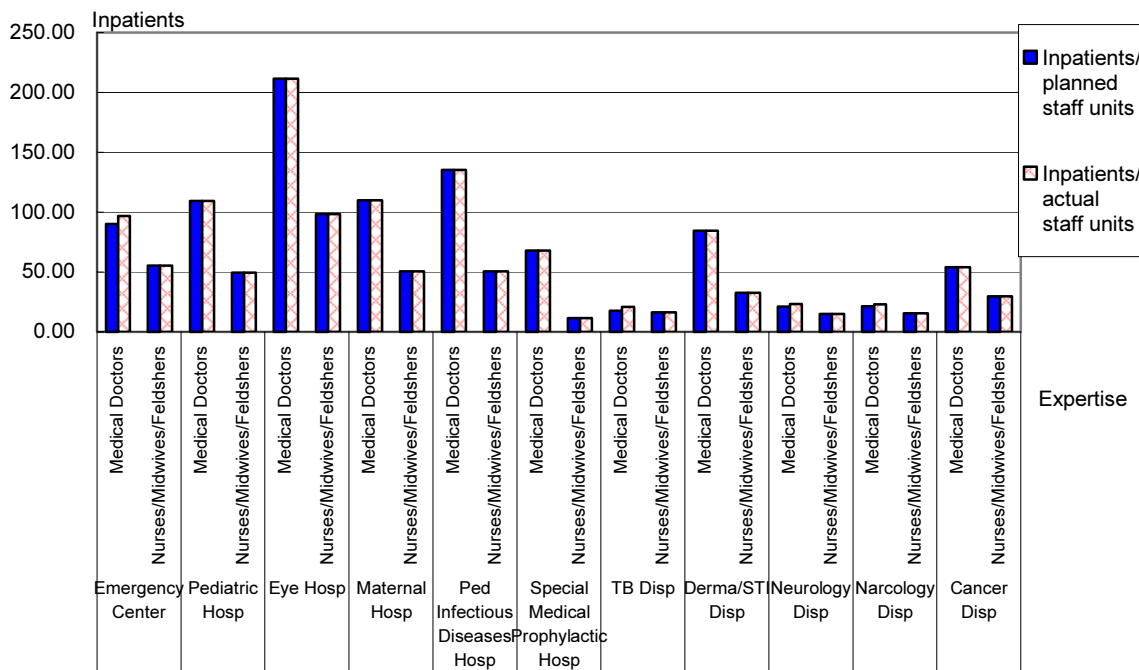
Source: Information of each Rayon Central Hospital

Source: Information of each rayon central hospital

**Figure 4-1: Inpatients per Staff Unit in 2006 (Rayon Central Hospital)**

On the other hand, inpatients per staff unit by facility are varied. Regarding RCHs, Navbakhor, Khatirchi and Kiziltepa take care of more than 100 inpatients per doctor-staff unit, while

facilities with short average lengths of stay like the Pediatric Hospital, Maternal Hospital, Pediatric Infectious Diseases Hospital and Eye Hospital receive more than 100 inpatients.



Source: Information of each facility

**Figure 4-2: Inpatients per Staff Unit in 2006 (Oblast Health Facilities)**

#### 4-3-4 Management of Funds

##### (1) Trends of Allocation of Funds

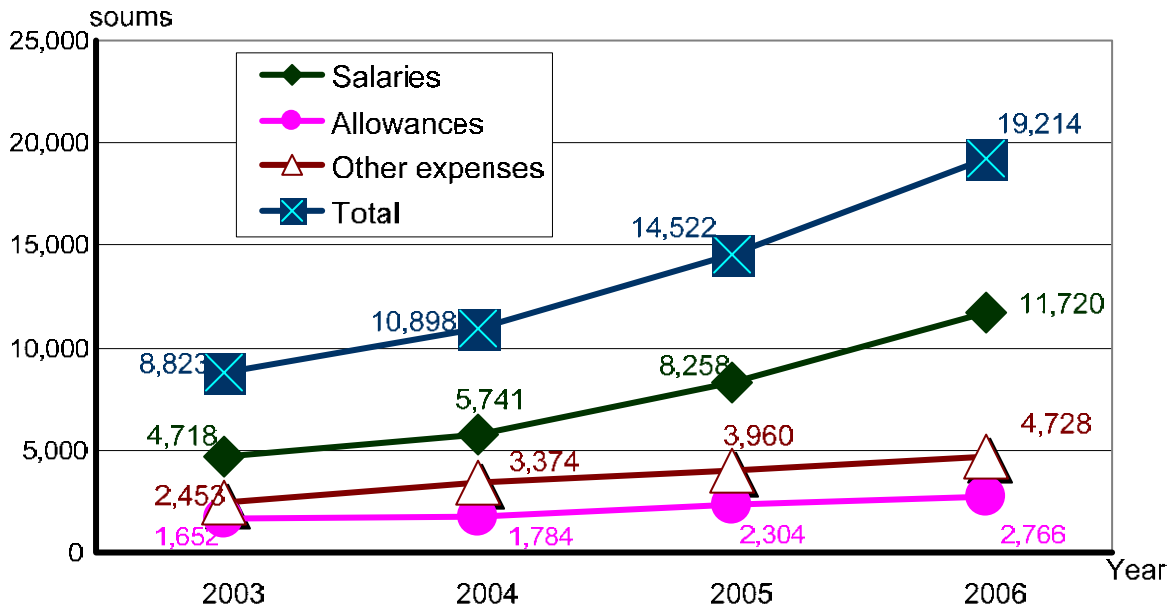
Recurrent budgets for the health sector in Navoi Oblast mostly come from the oblast governments called Oblast Hakimiyat. Health facilities can charge out-of-pocket payments for user fees of patients, but as discussed later, their proportion in the overall income is quite limited.

The Oblast Health Administration prepares for the budget proposals for the following year in June, so each facility has to submit its proposed budgets before the first day of the same month. It is said that on average only 60-70% of the proposed budgets are approved by Oblast Hakimiyat, although personnel expenses are fully allocated thanks to the Presidential Decree. There are two ways to allocate budgets to the rayon level. RCHs are given their budgets through the rayon governmental authorities (Rayon Hakimiyat) from Oblast Hakimiyat, while SVPs are directly provided by the Oblast Health Administration.

The trend of budgets per capita in NOHA is shown in Figure 4-3. The budgets nominally continued to be increased from 2003 to 2007 by 24-32% annually. If inflation is taken into consideration in Uzbekistan (around 15% annually, according to the World Bank), however, the real rates of increase are reduced to 10% plus annually.

The increase in NOHA budgets for the last five years is nearly equal to the increase of personnel expenses. As indicated in Figure 4-3, personnel expenses have increased by 104% from 2004 to

2006, while the annual increase of other expenses including fuel, maintenance of buildings and facilities and procurement of foods, drugs and consumables is just over the annual inflation rates. Therefore, it may be effectively rather slight.

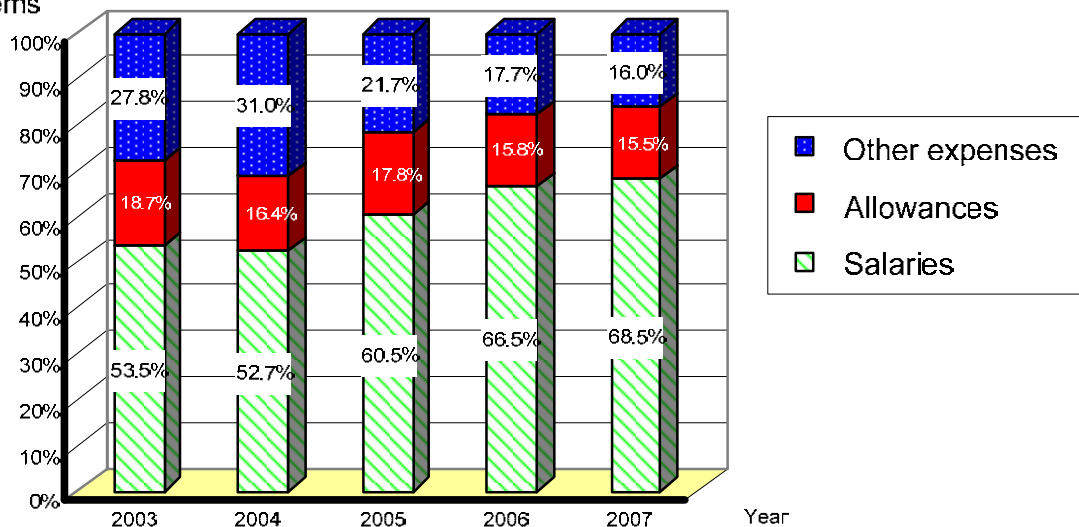


Source: NOHA

**Figure 4-3: Trends of NOHA Budgets per Capita in 2003-06**

Consequently, the proportion of personnel expenses in the total budgets of NOHA have increased since 2004, reaching nearly 70% (Figure 4-4), while other expenses have continued to decline.

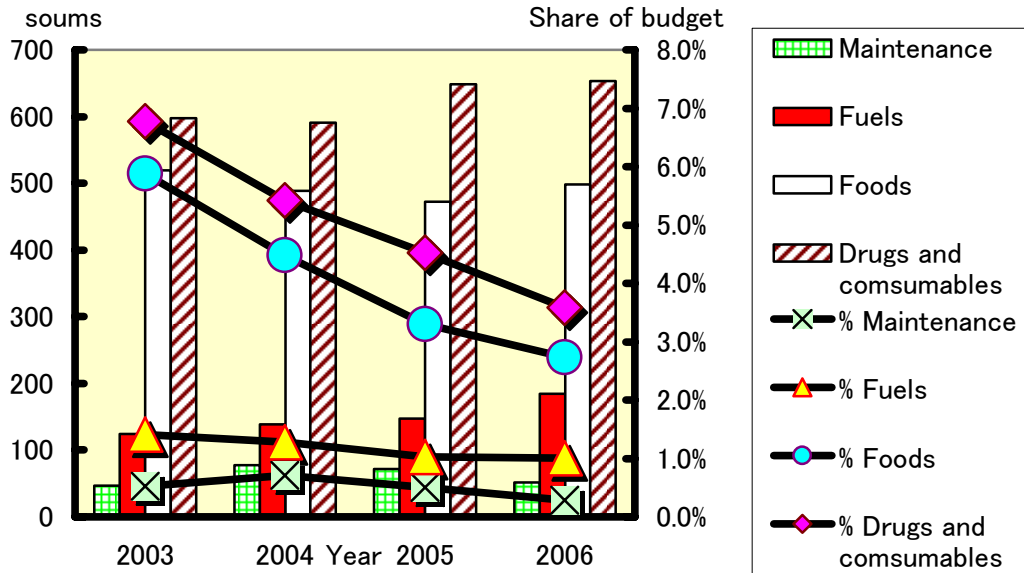
Proportion of budget allocation by group of items



Source: NOHA

**Figure 4-4: Proportion of Budget Allocation of NOHA in 2003-07**

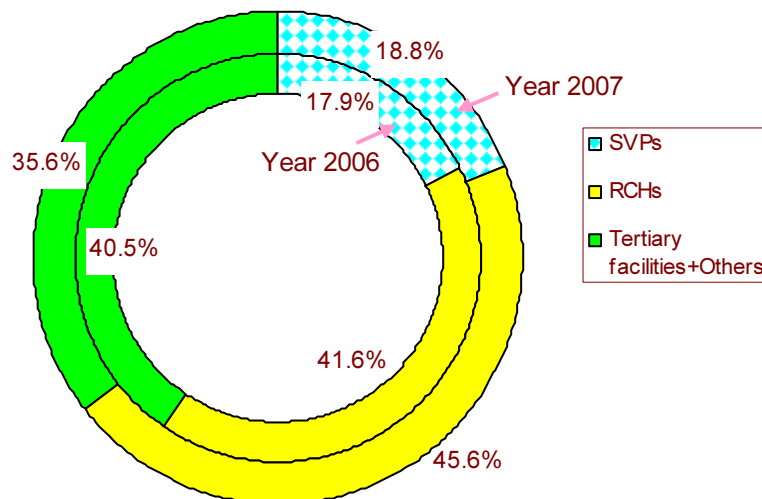
The analysis of the trends of the allocations of selected items of expenditure, namely for maintenance of buildings and facilities, fuel, foods and drugs, reveals that generally the amounts in the budgets are rising slightly for most of the items but the proportions continue to fall (Figure 4-5).



Source: NOHA

**Figure 4-5: Allocation of Budget per Capita by Selected Expenditure in 2003-06**

As for the allocation of budgets to rayons, NOHA gave them 59.5% in 2006 and 64.4% in 2007. The allocation to RCHs was 41.6% in 2006 and 45.6% in 2007, while that to SVPs is still a small proportion, namely. 17.9% and 18.8%, respectively (Figure 4-6).

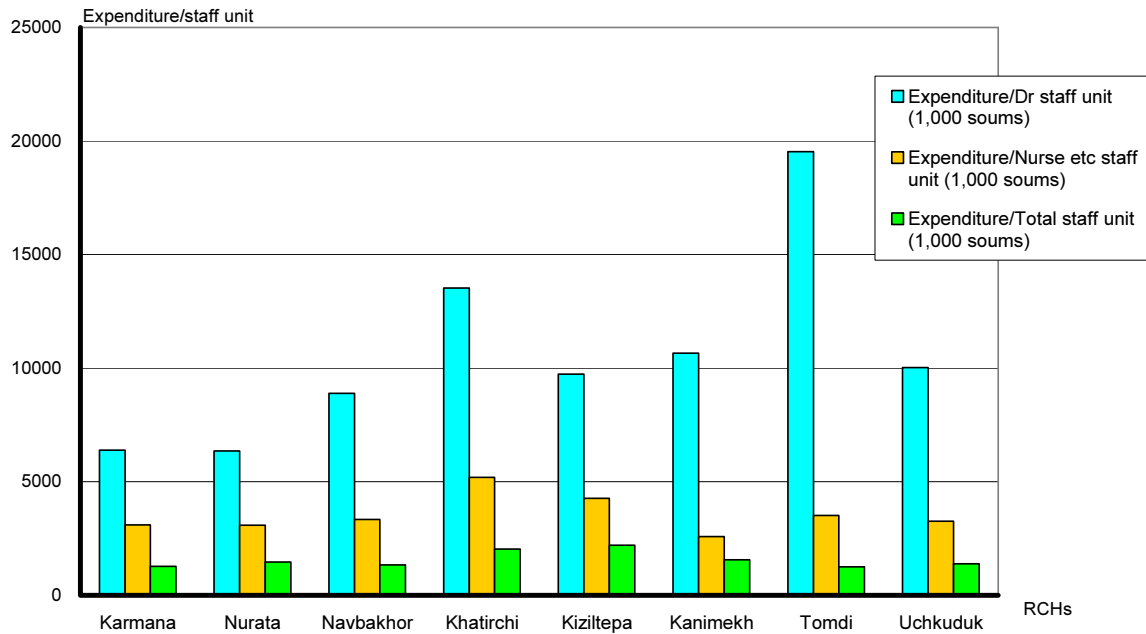


Source: NOHA

**Figure 4-6: Allocation of Budget by SVP, RCH and Tertiary Facility in 2006-07**

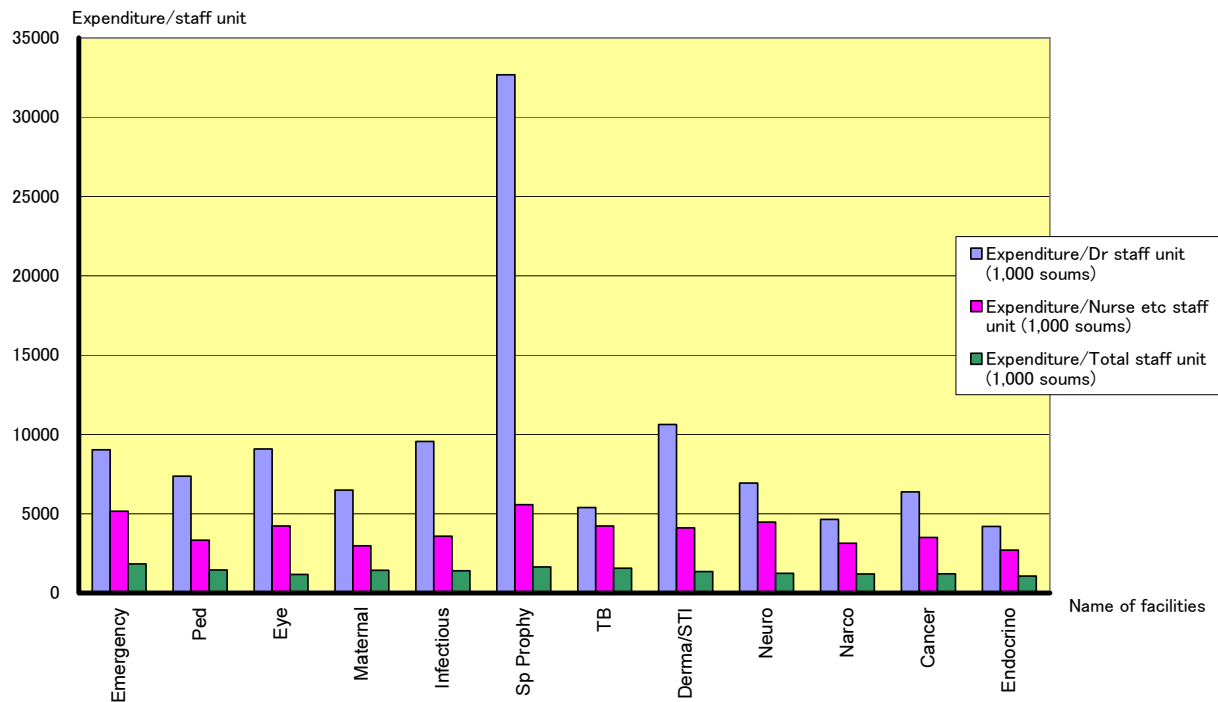


The financial records of health facilities in Navoi Oblast show that most of them do not go into the red. It seems that they manage completely within the budget given by the government. Expenditures per staff unit and per inpatient are compared in Figure 4-7 through 4-9. Only expenditure per doctor staff unit has noticeable differences from Figure 4-7 and 4-8. The RCHs of Khatirchi and Tomdi and Special Medical Prophylactic Hospital with comparatively fewer doctors tend to spend more.



Source: Answers to questionnaires and interviews of the Study Team

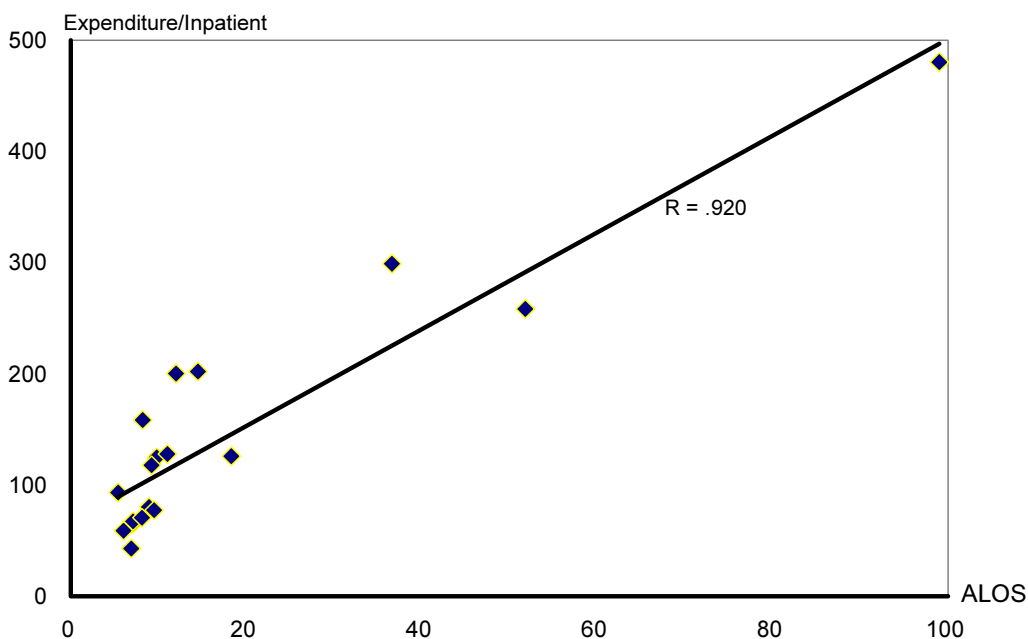
**Figure 4-7: Expenditure per Staff Unit (RCHs)**



Source: Answers to questionnaires and interviews of the Study Team

**Figure 4-8: Expenditure per Staff Unit (Oblast Facilities)**

Facilities with higher average lengths of stay such as the Tomdi RCH (12 days), Special Medical Prophylactic Hospital (99 days), TB Dispensary (51.8 days), Neurology Dispensary (36.6 days) and Narcology Dispensary (14.5 days) spend more per patient. As clearly indicated in Figure 4-9, expenditure per inpatient has a strong positive correlation with ALOS: the correlation coefficient (R) is .920.



Source: Answers to questionnaires and interviews of the Study Team

**Figure 4-9: Expenditure per Inpatient**

Capital budgets over 1 million soums are directly handled by Oblast Hakimiyat. Whenever the Oblast Health Administration or health facilities need some construction, renovation or repair work and wish to utilize such amounts, they submit their request letters to Oblast Hakimiyat. Small-scale construction, renovation and repair with costs of less than 1 million soums can be financed in the recurrent budget of the Oblast Health Administration.

(2) User Fee Scheme

In Uzbekistan, the user fee scheme was officially introduced in 1991 for ensuring complementary sources for financing health services. Health facilities can fix the rates of fees charged to patients in accordance with the regulation of the Ministry of Health, and income collected through the scheme can be utilized as supplementary payments of salaries or allowances, funds to purchase equipment, consumables and spare parts, etc.

The Presidential Decree No. 2107 in 1998 says that the following are categorized as groups to be exempt from user fees:

- Emergency medicine
- Prophylactic services
- Socially significant diseases like infectious diseases including TB, HIV/AIDS, STI and leprosy, cancer, psychiatric illness, narcotic abuse, endocrinology diseases, etc.
- Births at health facilities
- Children's and adolescents' care
- Care for disabled, veterans of World War II, orphans and victims of the Chernobyl nuclear accident

Although it has been noted that Navoi Oblast is made the least progress concerning the user fee scheme, currently, most of facilities have already introduced it. Oblast Eye Hospital is the only facility to introduce the full-scale user fee scheme. RCHs at Karmana and Kiziltepa have established paid departments, and they levy fees on selected services such as ECG, X-rays and ultrasound diagnosis and laboratory tests. At Kanimekh and Uchkuduk RCHs checkups for workers before joining companies are the services that have to be paid for.

However, the percentages of user fees collected in the total income amount of health facilities are very small: just 1-2% except Oblast Eye Hospital (29%).

According to NOHA, one of the obstacles to smooth progress is the shortage of health facilities that can fully apply the scheme. There are no general hospitals at either Oblast or City level in Navoi that can easily introduce the scheme. At RCHs, many patients are categorized as disabled, war veterans, victims of Chernobyl, etc.; therefore it is difficult to collect fees effectively.

In principle, children, adolescents and pregnant women are exempted from fees. However, if there are two or more facilities available as is the case with Fergana and Bukhara Oblast, it may be possible to collect fees at one of those facilities even from the patients in such categories. Unfortunately, only one pediatric hospital and a maternal hospital are located in Navoi Oblast.

### (3) Management Structure of Finance at Health Facilities

Financial managers are stationed at each health facility including SVP and are responsible for managing its budget and its own bank account, accounting and compiling financial reports. These reports are submitted to the Oblast Finance Administration and the Finance Department of the Ministry of Health in Tashkent once every three months. The Oblast Health Administration has the authority to allocate budgets to health facilities, but is not responsible for auditing their utilization.

## 4-3-5 Management of Facilities and Equipment

- (1) Current Situation of Facilities and Equipment
  - i) Buildings

RCHs are constructed in a “pavilion style” where 3-16 buildings are scattered within their premises. The years of construction vary from 1896 to 2004; especially, most buildings at Karmana RCH are very old. Layouts are also varied, so it seems that there is no standard layout plan of the buildings. The buildings have at most three floors, and there is no elevator. Total floor areas of RCHs range from 1,120 (Uchkuduk) to 12,766m<sup>2</sup> (Nurata).

The main building of Navbakhor RCH is comparatively new, but its plan is so complicated that patients are forced to wander or can easily get lost within the building. Most of the RCHs do not have places where the patients can wait for consultation and testing, which makes them patient-unfriendly. At some RCHs, toilets are far outside the inpatient wards and they are not clean. Some of them do not have hand washing facilities near the actual toilets or an entrance of the building and that may lead to hygiene problems.

As for oblast-level facilities, the Emergency Center, Maternal Hospital, Pediatric Infectious Diseases Hospital and TB Dispensary form a medical complex in the same premises. Basically, they consist of the only large-scale building with four floors, but their total floor areas are smaller than such RCHs as Nurata, Navbakhor, Kiziltepa and Karmana. These buildings were constructed from 1966 to 1972, but unfortunately their facilities are not always functionally connected to each other.

Some buildings were not originally used for health facilities. Those of the Pediatric Hospital, the main building of which has five floors, were constructed in 1972 as a dormitory for military forces. It was totally renovated in 1996 for hospital use, but it will be difficult to utilize it for a long time judging from the structure of the building. The current buildings of the Cancer Dispensary and Endocrinology Dispensary were also not originally for health facilities, although they will be relocated to other places.

Regarding SVPs, many were renovated in 1999-2004 under Health 1 Project with the assistance of the World Bank. In addition, renovation continued through Health 2 Project from 2005 to 2010 focusing on densely-populated rayons such as Kiziltepa, Khatirchi and Navbakhor.

As for NGMK Hospitals, Zarafshan was established in 1966 when the city was constructed, and the latest buildings were polyclinics for adults and children built in 1995 and the new medical ward in 1996. With its own NGMK budget, it carries out renovation when necessary. Zarafshan has the largest floor area, 52,624 m<sup>2</sup>, in Navoi Oblast.

## ii) Supply of Electricity, Water, Heating and Gas

In Navoi Oblast, most of the hospitals and dispensaries use public electricity supplied from Navoi City. The supply in the City is stable and most of the hospitals and dispensaries have a dual system of reception for power. Therefore, the oblast-level facilities do not have power generators. As RCHs experience power failures several times a month, they are equipped with

small generators. As far as the JICA Study Team could observe regarding RCHs in February 2007, there are no problems about power supply.

There are problems with the supply of water especially at Kanimekh and Tomdi, which adversely affects the hygiene and production of distilled water at laboratories. Most of the hospitals and dispensaries depend on city water supplies, and Nurata RCH and Khatirchi RCH consume water from their deep wells. Karmana RCH faces the problem of sewage.

As for heating, hospitals and dispensaries equipped with central heating systems place the boiler room within the premises. The supply is stable except for Tomdi RCH.

Generally there is no central piping system for the supply of medical gas like air, oxygen and nitrous oxide, but at the Emergency Center, Pediatric Hospital, Maternal Hospital and the maternal department of Nurata RCH only oxygen is centrally supplied. Most facilities distribute it from cylinders, mainly procured from Navoiazot, a chemical company in Navoi City. However, the NGMK Hospital of Zarafshan is equipped with a central piping system for oxygen and air.

### iii) Management of Waste Disposal

Some facilities treat the X-ray developing solutions before they dispose of them or utilize a disposal company, however, many dispose of or discharge the solutions without any treatment.

Reagents for testing are disposed of after being treated or are collected by the disposal company. Laboratory samples are incinerated at several facilities, but they are often disposed of as general waste at many facilities. Most of the injectors and plastic bags are incinerated.

### iv) Medical Equipment

All RCHs, except Uchkuduk, have general X-ray and fluorescent apparatus, but most of it was procured during the 1980s in the Soviet era and is very decrepit. Khatirchi RCH and the Emergency Center got apparatus through Japanese grant aid in 1999 and it is still in good condition. The Oblast Pediatric Hospital procured X-ray apparatus from Hungary in 1995 and it is still working properly. Currently, there is no mammography apparatus in Navoi Oblast, except NGMK Hospital of Zarafshan.

Ultrasound apparatus is new and was partially procured through the Health 1 Project of the World Bank. Laboratory equipment is also new and in good condition. It was procured by the Health 1 Project and the government's own budget, but there is still a shortage.

Except the Emergency Center, Pediatric Hospital and Maternal Hospital, hospitals and dispensaries do not have ventilators. Most of them have a gastrofiberscope, but some do not use it.

There are few patient monitors at hospitals, and they are not commonly used. As for infant incubators, some are out of order for a long time, partially because of the unavailability of spare parts. In addition, there is a lack of personnel who can handle incubators properly.

Ambulances are available at all hospitals and dispensaries, but most of them are small and not fully equipped.

All of the SVPs are covered by the Health 1 and 2 Project of the World Bank. Therefore, basic medical equipment is available and most of its functions.

According to the Ministry of Health, the departments of emergency medicine and pediatrics will be assisted by the Kuwait Fund and the Asian Development Bank, respectively, in the near future, through the provision of medical equipment. The Islamic Development Bank will also provide funds to Oblast branches of the Republican Emergency Center to procure medical equipment.

NGMK Hospitals can afford their medical equipment from their own budget. In Zarafshan, NGMK has three general X-ray machines, one fluoroscopy machine, one mobile X-ray machine, one dental X-ray machine and one digital X-ray machine. Navoi and Zarafshan are the only hospitals to possess doppler ultrasonographs.

## (2) Maintenance of Medical Equipment

A joint stock company called “Medservice” handles regular checkups and maintenance services of medical equipment. In 1994, following the independence of Uzbekistan, Medservice was separated from “Medteknika”, which dealt with the total services of medical equipment and currently specializes in procurement and sales of medical equipment and consumables, and is still under the umbrella of the “UZB-Medteknika” company. In Navoi Oblast, Medservice has 9 staff members including one engineer and six technicians for looking after the medical equipment of MOH facilities, including SVPs under contract with hospitals and dispensaries. Once Medservice is called for repairs, they have to start work within three days. However, Medservice is facing difficulties in dealing with such requests. Previously it stationed one or two staff at rayon branch offices for maintaining equipment, but the number of staff sharply decreased after Medservice became an autonomous company under the Ministry of Health. Medservice does not possess its own vehicles. Currently, a technician remaining at the rayon level is undertaking maintenance work as a semi-permanent staff of an RCH.

Today not a few of the medical equipment used in Uzbekistan are products of Europe, the United States or Japan. It is not easy for Medservice to catch up with the technology which develops so fast in those countries. Even if staff members have a good knowledge of imported modern equipment, they may not have firsthand experience on maintenance and repair of equipment. In other cases, they may not obtain spare parts for the equipment.

During the Soviet era, hospital staff shared information on regular checkups of medical equipment, but currently such system is just a mere name.

Health facilities can directly contract with other local agents. They are dealing with some laboratory equipment, but they also facing budget shortages. Due to foreign assistances after independence, Uzbekistan has seen the influx of advanced medical equipment from outside. That has boosted the amount and variety of the equipment, and in turn imposed pressure on increasing cost for its maintenance. However, since the items of expenditure on the maintenance of medical equipment are not in the recurrent budget, it is very difficult for health facilities to finance it.

Another problem is poor distribution of information on maintenance of medical equipment among health facilities. Consequently, even on the same equipment, one facility can manage to repair it, while another cannot. Hospital staff has limited access to new equipment and its operation and maintenance.

Inventories of medical equipment are managed by NOHA, headed by the Deputy Director, in accordance with the NOHA Order No. 217 based on the Ministry of Health Decree No. 355 in 2006. They contain the information including equipment names, manufacturers/models, production year, workout year, condition, etc. The inventories are regularly inspected, at least once a year. Currently, NOHA does not have information on local agents for procurement of spare parts and consumables, Medservice does.

NGMK Hospitals have a huge number of their own maintenance staff. For example, the NGMK Hospital of Zarafshan has a 50-strong staff specialized in the maintenance of medical equipment under the administration department.

#### 4-3-6 Management of Pharmaceuticals

There are around 200 authorized companies to deal with pharmaceuticals in Uzbekistan, and one of the major companies is called “Dori-Darmon”. In accordance with the Presidential Decree No. 456 in 2000, health facilities can select from where they procure drugs by tender. In Navoi Oblast, actually most of the facilities are dealing with Dori-Darmon. Some drugs for socially significant diseases like cancer and endocrinology diseases directly come from the Ministry of Health. As for NGMK Hospitals, NGMK has its own central drug store in Navoi City and distributes to the hospitals.

At hospitals/dispensaries/centers, they have their own central stores for drugs. As soon as drugs are procured, they are distributed to each department following discussions by their chiefs. Therefore, they are mainly managed by departments. Stocks of drugs are checked monthly by doctors and nurses in charge. Based on observations of the Study Team, they are well managed.

Most of the health facilities in Navoi Oblast are struggling with the purchase of sufficient amounts of drugs, mainly due to budget shortages. As mentioned in Figure 4-5, the proportion of

per capita budget allocated for the procurement of drugs has not been increasing for the last four years. In consideration of inflation, this budget in real terms may also have fallen.

Another problem is that the facilities cannot freely procure drugs in case they are off the drug lists. Currently, the lists are fixed for each level of facilities: e.g. for the Emergency Center, for Pediatric Hospital, for Pediatric Infectious Diseases Hospital, for Dispensaries, for RCHs, for SVPs, etc. In addition, the budgets for procurement of drugs are exclusively used for drugs on the lists, so the facilities face difficulties when it comes to requiring drugs off the lists.

Interviews of the Study Team with directors of health facilities revealed that many of them can procure only 10 - 60 % of the amount of drugs they require. Consequently, patients have to pay for these shortages, as Dori-Darmon can supply enough drugs anytime. Currently, exceptions are the TB Dispensary and AIDS Center, since the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) provides funds to finance drugs.

#### 4-3-7 Information Management

In order to understand the number of inpatients in one day, hospitals use two types of forms. Every morning, each department submits to the statistics office the number of inpatients at the beginning, newly hospitalized, discharged, transferred within departments and deaths of the previous day and the number of inpatients at the beginning of that day. The statistician then double checks these with the numbers recorded at the reception.

The number of surgeries, laboratory tests and the names of facilities referred can be understood from the medical records of each patient.

Following the double check of the statistician, these daily reports are aggregated monthly and health facilities report these statistics to the Oblast Health Administration quarterly. As far as the Study Team observed in the Emergency Center, they are accurately recorded. However, most facilities compile a regular handwritten statistics report. They are equipped with at least one PC, but the quantity of reports is still short and they cannot fully utilize it.

The format of the medical record for hospitals is different from that of SVPs. The hospitals use form No. 003 "Case History Record" based on the Ministry of Health's order No. 231 on 16 April 1992, while SVPs utilize the form No. 025 "Outpatient Health Card" based on the Ministry's order No. 283 on 29 May 2000. Each health facility has responsibility to keep medical records for 25 years.

When a patient visits a SVP for diagnosis and treatment, the SVP fills out form No. 025 for a record. In case the patient needs closer examination or hospitalization, the SVP hands him/her over his/her record and sends them to a hospital. At the hospital, form No. 003 is filled out by the nurse at the reception and the patient is sent to the inpatient department with his/her medical record. At the time of discharge, the hospital gives him/her the certificate of discharge (summary



of his/her record at the hospital) and his/her No. 025 record. Then he/she gives back the record to the original SVP.

Form No. 003 is filled out for every hospitalization, and the medical records are stocked on a monthly basis. But even if a patient is hospitalized twice or more, the hospital does not reflect the previous record and rarely refers to it. On the other hand, form No. 025 is made out for each patient. Therefore, health staff can easily have a look at his/her previous case history.

Currently it is not easy to make linkage of the medical record between No. 003 and No. 025 even for the same patient, since they do not use the common ID number. It is possible to refer to the information of the patient, but not efficiently.

#### 4-4 Discussions

##### 4-4-1 Financing Health Services in Navoi Oblast

As already mentioned, NOHA has continued to increase its budget for the last five years. However, it is completely attributable to the increase of salaries of health staff. Funds available for maintenance and purchase of fuels, foods, drugs and consumables are almost unchanged, and can be effectively decreased based on inflation.

The user fee scheme is expected to play the role of supplementing such budget shortages. Nevertheless, the percentage of fees collected from patients in the total income is 1-2% at most for hospitals and dispensaries. The Oblast Eye Hospital, which promotes a full-scale user fee scheme and collects 29% of its total income from patients, is the only exception.

NOHA faces some difficulties to expand the scheme. Based on the Presidential Decree No. 2107 in 1998, in principle, it cannot be introduced in most of the oblast hospitals and dispensaries, as most of the patients are categorized in the list of groups exempt from fees. The General Hospital is the type of facility to be able to introduce the scheme most easily. In Navoi Oblast, the Emergency Center allocates 30% of its function to a General-Hospital-like one for non-emergency patients. However, it cannot charge these patients since it is the Emergency Center.

##### 4-4-2 Referral or Sanitary Aviation

In Navoi Oblast, sanitary aviation tends to be preferred to referral. Thus, the number of referred patients is more than the patients cared for by sanitary aviation from Navoi, but many of them are referred to Navoi for diagnosis or consultation and sent back to the RCHs of the original rayons for care. Sometimes sanitary aviation from Tashkent is also requested.

It seems that there is little difference between RCHs and oblast-level facilities at Navoi and Karmana. Actually, for example, it is said that the neurosurgery, orthopedics and traumatology of

Karmana RCH are superior to oblast facilities and that several patients are referred there every year. On the other hand, most of the users of the oblast facilities are people living in Navoi City. Unlike the capital city of other oblasts, currently, there are no city hospitals acting as facilities to primarily receive inpatients. Consequently, oblast health facilities are mainly for people living in Navoi City.

Partially, the history of Navoi influences these situations. Navoi Oblast was initially established in 1982 in the Soviet era, but it was dissolved and Navoi City was absorbed into Samarkand Oblast in 1987 and Bukhara Oblast in 1989 just as a city. It was revived in 1992, one year after the independence of Uzbekistan. During this period, the current oblast health facilities were just the City General Hospital, City Pediatric Hospital, City Maternal Hospital, etc. They were transformed into oblast facilities after the revival, but their histories are still too short for them to mature enough as tertiary care facilities.

The geographical factors of Navoi also influence the behavior of referral and sanitary aviation. For example, Uchkuduk and Tomdi send more patients that receive sanitary aviation, but many patients living in remote areas are struggling to visit even RCHs. It can be easily imagined that they consider Navoi City to be extremely far away.

#### 4-4-3 Incomplete Maintenance System

At least two problems were pointed out that the maintenance system of medical equipment is incomplete, although few recognized them during the interview by the Study Team. Firstly, information on maintenance including local agents to repair and procure spare parts and consumables is badly distributed. As a result, even with the same equipment produced and procured in the same year, some facilities can manage to operate and repair it well, but others cannot. The currently organization for repairing equipment and the one for procuring spare parts are separate, but their mutual communication is not always well-organized.

Secondly, the preventive maintenance of equipment is currently absent, based on observation of the Study Team. The proper regular checking of equipment would enable it to be kept in good condition and prevent budget-related waste.

## **Chapter 5      Review of Mortality Cases**

### **5-1 Introduction**

The Study Team has tried to study the current situation of the health service system in Navoi Oblast as a whole. The structure, management, interaction between health facilities, people's care-seeking behavior, and satisfaction with health care services were studied and described through other components of this study. To know and evaluate the level of medical services currently offered at rayon and oblast levels is not a simple task. The morbidity and mortality profiles in the oblast are available at Navoi Oblast Health Authority (NOHA). However, the approaches in diagnosis or patient management are neither routinely monitored nor reported to NOHA. Moreover, the diagnoses reported from each facility may not be perfectly correct, and the oblast statistical department, which does not have any medical expertise, may improperly select the main cause of death from multiple diagnoses given to the patient. In this context reviewing the indoor hospital records is one of the proper methods to verify the diagnoses, evaluate patient management, and reveal the critical factors in diagnosing, treating and referring patients. It takes considerable time to thoroughly review the records, and therefore, the number of records should be restricted and more informative records should be selected for reviewing. Although only about 500 people die in hospitals out of about 4,000 total deaths per year in Navoi Oblast, their indoor records are carefully documented and kept by each hospital. Thus the Study Team decided to review the hospital records of patients who died at hospitals despite some medical care.

### **5-2 Methods**

The review of mortality cases was carried out in a phased manner. During Field Mission 1, it was started from counting the available hospital records at health facilities in Navoi Oblast. During Field Mission 2 reviewing the hospital records of selected mortality cases as well as interviewing key informants has been conducted as qualitative research.

1. Identifying the main sources of information (hospital records)
2. Analyzing the collected cases to identify the common diseases which cause hospital death (quantitative analysis)
3. Selecting the typical cases seen by oblast hospitals or Rayon Central Hospitals (RCHs)

Inclusion criteria:

- Target diseases: patients died of seven major causes, except for accidents
- Number: try to collect 10 cases for each target disease
- Balance: try to choose cases evenly from oblast hospitals and RCHs;
- Length of hospital stay: to choose cases with longer hospital stay

4. Visiting hospitals and reviewing the selected hospital records to assess:
  - Accuracy of diagnoses;
  - Appropriateness in approaches and methods to reach diagnosis; and
  - Appropriateness of patients' management and treatment from the viewpoint of international standards and guidelines.
5. Interviewing the attending physicians of the patients or senior doctors of the hospital
6. Interviewing the leaders of different levels, experts and other specialists to study the current situation on development, distribution and implementation of protocols/standards
7. Comparing the data from different sources to identify issues in secondary and tertiary level health care service

### 5-3 Findings

#### 5-3-1 Hospital Deaths in 2006

During Field Mission 1, the Study Team visited nine health facilities: the Emergency Center, Cancer Dispensary, Children's Hospital, Pediatric Infectious Disease Hospital, and RCHs in Navbakhor, Nurata, Kanimekh, Karmana, and Khatirchi rayons. Thus, a total of 370 mortality cases, which were admitted between January and December 2006, were identified in the hospitals in Navoi Oblast as shown in Table 5-1.

**Table 5-1: Age-wise Distribution of Mortality Cases Detected During Field Mission 1**

Age	Number	%
Infant	58	(15.7)
1-4	24	(6.5)
5-14	8	(2.2)
15-49	126	(34.1)
50-59	56	(15.1)
60-69	51	(13.8)
70-79	32	(8.6)
80+	11	(3.0)
Unknown	4	(1.1)
<b>Total</b>	<b>370</b>	<b>(100.0)</b>

Source: Data collected by the Study Team

Every mortality case received multiple diagnoses, and more than half the cases had the diagnosis of "acute heart failure" or "acute heart and lung failure." These diagnoses describe the condition before death rather than the pathogenesis causing death. Accordingly, the Study Team tried to find the main disease which caused cardio-respiratory arrest from the long list of diagnoses given

to the patient. By this reclassification process the eight major causes were revealed, namely accidents (mostly car accidents), heart disease (including ischemic heart disease, IHD), cerebrovascular attack (CVA or so-called “stroke”), cancer, liver disease, kidney disease, diabetes mellitus (DM) and childhood ARI, made up about 80% of the total deaths as shown in Table 5-2.

**Table 5-2: Major Causes of Death among 370 Cases**

Cause	Number	%
Trauma/Accident	62	(16.8)
Suicide	7	(1.9)
<b>IHD</b>	<b>41</b>	<b>(11.1)</b>
Other heart disease	9	(2.4)
Hypertension	1	(0.3)
<b>CVA</b>	<b>52</b>	<b>(14.1)</b>
<b>Cancer / Malignancy</b>	<b>17</b>	<b>(4.6)</b>
<b>Liver cirrhosis</b>	<b>22</b>	<b>(5.9)</b>
Other liver disease	2	(0.5)
<b>Chronic renal failure</b>	<b>8</b>	<b>(2.2)</b>
<b>DM</b>	<b>6</b>	<b>(1.6)</b>
ARI, adult	3	(0.8)
<b>ARI, childhood</b>	<b>48</b>	<b>(13.0)</b>
Other lung disease	13	(3.5)
<b>Total</b>	<b>291</b>	<b>(78.6)</b>

Source: Data collected by the Study Team

### 5-3-2 Case Selection for Detail Reviewing

At the beginning of Field Mission 2, 68 cases were selected from the list of 370 mortality cases by previously mentioned criteria. The patients who died in accidents were excluded from this study because the Emergency Centre has already been set up to receive and treat such patients in Navoi Oblast. Generally, the patients who die within hours after arrival are often too sick to be properly treated by any health system. For this reason, cases with longer hospital stays were chosen, when plenty of cases were available regarding one disease. In the case of diabetic deaths, where available cases are very limited, diabetic patients who died of other main diseases were included.

Chief doctors of relevant health facilities accepted the request by NOHA to allow the Study Team to review the chosen case records in more detail. For some reason, two records were not available, and the team could review 66 records as shown in Table 5-3.

**Table 5-3: Distribution of the Reviewed Death Cases**

Name of health facilities	IHD	CVA	Cancer	Liver	Kidney	DM	ARI	Total
Emergency Center	3	5	1	3	4	4		<b>20</b>
Cancer Dispensary			5					<b>5</b>
Pediatric Hospital				1			3	<b>4</b>
Infectious Disease Hospital				1	1		2	<b>4</b>
Navbakhor RCH	1	2		1			1	<b>5</b>
Kanimekh RCH	1	1	2	1	1	1	1	<b>8</b>
Karmana RCH	2	1	1		1			<b>5</b>
Khatirchi RCH	2	1		1		2	1	<b>7</b>
Nurata RCH	1	1	2		1	1	2	<b>8</b>
<b>Total</b>	<b>10</b>	<b>11</b>	<b>11</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>10</b>	<b>66</b>

Source: Data collected by the Study Team

### 5-3-3 Referral System

Through reviewing indoor patient records and interviewing chief doctors and specialists at health facilities, it was found that just a few patients with emergency conditions were referred from RCHs to Navoi Oblast health facilities. There are several reasons and explanations: the patient is too sick to be transferred, treatment offered at the oblast hospital is not so different from that of RCHs, there are no specialists or special departments in Navoi, family members or relatives are reluctant to refer the patient, or they can not afford to do so. A more comprehensive picture would be given from the care-seeking behavior survey. For very severe cases the local health facilities can ask a consultant from Navoi or Tashkent to come and give advices on management or sometimes surgery. But the clear criteria or standards to invite the consultants do not exist. Through reviewing the mortality case records, the Study Team could not find significant differences between the treatments given by doctors of RCH and those given by specialists of the Emergency Center or other oblast health facilities in Navoi.

Another observation was the ineffectiveness of the referral system. 1) The number of patients referred from SVPs or RCHs is so limited. Most patients who visit oblast hospitals are inhabitants of Navoi city coming either by themselves or by ambulances. 2) The communication between SVP/RCH and oblast/ republican health facilities is insufficient, as most of the case records lack both a referral letter and a discharge summary from the previous hospital. Exceptionally, one case record was filed with a reference letter from Navbakhor RCH to the Emergency Center, and other two were filed with the discharge summaries from the Republican Research Centre on Oncology, and from the Republican Research Centre on Urology, respectively. Some patients were referred to hospitals from SVPs with referral letters; however, those letters did not contain enough information on the patients' status and management given.

#### 5-3-4 Ischemic Heart Disease (IHD)

In Navoi Oblast there is no cardiology dispensary. Patients with IHD and other emergency cardiac conditions come to the emergency departments of RCHs or the Emergency Center in Navoi. The analysis of case records revealed:

- Late care seeking of patients with IHD.
- IHD is managed conservatively, but often without cardiac monitoring, because of the absence of the necessary equipment.
- Thrombolytic agents are not affordable by the public. Selective thrombolysis therapy can be done only in the Emergency Center in Tashkent. In the ICU of the Republican Cardiology Centre nonselective thrombolysis therapy is used.
- Physicians often lose the orientation toward hemodynamic control between fluid restriction and volume challenge. A lot of infusions are prescribed to patients, and it may cause a volume overload, which, in turn, worsens the heart failure, and finally leads to death.
- The Republican Cardiology Research Centre is developing standards and protocols in cardiology (including IHD, lethal arrhythmias and hypertension) and has a plan to train doctors throughout the entire country. The Republican Emergency Center in Tashkent has developed standards on emergency cardiology and distributed them nationwide.
- However, some doctors are not familiar with developed standards and protocols, and rarely use them in practice.

#### 5-3-5 Cerebro-Vascular Attack (CVA) or Stroke

Most patients who suffer from a stroke finally reach either the emergency department of RCH or the Emergency Center in Navoi. Nowadays, two neurosurgeons, who had short-term training in the Republican Emergency Center, work in Navoi Oblast Emergency Center. According to the chief neurosurgeon of MOH, in Navoi they can provide basic neurosurgical care for emergency patients with head injuries but not for CVA patients. A review of CVA death cases supported his comments:

- Neurosurgical intervention was given to only one patient with a hemorrhagic stroke which we analyzed.
- Thrombolytic agents are not affordable by the public who suffer from an ischemic stroke.
- Differential diagnosis between hemorrhage and infarction is often made based upon clinical findings and history of illness. Occasionally, hemorrhagic strokes are confirmed by lumbar puncture.
- In such situation brain CT is seldom requested of NGMK hospital having the only CT in Navoi.
- Director of Oblast Emergency Center added several more reasons.

- CT of the NGMK hospital is very old and it does not produce images of the necessary quality.
- CT investigation is not free of charge for non-workers of NGMK. Few patients are ready to pay for such expensive diagnostic procedure. Neither does the Emergency Center have the financial resources in their budget to pay for CT diagnosis by NGMK hospital, because it is taken that the emergency care should be offered free of charge.
- Most patients who have indications for CT investigation are unconscious and on a ventilator. They don't transfer the patients in such condition to another facility.

### 5-3-6 Cancer / Malignancy

There are two options for cancer patients to seek care; one is electively visiting Oblast Cancer Dispensary, and the other is visiting the Emergency Center for emergency complications, for example, acute bleeding.

A total of nine doctors are working for the Cancer Dispensary and most of them are surgeons. The main treatment approach is radical or palliative surgery. At present, there is no possibility of conducting radiation therapy, because the dispensary is too close to living places and is not equipped with the necessary equipment. But in the near future, the dispensary will be transferred to Karmana Rayon and radiation therapy can be offered.

The budget allocated for purchasing anticancer drugs covers only 50-70% of the total amount required for chemotherapy. This means that some patients can not finish standardized chemotherapy regimens free of charge, but have to pay from their own pockets. Unfortunately, most patients can not buy modern expensive drugs.

In Japan, among the people who voluntarily come to hospitals with some symptoms and are diagnosed as being cancerous, only 15% of detected cancers are in an early stage. The remaining 85% of newly detected cancers are already in an advanced stage, and they have a poorer prognosis for long-term survival. To detect early-stage cancers that will leave the cancer patients with a good prognosis, several cancer screening systems have been organized for the asymptomatic general population in Japan. For example, authorities recommend that people 40 years old or over should have a contrast gastrography or gastrofiberscopy examination once a year, and that women 35 or over should have a mammography examination. The occult blood reaction of stools is routinely checked at annual physical check-ups for people of 40 or over. In Uzbekistan, where there is no such screening system for cancers, most cancer patients come to hospitals with symptoms, and most of them are at an advanced and incurable stage.



### 5-3-7 Liver Diseases

Out of 370 mortality cases 24 died of liver diseases, 22 of which were liver cirrhosis. There is no specialized hepatologist in Navoi Oblast, and this is the main reason why RCHs rarely refer the patient with liver diseases to oblast hospitals. This is also the reason why diet therapy, refraining from drinking alcohol or interferon therapy are not commonly tried on the patients, although these interventions may delay the progression of hepatic failure. The cost of interferon is obviously a restrictive factor for **ordinary** people. The Study Team looked into the management of hepatic comas, and it is not properly standardized.

### 5-3-8 Kidney Disease

Out of 370 mortality cases 8 died of renal failure. There is no specialized nephrology service for chronic kidney disease in Navoi Oblast. Although diet therapy combined with proper medication may delay the progression of kidney diseases, RCHs rarely refer the patient to Oblast hospitals. Hemodialysis is chiefly applied to the patient with acute intoxication at the Navoi Emergency Center. If a patient suffers chronic renal failure, he/she can not adequately receive dialysis, and has very little hope of keeping up their quality of life. Expanding the indication of hemodialysis or peritoneal dialysis to the patients with chronic renal failure will be an issue in the near future. Kidney transplants are currently forbidden by law in Uzbekistan.

### 5-3-9 Diabetes Mellitus & Complications

A protocol for coma workup and management of a diabetic coma is not standardized: In the surveyed records, few patients are treated by an intravenous drip infusion of insulin with normal saline, which is the best way to quickly and precisely control the hyperglycemia. In Navoi there is no endocrinology dispensary with beds for indoor treatment. Reviewing records also suggests the lack of endocrinologists experienced in management of diabetic emergencies and/or poor communication with ICU specialists.

### 5-3-10 Childhood ARI

Children with ARI may reach the Pediatric Hospital or Pediatric Infectious Disease Hospital by three means: directly, brought by ambulance, or referred from RCH or SVP. Half of the mortality cases with ARI had a history of antibiotics treatment before their arrival at the final health facilities (partially-treated ARI). Similarly, almost half of the cases had underlying conditions, such as cerebral palsy or increased intracranial pressure (possibly immuno-compromised hosts). However, the hospitals which accepted such patients did not pay any special attention to the patients with “partially-treated ARI” or “ARI with some underlying conditions”, and started treating them with the simple protocol of “community-acquired ARI” (intra-muscular injection of Penicillin, or oral ABPC). The reviewed cases were often brought to facilities too late, or

referred to hospitals very late. Delay in starting intravenous antibiotics and oxygenation was also very common.

Regarding a case of ARI, a 10-month-old boy with a history of “brain hypertension,” developed respiratory symptoms. After many days, he was initially brought to a SVP and quickly referred to an oblast facility. A doctor there diagnosed him as ARI based on his chest X-ray, and started Penicillin intra-muscularly. As the response to Penicillin was poor, the antibiotics were switched to intravenous injection of the Cephalosporin group on the fourth hospital day. On the seventh day, he was in respiratory distress and endotracheal intubation was done. After that oxygenation was started, but the patient died soon after.

### 5-3-11 Too Many Diagnoses without Considering Pathogenesis

This Study reviewed only the hospital mortality cases, and therefore, a sort of selection bias could not be avoided. Actually, many other cases are given the proper medical management at the health facilities and leave those hospitals alive. Keeping this biased case selection in mind, the Study Team tried to find the pitfalls in the diagnostic and therapeutic processes currently practiced in the health care system in Navoi Oblast.

#### (1) Multiple Symptoms

One of the characteristics shared by most of the reviewed mortality cases is a multiplicity of symptoms presented by each patient. The multiplicity of symptoms can be caused by overlooking of early signs. For example, most of reviewed cases which died from childhood ARI were diagnosed as acute respiratory failure only on the final day of hospital stay. It is not common for children suddenly to develop respiratory failure and pass away within several hours after diagnosis. Those children should have shown higher breathing rate and some other signs of respiratory distress when they were admitted. During their hospital stay or the process of worsening, the signs should have escalated or new signs should be added, such as nose flaring, inter-costal or supra-sternum retractions, cold sweating, irritation, insomnia, decreased sucking, color changes and so on. The clinical decision on introducing oxygenation or mechanical ventilation could have been taken somehow earlier before those patients developed fulminant respiratory failure and multiple organ failure, if the health personnel have watched these signs more carefully.

The multiplicity of symptoms can be also caused by the delays in care seeking behavior of patients. It is, in other words, the late presentation to the health facilities. This finding corresponds exactly with a finding from our Care Seeking Behavior Survey (see Chapter 5). The mid-term evaluation of the Child Survival Project of Project HOPE also pointed out that there were delays in obstetrical care seeking behavior on the part of community members in addition to delays in decision-making by the health personnel. Late presentation often results in aggravation of symptoms and development of complications.

## (2) Symptomatic Diagnoses by Different Specialists

When a specialist on an organ faces a patient with multiple symptoms beyond the scope of his/her expertise, he or she may obtain assistance from other doctors. In Uzbekistan, the other doctors, who can assist in such cases, are usually the specialists on other organs in the tertiary- or secondary-level hospitals. They can give professional advice only on the matter of their specialty. Unfortunately, there is a lack of modern diagnostic equipment in most hospitals in Navoi Oblast, and such a situation badly hampers the specificity and accuracy in diagnosis and judgments by the specialists. Consequently, a consulted cardiologist, for example, simply says that a patient has cardiac failure, but does not give the etiology or pathogenesis of the cardiac failure; and a consulted nephrologist simply describes that a patient has renal failure, but does not judge whether it is a primary or secondary renal problem.

## (3) Symptomatic Treatments

Diagnosis is the foundation of modern medical treatment. Once multiple diagnoses are given by different specialists to a patient, an attending physician tends to start multiple treatments which are directed at managing the various signs and symptoms. However, proper treatments cannot be rendered without accurate diagnoses. Many reviewed cases with stroke received an anticoagulant, an anti-platelet and a hemostat all together. The former two agents may be beneficial in the cases of ischemic stroke, but are hazardous for the patients with hemorrhagic stroke. There is no scientific evidence on the effectiveness of hemostats against hemorrhagic stroke, but they may increase the risk of re-infarction in the cases with ischemic stroke. Patients with severe stroke often lose consciousness and can not take fluid from mouth. As a result, their urine output is reduced, however, giving a lot of fluid intravenously to such patients may induce brain edema and increase the risk of acute respiratory arrest caused by brain hernia. Spinal tap (or lumbar puncture) may induce the respiratory arrest due to brain hernia, and therefore, the procedure is contraindicated for stroke patients. As such, symptomatic treatments can be hazardous in some cases. The root cause of too many symptomatic diagnoses on the mortality cases seems to be lack of knowledge on general internal medicine among the specialists.

## 5-4 Discussion

### 5-4-1 Lack of Tertiary-level Generalists as well as Specialists

In Navoi the former Oblast General Hospital was converted to the Oblast Emergency Centre several years ago, and there has been no tertiary-level general hospital since then. The Study Team repeatedly listened to the earnest wishes of the relevant people to establish a new general hospital. General hospital often means a big hospital, which has every specialty department, but a group of specialists tend to look after the 'organ' in which they have expertise and add organ-specific diagnoses rather than to systematically examine the patient and to reveal the hidden root causes, which affects the different organs. The cases described in the previous

section are typical examples of the pitfalls for a group of specialists without a leading generalist. To avoid such pitfalls, general hospitals should have a tertiary-level generalist with broad and deep experience.

#### 5-4-2 Current Status of Standards of Patients' Management

According to the authorities of MOH, clinical protocols and standards are under development. The Study Team had an opportunity to see the pilot version of standards for non-surgical diseases, and was told that similar protocols and standards would be developed soon for pediatric and surgical diseases as well. Such efforts have just been started at the Republic level, and are supported by all policy makers and technical leaders. Recently, “the standard management on acute coronary syndrome and another on hypertension,” developed by the Republican Cardiology Centre, were approved by MOH and distributed to all oblasts in Uzbekistan. Similarly, another working group has developed standards for neurosurgery and head trauma. The Republican Urology Centre works on its own standards, which were modified on the European standard. The contents are offered through the local area network (LAN). These are all positive examples.

#### 5-4-3 Necessity of Reliable Clinical Guidelines to Assure Quality Medical Services

The team observed several other points through the field missions, and made some preliminary recommendations.

1. In spite of the hard work done by the EBM Centre in the Tashkent Institute of Advanced Medical Education, it couldn't invite all professors, lecturers and doctors to the training module on EBM and clinical epidemiology. It has developed standards and protocols on hypertension, and on iron deficiency anaemia, but failed to enforce them to be implemented in routine practice.
2. Some Study Team members attended the eighth emergency conference held in Tashkent on 15<sup>th</sup> June, 2007. Unfortunately, some presenters in the conference did not understand the principles of protocol and standards development, rules of research work design, differences between research work and development of standards. Some research is carried out without the modern requirements of clinical epidemiology, that's why the results could be controversial.
3. During the field missions the Study Team could only find “the Standards for Emergency Care (2000)” in health facilities in Navoi, but this standard is already obsolete and has to be updated, in order to give more detailed instructions and criteria for patient management in different emergency cases. For most of the other diseases and conditions, no standards and protocol are currently available. And it makes the practice of doctors ineffective and decreases the quality of health care services.

4. Both the pilot draft of standards prepared by MOH (2007) and “the Standards for Emergency Care (2000)” are useful if clinicians have successfully reached diagnosis. However, difficulties lie with clarifying the diagnoses on patients with indecisive symptoms.
5. For such cases, clinical guidelines should be prepared for reasonable patient management.
6. As the practice proved, once-and-for-all type training is not enough to change doctors’ behavior and medical practice. Therefore, organizing regular refresh training is necessary.
7. It is also recommended that the necessary equipment and medicine will be systematically offered to every health facility based on the clinical guidelines and patient-load of each facility.

Other issues and the options to solve the problems should be fully discussed among the relevant people during the remaining period of the study. Table 5-4 shows a tentative summary of situation analysis and possible interventions.

**Table 5-4: Demarcation between Tertiary and Secondary Health Service in Navoi Oblast –Current Situation and Future Interventions**

	Situation of tertiary service	Situation of secondary service	Issues and constraints	Possible solutions
In general	Conservative therapies except for malignant cases	Conservative therapies with rare referral	Improving management of 7 diseases at once is technically and financially difficult.	Prioritization & Focusing
Ischemic Heart Disease	<ul style="list-style-type: none"> <li>• Conservative therapies except for malignant cases available only at Em Centre in Tashkent. Only conservative Tx in Navoi.</li> <li>• Lack of careful fluid management</li> <li>• Lack of cardiac monitor</li> </ul>	<ul style="list-style-type: none"> <li>• Too sick patients can not be transferred to tertiary- level facilities.</li> <li>• Sanitary aviation makes little difference.</li> </ul>	<ul style="list-style-type: none"> <li>• In how many years will aggressive Tx be introduced to Navoi?</li> <li>• Financial source for such Tx?</li> </ul>	<ul style="list-style-type: none"> <li>• i.v. injection of thrombolytic agents under monitoring arrhythmia.</li> </ul>
Cerebro-vascular attack	<ul style="list-style-type: none"> <li>• Surgical interventions can be done only in Tashkent.</li> <li>• Conservative Tx for both brain infarction &amp; hemorrhage in Navoi. Dx based on CT scan makes no difference in Tx.</li> <li>• Spinal tap is sometimes used for differential Dx.</li> </ul>	<ul style="list-style-type: none"> <li>• Same as above</li> </ul>	<ul style="list-style-type: none"> <li>• Same as above</li> <li>• Oblast Em Centre may be equipped with CT.</li> <li>• CT study should be free of charge at Em Centre.</li> <li>• Neurosurgeons can be assigned?</li> </ul>	<ul style="list-style-type: none"> <li>• Referring CT images to Tashkent for advice (tele-medicine)?</li> <li>• Spinal tap should be avoided.</li> </ul>
Cancer	<ul style="list-style-type: none"> <li>• Following the diagnosing of symptomatic patients with cancer, surgical treatment, chemotherapy and radiotherapy are given.</li> <li>• Anti-cancer agents are often out of stock, and should be purchased by patients in such cases.</li> </ul>	<ul style="list-style-type: none"> <li>• Suspected cases are referred to tertiary hospitals.</li> <li>• Some secondary-level facilities have a hematologist or an oncologist.</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term outcome from therapy remains poor if only symptomatic cases are treated.</li> <li>• Which organ should be prioritized to start the screening system for asymptomatic cancer?</li> </ul>	<ul style="list-style-type: none"> <li>• Otherwise, treat the curable cancer even in an advanced stage.</li> </ul>
Liver disease	<ul style="list-style-type: none"> <li>• A hepatologist is not available in Navoi Oblast.</li> <li>• There is no system to offer interferon Tx by free.</li> <li>• Patients with chronic liver failure have little chance to live.</li> </ul>	<ul style="list-style-type: none"> <li>• There is no higher-level facility to refer the patients with liver diseases.</li> <li>• Secondary-level facilities should accept patients at a terminal stage.</li> </ul>	<ul style="list-style-type: none"> <li>• Management of hepatic encephalopathy is not standardized.</li> <li>• Patient education is not proper on dietary Tx or abstaining from alcohol</li> </ul>	<ul style="list-style-type: none"> <li>• Proper Tx. guidelines for hepatic encephalopathy may improve the outcome.</li> </ul>
Renal disease	<ul style="list-style-type: none"> <li>• A nephrologist is not available in Navoi Oblast.</li> <li>• Hemo-dialysis is only indicated for acute intoxication.</li> <li>• Kidney transplants are against the law.</li> <li>• Dietary Tx + medication may delay the progress of renal failure.</li> </ul>	<ul style="list-style-type: none"> <li>• Same as above</li> </ul>	<ul style="list-style-type: none"> <li>• In how many years will dialysis Tx be introduced to Navoi?</li> <li>• Financial source for such Tx?</li> <li>• Patients can not come from rural areas to Navoi for regular dialysis.</li> </ul>	<ul style="list-style-type: none"> <li>• Introducing only hemo-dialysis?</li> <li>• Peritoneal dialysis as an alternative?</li> </ul>
Diabetes and complications	<ul style="list-style-type: none"> <li>• DM specialists work for outpatients only.</li> <li>• Patients with gangrene and retinopathy are referred to surgeons and ophthalmologists, respectively.</li> <li>• There is no solution for patients with nephropathy.</li> </ul>	<ul style="list-style-type: none"> <li>• Mild diabetic patients may be undiagnosed because of lack of a screening system.</li> </ul>	<ul style="list-style-type: none"> <li>• Management of diabetic coma is not standardized.</li> <li>• More strict control of blood glucose level is highly recommended.</li> </ul>	<ul style="list-style-type: none"> <li>• Proper Tx. guidelines for diabetic coma may improve the outcome.</li> <li>• Introduce the hemoglobin A1c assay?</li> </ul>
Childhood Acute Respiratory Infection	<ul style="list-style-type: none"> <li>• Referred patients are treated for “community-acquired pneumonia.”</li> <li>• Lack of blood gas analyzer and pulseoximeters</li> <li>• Delayed decision on introducing oxygenation or mechanical ventilation.</li> </ul>	<ul style="list-style-type: none"> <li>• “Community-acquired pneumonia” is treated at secondary-level, but is the treatment too long?</li> <li>• Primary-level facilities are equipped with oxygen concentrators &amp; pulseoximeters through the Health Project supported by the World Bank.</li> </ul>	<ul style="list-style-type: none"> <li>• “Partially treated pneumonia” and “pneumonia in patients with underlying diseases” should be differentiated from “community-acquired pneumonia.”</li> </ul>	<ul style="list-style-type: none"> <li>• Proper classification &amp; guidelines may improve the outcome of patient management.</li> </ul>

Note: Tx: therapy or treatment, Dx: diagnosis, Em: emergency, i.v.: intravenous

## **Chapter 6      People's Care Seeking Behavior**

### **6-1      Introduction**

People's care-seeking behavior is another important aspect of health care services. Generally, their socioeconomic status, cultural background, knowledge of diseases, impression of health providers and past experiences of their own, family and friends exert influences on their care-seeking behavior. In this survey, information was collected regarding those background factors as well as the people's behavior. Based on the collected data, the latest situation regarding the utilization of health services and the determinants affecting people's care seeking were analyzed. At the same time, people's perception of health issues and their impression of health care service providers were also examined.

### **6-2      Methods**

A structuralized interview survey was conducted to obtain quantitative data (household survey) and a qualitative interview (in-depth interview) was carried out with health personnel at the front line, such as patronage nurses and general practitioners in some SVPs (primary health care units) and a polyclinic.

#### **6-2-1      Household Survey**

The study team developed a questionnaire in cooperation with the Ministry of Health (MOH) and Navoi Oblast Health Administration (NOHA), which included the following items:

- General characteristics of the family and family members
- Living standards and condition of the family
- Care seeking behavior regarding injury, acute illness and chronic diseases in the last five years
- Care seeking behavior regarding maternal and child health in the last five years
- Death cases in the last five years
- Attitude and opinion on health care services

The household survey was conducted with 1,048 families in Navoi Oblast. The number of target families in each city/rayon, and rural and urban areas was decided according to population allocation. In respective rayons, some coverage areas of SVPs or polyclinics were selected as target areas. In the target areas, the target families were selected by systematic random sampling. Table 6-1 shows the sample allocation for each city/rayon, and urban and rural areas.

The Study Team employed 14 surveyors. Thirteen of them were medical doctors and four of them have worked on household surveys for the Uzbekistan Health Examination Survey.

**Table 6-1: Sample Allocation for the Household Survey**

City/ Rayon	Navoi	Kanimekh	Karnana	Tomdi	Zarafshan	Navakhor	Uchkuduk	Kiziltepa	Nurata	Khatirchi	Total
Urban area	163	13	36	0	71	0	29	13	49	30	<b>404</b>
Rural area	0	33	89	31	14	111	18	127	55	166	<b>644</b>
<b>Sub total</b>	<b>163</b>	<b>46</b>	<b>125</b>	<b>31</b>	<b>85</b>	<b>111</b>	<b>47</b>	<b>140</b>	<b>104</b>	<b>196</b>	<b>1,048</b>

Note: Urban area includes city area and city place

The Study Team provided the surveyors with 3 days of training to share their understanding on the concept of this survey and the intention of each question, and to teach communication skills. The surveyors formed 7 teams consisting of one man and one woman to interview, on an equal basis, both men and women in the target families. The surveyor teams were engaged in visiting the target families to collect the data from 28 May, 2007 to 18 June, 2007.

#### 6-2-2 In-Depth Interview

In-depth interviews were conducted to obtain qualitative data to support the results of data analysis of the household survey. A Japanese consultant with an interpreter interviewed 22 health personnel on the front line, such as general practitioners and nurses at SVPs in Uchkuduk, Zarafshan, Tomdi, Khatirchi, Kiziltepa, Nurata and Navakhor, and a polyclinic in Navoi City. Major items covered are as follows:

- Health personnel working in the SVP/polyclinic
- Coverage area, family and population
- Common health problems in the coverage area
- Outline of visitors of the SVP/ polyclinic and home visit activities
- Relationship with inhabitants of the coverage area
- Access to rayon center
- General characteristics of the coverage area
- Factors to avoid people having to go to health facility

#### 6-2-3 Data Analysis

The items regarding general characteristics and attitude towards health care services of the target families and their members and their care seeking behavior were analyzed. The study team used cross tables for categorical data and histograms for continuous data to describe the characteristics of target families and their members, and their tendencies regarding their care seeking behavior and attitude to health care services. Subset analysis was used to suggest relationships among general characteristics, care seeking behavior, and attitude to health care services. All statistical analysis was performed with the statistical package SPSS 11.5J for Windows.



These results of the statistical analysis were supported by qualitative data collected by in-depth interviews.

### 6-3 Findings

Based on the results of qualitative and quantitative data analysis, the following items are reported in this section:

- General characteristics of target families and their members
- Common health problems and care seeking behavior
- Care seeking behavior for maternal and child health
- Background of care seeking behavior

The results were compared by geographical condition as follows:

- (1) “Navoi city and urban suburbs” includes Navoi city and urban areas of Kanimekh, Karmana, Navakhor, Kiziltepa, Nurata and Khatirchi.
- (2) “Rural suburbs of Navoi City” includes rural areas of Kanimekh, Karmana, Navakhor, Kiziltepa, Nurata and Khatirchi.
- (3) “Remote areas” includes Tomdi, Uchkuduk, Zarafshan

#### 6-3-1 General Characteristics of Target Families and Members

##### (1) Demography

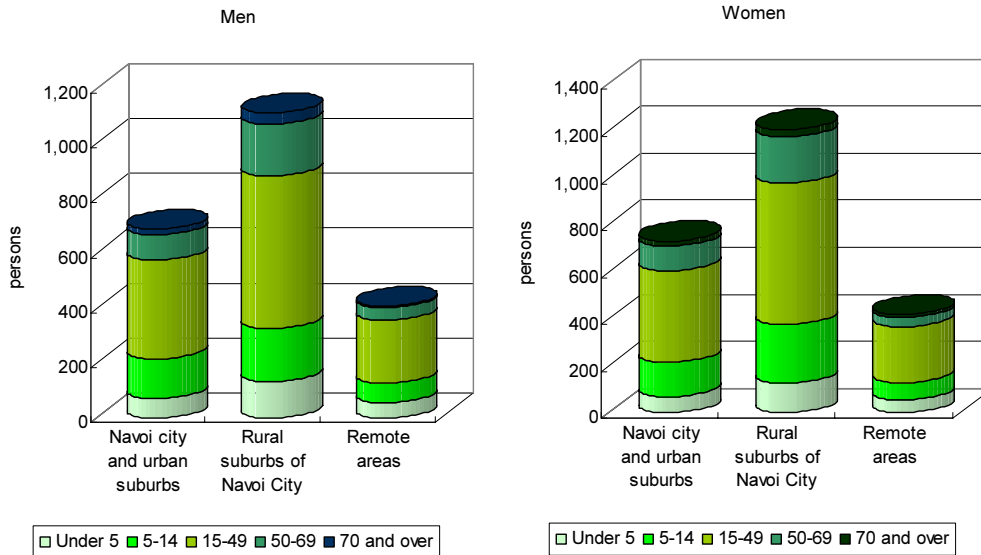
Demographic characteristics of the target families and members are shown in Table 6-2. The average size of families is larger in rural areas and remote areas than urban areas. As a result, the number of individuals in those areas is more than in the urban areas.

**Table 6-2: General Characteristics of Target Families**

		<i>Navoi City and urban suburbs</i>	<i>Rural suburbs of Navoi City</i>	<i>Remote areas</i>	<i>Total</i>
No. of families		295	590	163	1048
Families headed by women		19.3%	13.2%	14.2%	15.1%
Family size	Mean ± SD	4.8±1.59	5.6±1.40	5.1±1.71	5.3±1.54
No. of individuals	Men	688	1,109	408	2,205
	Women	733	1,210	418	2,361
	Total	1,421	2,319	826	4,566
Gender ratio		0.94	0.92	0.98	0.93
Age (Mean ± SD)	Men	27.6±19.02	29.4±20.35	26.6±18.27	
	Women	28.9±19.52	28.4±19.67	26.2±18.29	
Ethnic group	Uzbek	90.9%	87.6%	27.1%	
	Russian	1.3%	0.0%	1.0%	
	Karakalpak	2.3%	1.9%	3.5%	
	Tadjik	0.6%	2.7%	0.1%	
	Kazakh	3.5%	6.2%	67.5%	
	Tatar	0.9%	0.3%	0.5%	
	Other	0.6%	1.3%	0.4%	

Source: Answers to questionnaire of the Study Team

Figure 6-1 shows the population structure by age groups. The dependent population (under 14 and 70 and over) is 33% in three areas. The proportion of the reproductive population (15 to 49) in rural suburbs of Navoi City (50%) is a smaller proportion than in Navoi City and urban suburbs (53%) and remote areas (56%). The rural suburbs of Navoi City have a greater elderly population (60 and over) than the other two areas.

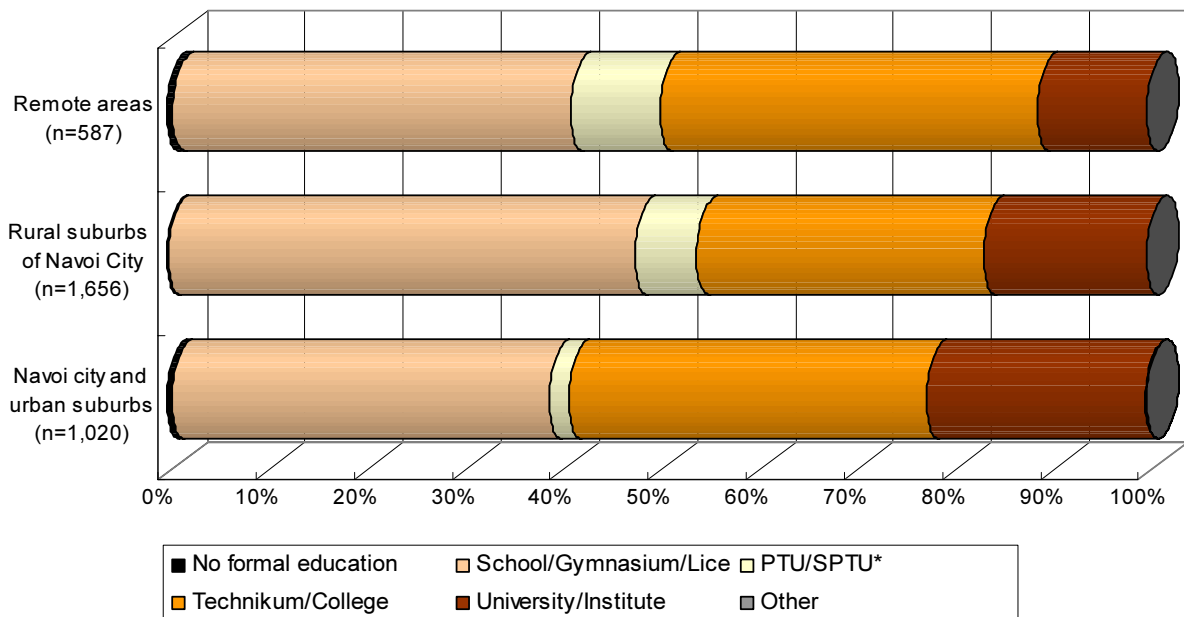


Source: Answers to questionnaire of the Study Team

**Figure 6-1: Age Groups of Family Members in the Target Families**

(2) Education

Figure 6-2 presents the highest education level of family members aged 15 and over. People in Navoi City and urban suburbs tend to have received a higher level of education.



Source: Answers to questionnaire of the Study Team

**Figure 6-2: Highest Education of Family Members (Age 15 and Over)**

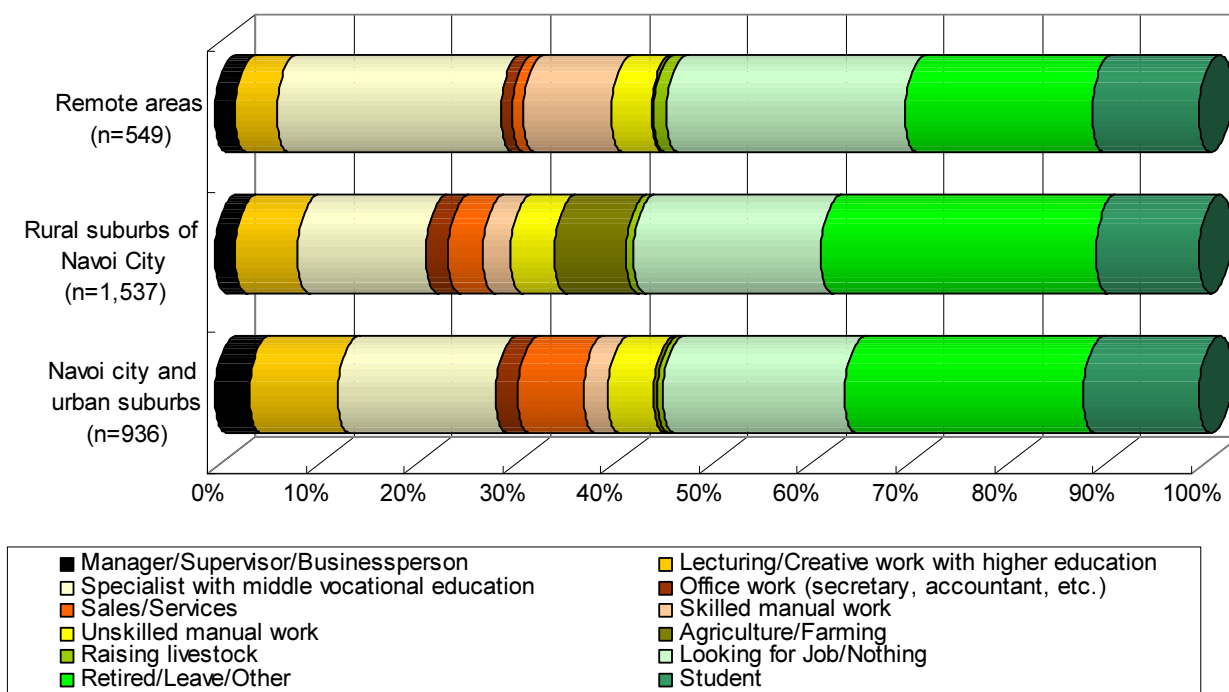
(3) Health knowledge

During the household survey, the surveyors asked four questions about common illnesses to the chosen respondents of the target families. Eighty four percent (84%) could give an appropriate answer about what would happen if they do not seek care regarding hypertension, while only 61% could answer correctly for anemia. Ninety two percent (92%) could answer correctly about how to prevent anemia, while 86% could for hypertension.

According to some health personnel working at the front line, they thought that most of the people would have the relevant knowledge, because they sometimes provided advice to prevent or improve common chronic diseases such as hypertension and anemia. However, from the above results, such advice might not be standardized.

(4) Living conditions

Figure 6-3 shows the occupations of family members aged 15 to 60. Specialists in rural area are usually involved in the agriculture sector. Fifty two percent (52%) in Navoi City and urban suburbs and remote areas have some occupation while the figure is less than half (48%) in the rural suburbs of Navoi City. Because there are industrial complexes in Navoi City and Zarafshan City, there might be more job opportunities. Among those working people, 68% in Navoi City and the urban suburbs, 66% in the remote areas and 56% in the rural suburbs of Navoi City could receive a regular salary. On the other hand, people working in the service or agriculture sectors might not have stable income, because they depend on the weather and season.



Source: Answers to questionnaire of the Study Team

**Figure 6-3: Occupation of Family Members (Age 15 to 60)**

In some remote areas, it is also difficult to cultivate agricultural products. Families in such areas are generally on welfare, and they sometimes sell their livestock when they need a large amount of money.

Regarding tools to access public information and communication, 78% of families buy newspapers regularly, 85% have radios, 99% have televisions, 39% have telephones, and 34% have mobile phones. The diffusion of telephones and mobile phones is much higher in Navoi City and urban suburbs (74% and 47%, respectively) than rural suburbs of Navoi City (24% and 27%) and remote areas (34% and 38%). In the areas without such communication infrastructure, some health facilities have wireless radio. It might be difficult for SVPs without such communication equipment to take prompt action for emergency cases; to call for sanitary aviation, referrals for patients, etc.

Generally in urban areas, people usually move around their residential area; they go on foot to buy daily consumables within their living areas. In rural areas, people go to the nearest city by public transportation.

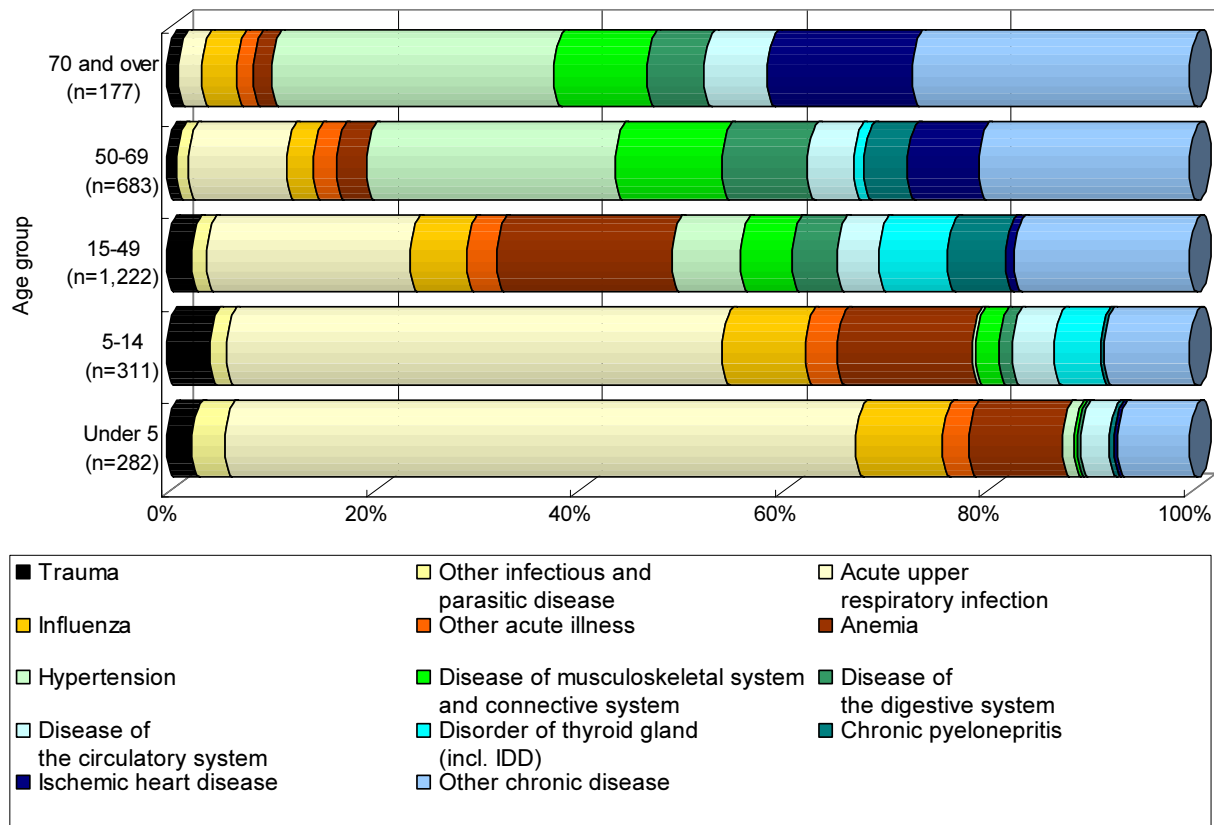
In the suburbs of Navoi, it is easy for people to access the Oblast center or regular market, because they have a road network and regular public transportation, while in some remote areas, they do not have roads and public transportation. Some of such areas are isolated during winter because the roads are frozen.

### 6-3-2 Common Health Problems Realized by People

The surveyors asked whether any of their family members have had health problems in the following three categories: trauma, acute illness and chronic disease; for the last five years. The respondents answered with name of the diagnosis if they could remember, or symptoms. The study team carefully translated those open-end answers into ICD 10 code and then summarized them as shown in Figure 6-4.

Among members of the target family, 30% have had health problems for the last five years and some had more than two problems. The proportion of people with health problems for the last five years was higher in elderly population (81% in 70 years and over, and 69% in 50 to 69 years), and less than 30 % in younger groups (20% in 15-49 years, 26% in 5-14 and 28% in under 5 years).

According to the respondents, acute upper respiratory infection and influenza are quite common among children, especially those under five. Chronic diseases are common among the adult population. Hypertension is common among the elderly. Iodine deficiency disorder is also common among women. Hypertension is common among people aged 50 and over.



Source: Answers to questionnaire of the Study Team

**Figure 6-4: Common Health Problems by Age Group (Last Five Years, Multiple Answers)**

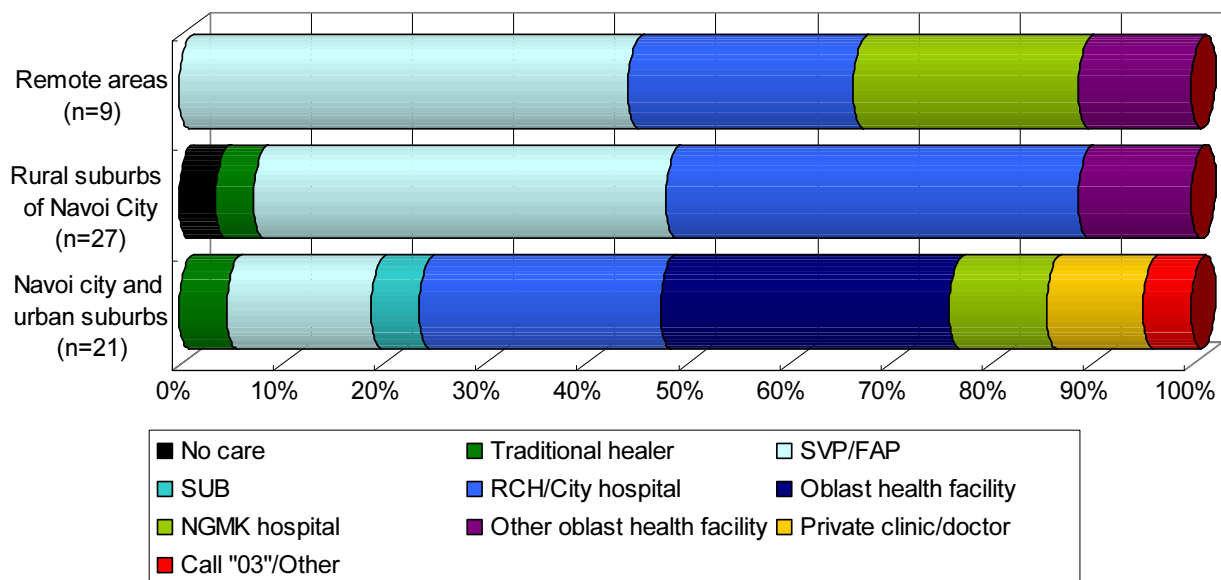
Anemia is widespread in the reproductive age group (15 to 49) and 84% of people who have had anemia were women. Sixteen percent (16%) of women in the reproductive age and 5% among children under the age of three have had anemia for the last five years. According to the “Millennium Development Goals Report, Uzbekistan 2006” (United Nations Office in Uzbekistan, 2006), anemia is found in 65% of women in the reproductive age and 61% of children under the age of three are reported to suffer from iron deficiency and anemia. Considering the gap between the result of this survey and the published figures, it is suggested that more women and small children in the target families might suffer from anemia, and that the general population might not be properly aware of anemia-related issues.

According to SVPs, diarrhea is also common during the summer because families sometimes have spoiled or contaminated food. However, some do not think that diarrhea is a disease so they do not seek care for diarrhea patients in their family.

### 6-3-3 Care Seeking Behavior for Health Problems

#### (1) First health service to seek care

As shown in Table 6-5, people sought care at both SVP and RCH (Rayon Central Hospital) when they had a trauma. In Navoi City and urban suburbs, people have more options than other areas. They could choose health services according to the seriousness of the trauma. In the rural suburbs of Navoi City, the major health service providers are SVP and RCH. In the surrounding areas of Zarafshan, people might access NGMK (Navoi mining and metallurgy complex) hospital, while in other areas, it is difficult to access Zarafshan so they only have one choice, namely SVP. Seven percent (7%) went to other oblasts. Most of those cases will probably be in the border areas, because an emergency patient could be treated by a health facility in another oblast if it is the nearest one. In Navoi City and urban suburbs, people can call “03” for an ambulance and easily visit the oblast health facilities.

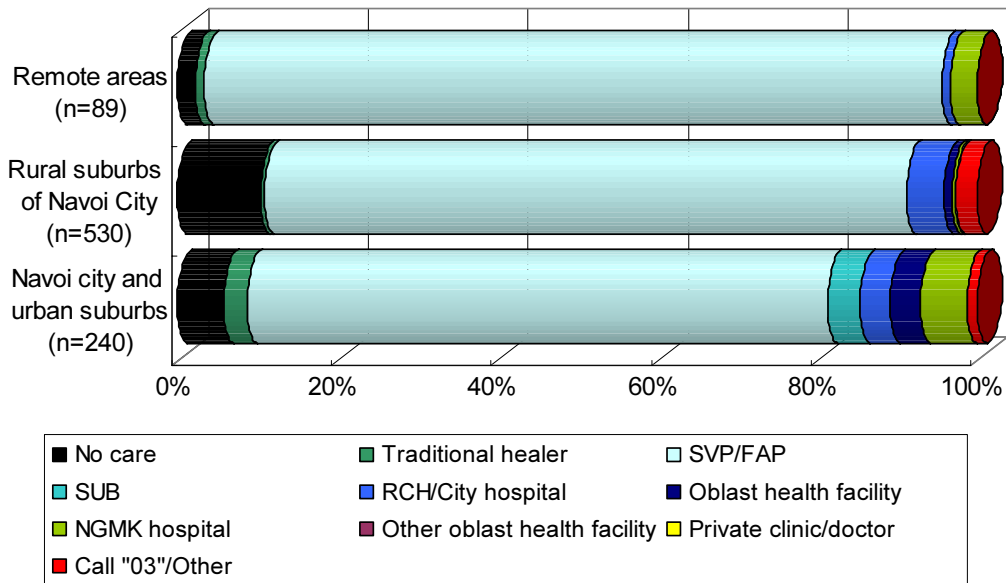


Note: SVP includes FAP; RCH= Rayon Central Hospital, including city polyclinic; HF=Health Facility  
 Source: Answers to questionnaire of the Study Team

**Figure 6-5: Care Seeking Behavior Regarding Trauma (Last Five Years)**

Injured persons usually might go to the nearest health facility on foot if the injury is slight. When it was difficult for them to go to the health facility, they could call the nearest primary health care facility to send medical personnel to their home or workplace. Among trauma cases, 7% received care at their home or their working place.

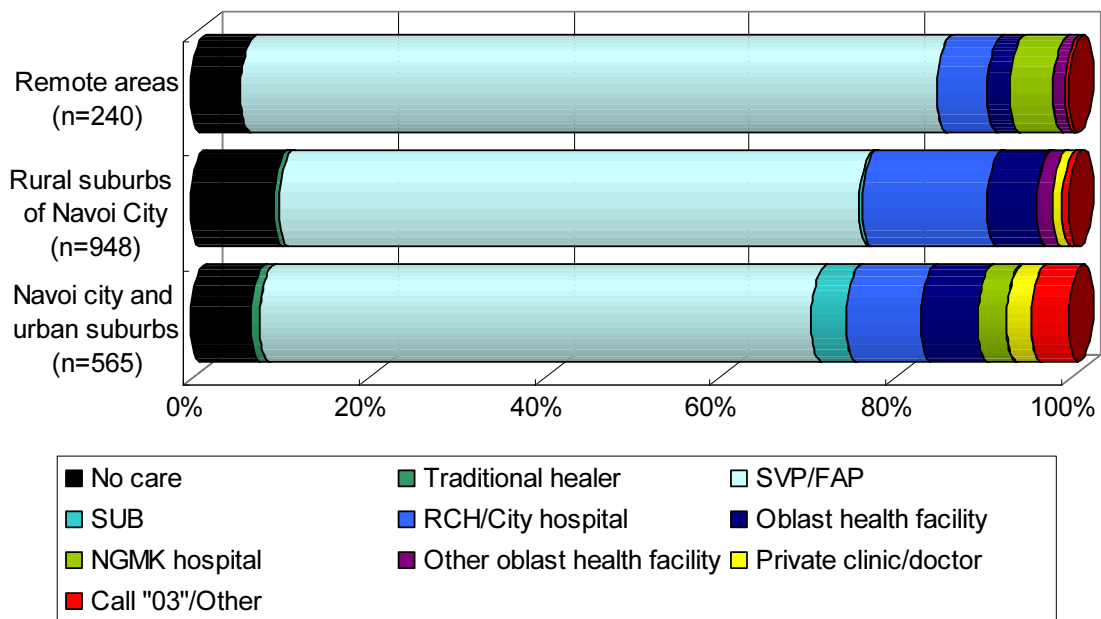
Because it is difficult for non-emergency patients to seek care in another oblast, the SVP is the most important health facility that can provide health services for acutely ill patients, especially in remote areas, as shown in Figure 6-6. In Navoi City and urban suburbs, there are more options. About 10 % did not seek care at health facilities but treated themselves in their own in home or went to traditional healers. Among acutely ill patient cases, 37% were treated in their home or workplaces.



Note: SVP includes FAP: RCH= Rayon Central Hospital, including city polyclinic: HF=Health Facility  
 Source: Answers to questionnaire of the Study Team

**Figure 6-6: Care Seeking Behavior Regarding Acute Illnesses (Last Five Years)**

Care seeking behavior regarding chronic diseases tends to be similar to acute illness cases. As shown in Figure 6-7, more people went to upper level health facilities such as RCHs or oblast health facilities than those with acute illnesses. About 9% did not seek care at health facilities but treated themselves in their own homes, or went to traditional healers. Among chronic disease cases, 9% were treated in their home or work places.



Note: SVP includes FAP: RCH= Rayon Central Hospital, including city polyclinic: HF=Health Facility  
 Source: Answers to questionnaire of the Study Team

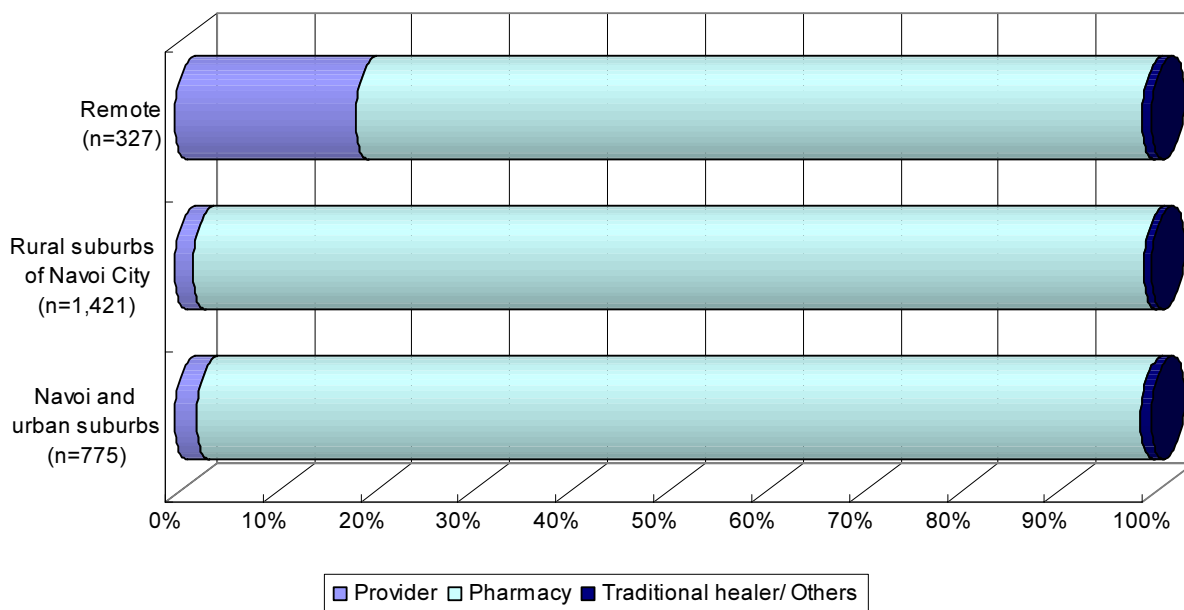
**Figure 6-7: Care Seeking Behavior Regarding Chronic Diseases (Last Five Years)**

No significant difference was found in care seeking behavior by educational background, economic situation (it was judged on condition of house and occupation), nationality, and knowledge about common diseases (hypertension and anemia).

(2) Medicine

Although medicine provided by the health facilities is free, access levels to the free medicine were different between the suburbs of Navoi and remote areas. Figure 6-8 shows where people got medicine after receiving care in health facilities for trauma, acute illness and chronic illness. Only 2% of the patients in Navoi City and urban suburbs and rural suburbs of Navoi City got medicine at the health facilities, while the ratio was 19% in remote areas. Most of the other patients bought the necessary medicine in pharmacies or drug vendors at their own expense.

According to the results of in-depth interviews, as most of the health facilities can not receive enough medicine to provide for all the patients, they prioritize the patients to whom they give the free medicine according to their socioeconomic situation. Most of the other patients buy the prescribed medicine, but some of them can not afford it and complain about the expenditure of prescribed medicine.

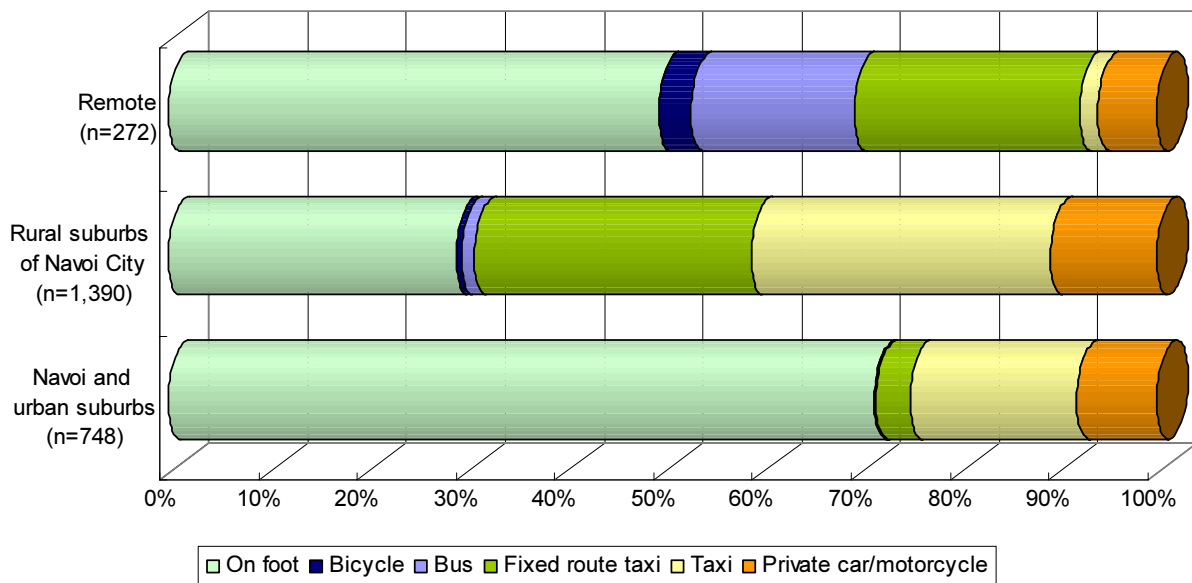


Source: Answers to questionnaire of the Study Team

**Figure 6-8: Providers of the Medicine**

Although people in the suburbs of Navoi City had to go to buy the necessary medicine, they seemed to be able to access the pharmacies or drug vendors easier than people in remote areas. Figure 6-9 shows the means of transportation used by the people who went to pharmacies to buy medicine.





Source: Answers to questionnaire of the Study Team

**Figure 6-9: Transportation to Go to Buy the Medicine**

In Navoi City and urban suburbs, about 70% of people went to pharmacies on foot. It means that there are pharmacies near their residences or the health facilities they visit. In the rural suburbs of Navoi City, about 60% of people used public transportation (bus or taxi). It suggested that they had to move longer distances to go to pharmacies, but they had better access than the remote areas because of better and more frequent public transportation.

In the remote areas, about 50% of people went to buy medicines on foot. According to the results of in-depth interviews, mobile pharmacies come regularly, usually once or twice a week, to some remote areas. Accordingly, it is suggested that some of the people in the remote areas buy medicine from mobile pharmacies. On the other hand, about 40% of the people used public transportation, mainly buses. In the remote areas, public transportation comes less frequently, and people generally might have to travel longer distances, spending more time and money, to buy medicines.

(3) Referred cases

Among people who went to seek care at health facilities in the last five years, 19% of patients with trauma, 2% with acute illnesses and 17% with chronic diseases were told to go to higher levels of health facilities (secondary or tertiary). Trauma and acute illness patients were mainly referred to RCH to have more specialized care. Chronic disease patients were usually referred to the appropriate facility to have the necessary examination and diagnosis; thirty percent (30%) of them were referred to RCH, 32% were referred to an oblast health facility, and 15% were referred to another oblast. After they had the diagnosis, the primary health facility provides care according to the prescription. According to the results of the household survey, almost all people

followed such instructions to go to a higher level health facility. However, some did not go. According to health personnel in SVPs, the major reasons were:

- They could not afford to pay for the medicine, related costs and/or transportation for themselves and the attendant; or
- They did not want to bother their family through having to take care of their children during their absence (in the case of housewives), or to have to visit the patient in the hospital with some food.

If they are transferred from SVP to RCH or an oblast health facility, they can use an ambulance. However, their family often has to provide the fuel. Therefore, people in remote areas might feel the oblast emergency center is quite far, and some living in the border areas go to another oblast's health facilities which are nearer to their area. In some remote areas, it is difficult to have prompt sanitary aviation areas which do not have enough transportation and communication infrastructure. The health care service providers in such areas sometimes have to manage to save their patients by their own effort. Therefore, the responsibility and burdens of the health providers in those areas might be considerable.

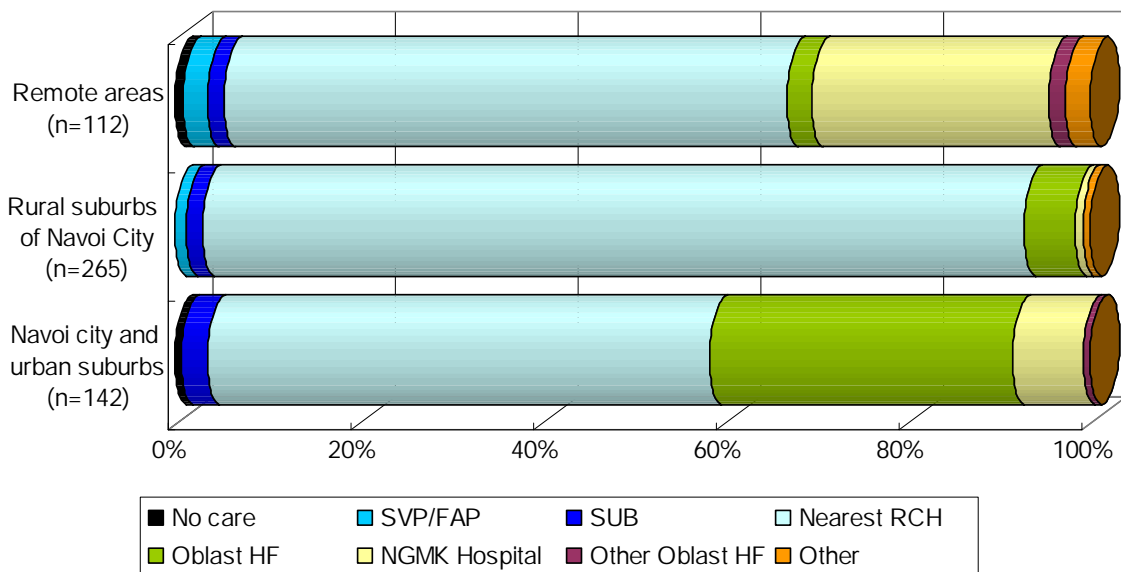
Although there are Navoi mining and metallurgy complex (NGMK) Hospitals in Zarafshan, basically they provide health care services for the employees and their family. SVPs in Tomdi refer their patients to oblast health facilities in Navoi, except in emergency cases. However, transportation costs might be a heavy burden and sometimes fuel is not available. Therefore, SVP staffs in such areas advise people to buy a certain amount of fuel for emergency situations such as during a pregnancy.

#### 6-3-4 Care Seeking Behavior for Maternal and Child Health

##### (1) Maternal health care

Figure 6-10 shows health facilities for births in the last five years. Seventy four percent (74%) of deliveries were made in RCH as planned. Deliveries in SVP, oblast health facilities and NGMK Hospital (19% in total) could be considered to be high risk pregnancies or emergency cases. However, RCH in the rural suburbs of Navoi City might take care of the more high risk pregnancies, because 90% of deliveries took place in these facilities.

In the rural suburbs of Navoi City and remote areas, more than 90% of women who have been pregnant in the last five years received prenatal care at the primary health care facility, while in Navoi City and urban suburbs it was 80%, and 15% went to RCH or an oblast health facility. On average, pregnant women received prenatal care 15 times. Some changed their health provider for prenatal care, because they had some health problems or they were not satisfied with the health care provided in the primary health care facility.



Note: SVP: RCH= Rayon Central Hospital, including city polyclinic: HF=Health Facility  
 Source: Answers to questionnaire of the Study Team

**Figure 6-10: Health Facilities for Deliveries (Last Five Years)**

(2) Child health care

Mothers usually take their children under 5 years old to a primary health care facility once a month (60%) or once a quarter (23%). About 40% of children receive home visits by a patronage nurse once or twice a week (69%) or once a month (26%).

According to the results of in-depth interviews, patronage nurses in rural areas tend to visit more frequently and spend more time per family than in urban areas. They encourage mothers to go to SVP/polyclinics for regular check-ups and vaccinations, provide advice about child care, and help to have the necessary medical care if they find health problems with either the mother or her child.

6-3-5 Death Cases

There were 109 death cases in the last five years. Seventy percent (70%) died at their home, especially the adult cases. Most of the children under 14 years old died at hospital (9 cases out of 12). Although 62% of families thought the death could not be avoided, 23% thought the health provider could have saved the ill individual if there were proper medicine and/or equipment, or qualified health personnel.

According to health personnel in SVPs, when a family is aware it is difficult to save the patient, they decide to take him/her back home to spend their last moments with the family because of cultural and religious reasons. However, parents usually struggle to try and save their children even in difficult situations.

### 6-3-6 Communication with Health Service Providers

In 80% of families, some of their members visit the nearest health facility even when they do not have a health problem. The major purposes are for health check ups for children and documentation regarding their health status to apply for a job. Few people were aware that they could visit health facilities for health promotion reasons, although SVPs provide some events related to health promotion.

Eighty two percent (82%) of families receive regular home visits by health providers. According to patronage nurses, they visit families in their areas according to the regulations. They check the health status of family members, hygiene condition of the house, talk about some health promotion topics and provide some advice for pregnant women, mothers of small children and chronic disease patients, if necessary. Generally, relationships between health personnel and the general public seem to be closer in rural area than urban areas.

### 6-3-7 Background of Care Seeking Behavior

#### (1) Decision Making

As shown in Table 6-3, people decide where to seek care for adult-related sickness or trauma by their own, if they remain conscious. As for maternal care, the husband or his parents might be the final decision maker in 50% of families.

According to the results of in-depth interviews, people tend to try their best to save their children although it could be costly. As for child care, the final decision maker varies among families.

**Table 6-3: Decision Maker of Care Seeking in Adult-related Illness, Maternal Care and Child Care**

	(n)	Patient him/herself	Spouse of the patient	Husband	Wife	Husband and wife	Parents of husband/ Grandparents of father	Parents of wife/ Grandparents of mother	Other
Care of illness/ trauma	(1,637)	80.0%	7.7%	n.a.	n.a.	10.6%	0.9%	n.a.	0.7%
Maternal Care	(426)	47.9%	45.1%	n.a.	n.a.	n.a.	5.6%	0.2%	1.2%
Child care	(614)	0.0%	n.a.	30.0%	37.5%	19.5%	11.6%	0.3%	1.1%

Source: Answers to questionnaire of the Study Team

People usually consider advice or information provided by health personnel, family members or neighbors to choose health care services. Some also refer to mass media such as TV programs or commercial films about medicine.

#### (2) “Why they did not seek care?”

As described in Section 3-3-2, around 9% of people with acute illnesses and chronic diseases did not go to a health facility. The major reasons are as follows:

- They are indifferent about their health/ passive about keeping themselves healthy.
- They can not afford medicine, transportation, and other related costs.
- They have health personnel in their family/ neighborhood so can have free treatment/ consultation.
- They treat themselves at home. (with traditional/folk healing)
- They have had a bad experience with the health service provider in the past.
- They do not want to bother their family.

Among the above, economic conditions might strongly affect their care seeking behavior. Some pointed out the present health care services were not worth paying the various direct and indirect costs. On the other hand, some make the maximum effort possible to have qualified care regardless of the economic burden. Therefore, such people go to a private doctor/clinic even out of Navoi oblast.

(3) “Why they were not satisfied with the care?”

According to the results of household surveys, most of the respondents were satisfied with health care provided when they had a health problem. However, some might not express their honest opinions in front of the surveyors working with the health administration and SVP staff who had established close relationships with the people.

The following were reasons why some people were not satisfied with the care:

- They had to pay for medicine.
- They had to pay for food, linen and other related items for hospitalization.
- They could not see “qualified” health personnel.  
(it means they did not want to be treated by a general practitioner but a specialist.)
- Prescribed medicine was expensive.
- They could not feel any improvement.
- Inpatient facilities were not comfortable (congested, dirty, etc.).
- They could not communicate well with health personnel.  
(It means some had been treated roughly or medical personnel were not especially kind to them.)

(4) Criteria to choose health service

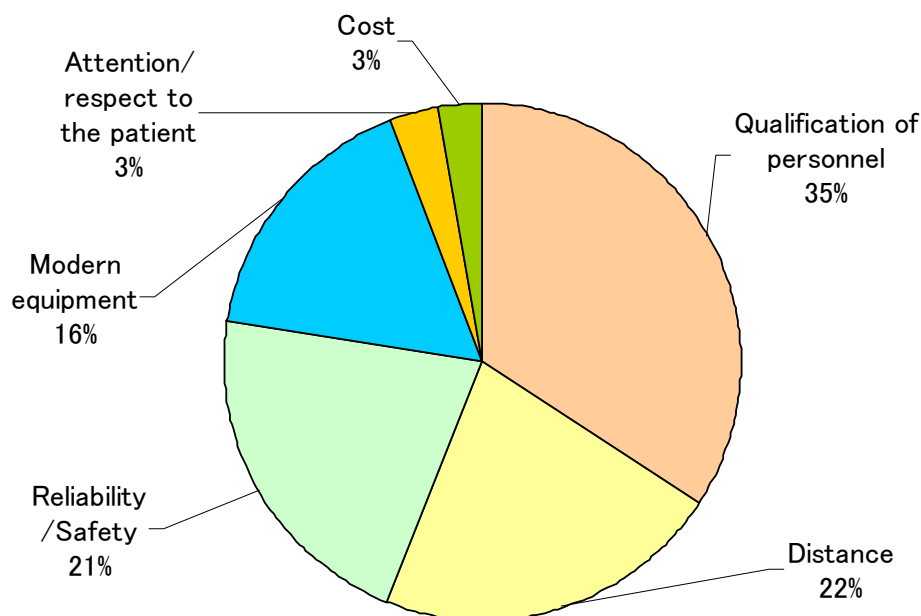
Figure 6-11 shows three criteria to choose the health care service. People tend to consider the qualifications of health personnel as the priority, then distance, reliability and equipment.

It is suggested from open-ended answers in the household survey that qualifications for health personnel means specialist doctors. Some complained that their children were treated by general practitioners and they wanted to see specialists. Although the government of Uzbekistan is promoting general practitioners and has been providing training, the general population might

still think it is more important for them to see a doctor with intensive knowledge rather than a doctor with extensive knowledge.

Distance means that people can receive care fast, and also might be linked with indirect costs such as transportation and opportunity cost. If it takes a long time for them to receive treatment, they have to pay for transportation and some women have to ask other family members to take care of their children or other household work.

Reliability and safety might be supported by modern equipment, qualified personnel, previous experience and reputation.



Source: Answers to questionnaire of the Study Team

**Figure 6-11: Three Criteria to Choose Health Care Service (n=2,297: Multiple Answers)**

At the end of the questionnaire survey, the surveyors asked the respondents their frank opinions or expectations to health care service providers. Generally, they wanted to reduce their economic burden, i.e., they would like to have more free medicine and related materials such as linens or meals for inpatients. They also desired health staff to improve diagnostics and treatment skills, qualifications and attitude to respect patients. In urban areas, people tended to make a point regarding the improvement of health facilities and/or equipment, while in rural areas, they wanted to have pharmacies, because they have to go far to buy medicine. Also they think health facilities in rural areas need to have an ambulance, because they sometimes face difficulties to find transportation to refer to the patient.

(5) Use of private health service provider

Twenty percent (20%) of the target families have ever used private clinics. Generally, those private clinics are operated by an experienced doctor who has a good reputation as a “qualified doctor”. Such clinics usually have modern and better equipment than government-operated health facilities. SVPs or polyclinics sometimes refer their patients to those private clinics if his/her family can afford to pay the costs and he/she wants to.

## 6-4 Discussion

### 6-4-1 Background of People’s Care Seeking Behavior

The results of the household survey suggest that care seeking behavior might depend on distance and access to the health facility, economic status, cost-effectiveness and perception of health and illness.

In Navoi City and urban suburbs, people have better road access and transportation than the other areas, and they can easily access the oblast capital. In the rural suburbs of Navoi City, although people spend more time and cost to access the oblast capital, they can get there easier than from remote areas. In the remote areas, people might feel that the oblast capital is very far and actually, people have to spend a lot of time and money for transportation to reach the city. In urban areas, people could access various information sources and other options to solve their health problems, while in rural areas, health personnel in primary health care facilities might be the major information sources and main health service providers from whom to seek care.

The survey results also show that people generally rely on primary health care service providers. They go to the nearest primary health facilities to seek care when they have a health problem. If the health problem is serious, they spend more money and time to seek better treatment, especially for their children. However, the number of referred cases to the oblast health facilities in the last five years seems to be small, according to the results of the household survey.

Although most of the patients followed the instructions of health personnel to go to higher levels of health facilities, some did not go because they didn’t want to bother their family members or neighborhoods. In the remote areas, it might be more difficult to go to higher levels of health facilities in the oblast capital because there is little public transportation and the fuel supply is unstable. In addition, health facilities have neither an adequate number of vehicles nor sufficient fuel, because these are distributed according to the coverage population of health facilities regardless of the spread of the area. In the remote areas of Navoi Oblast, population density is generally low and the vehicles of health care service providers have to move longer distances than in the other areas. Therefore, the standard or regulation of vehicle distribution and fuel supply for health facilities in such areas should be revised, with careful consideration given to the distance from the oblast capital and households in their coverage areas.

Although most people answered that they were satisfied with the services, some complained about the qualifications of doctors in primary health care facilities. They wanted more qualified medical personnel. People generally tend to prefer specialist doctors to general practitioners. People might consider the balance of the economic burden and quality of services, which includes qualification and attitude of health personnel, the condition of facilities for patients, and appropriate equipment, to be an issue. The economic burden includes direct and indirect costs such as medicine, transportation, and opportunity cost, etc.

Even there are some complaints, most people pay for their medicine, because the budget is not enough to supply enough medicine to all health facilities. It might suggest that they could afford to bear some health care-related costs. Therefore, medicine could be one of the alternatives to help obtain additional financial sources especially in rural areas if legal and administrative limitations could be overcome. In the remote areas, there are no or few pharmacies and people have to wait for mobile pharmacies that come once or twice a week, or go far to a city location. In some markets, people might sometimes be at risk regarding fake medicine. If a public agency could maintain pharmacies and/or a drugs fund in such areas, the quality of medicine could be controlled and monitored and people could save time and costs in obtaining their medicine. At the same time, if the prescription is appropriate and not too expensive, the burden of the patients could be decreased and could save more free medicine at public health facilities.

#### 6-4-2 Perception of the Health and Illness of People

The perceptions of the health and illness of people might not be enough despite frequent communication with frontline health workers such as patronage nurses. Some are not aware that they have some health problems, such as anemia and diarrhea, and some are indifferent to their own health status. Although patronage nurses advise people to go to see a doctor, some do not want to follow the advice until their condition gets worse. From the viewpoint of early detection of non-communicable diseases (NCDs) such as hypertension and diabetes mellitus, people's awareness should be raised so that they pay attention to their health even though they have no significant subjective symptoms. At the same time, a regular high-quality health check-up system, which prompts people to practice a healthy lifestyle and adequate care seeking measures, is desired.

#### 6-4-3 Health Promotion Activities in Grassroots Level

Primary health care services generally seem to function well in regards to diagnosing health problems and encouraging people to have regular check-ups or medication. However, some of the services should be revised according to a change of health needs and people's attitude to health. The visits of patronage nurses seems to be welcomed by people in rural areas and helps maintain good communication in the community, while some families feel it is a burden in poverty stricken areas because they have to offer some tea and snacks to a visitor. In urban areas,



some people are reluctant to receive regular visits because they are busy with their business or do not want to have their privacy invaded. However, if such people think the visits worth receiving and effective to promote their health, they might change their attitude to patronage nurses. The patronage system might make some people passive or lazy in regards to the promotion of their own health. Such people do not feel that they are responsible for their own health, and just rely on the nurses' instructions.

The patronage system could be an important information source regarding health status and the needs of people, and a valuable tool to look after chronic disease patients at home and to increase awareness of the importance of regular health check-ups. The contents of the activities would be regularly modified based on the actual needs and situation of the people. Accordingly, systematic information management and reviews should be necessary. At the same time, regular in-service training could be effective to share information among the nurses and upgrade their knowledge and skills to catch up with the changing health needs.

## Chapter 7 Surveys at Other Oblasts for Reference

### 7-1 Introduction

The Study Team had some short trips to other oblasts in Uzbekistan to collect relevant information for reference. During the Field Mission 2, the Japanese consultants and their assistants visited and interviewed the Oblast Health Administrations and health facilities in selected oblasts, namely, Bukhara Oblast, the Republic of Karakalpakstan and Fergana Oblast. The information was collected in terms of general information and the characteristics of respective areas.

Similarly, a Japanese consultant and his assistant interviewed several chief clinicians in Tashkent, and attended the 8th Ministry of Health Conference held on 15th June, 2007 in the State Scientific Centre of the Emergency Medical Service. However, these activities were done for studying the standards and protocols of medical practices in Uzbekistan rather than describing the overall picture of the health care system in Tashkent City. Technical information collected in Tashkent was used as a reliable reference to carry out a review of death cases described in Chapter 2.

In implementing the surveys, the following attention was especially paid in accordance with the characteristics of selected oblasts: as for Bukhara, transition of referral of patients related to the transformation of oblast borders with neighboring Navoi Oblast and financing of health services; as for Karakalpakstan, the provision of health services in remote areas because of similar geographical settings to Navoi; as for Fergana, the progress of health care reforms in the oblast with completely different demographic, geographic, historical and economic backgrounds from Navoi.

The results of surveys useful for the reform of health care services in Navoi Oblast are summarized below.

### 7-2 Simple Comparison of Navoi with Three Selected Oblasts

Table 7-1 and Table 7-2 show the major health indicators of the Oblasts of Navoi, Bukhara and Fergana and the Republic of Karakalpakstan for instant comparison.

**Table 7-1: Comparison of Major Health Indicators in 2005**

	Uzbekistan	Navoi	Bukhara	Karakalpakstan	Fergana
Crude birth rate (per 1,000 pop)	20.3	19.9	19.8	20.6	19.7
Crude death rate (per 1,000 pop)	5.4	5.3	4.5	5.8	5.2
Total fertility rate (per woman at reproductive age)	2.36	2.27	2.19	2.34	2.28
Infant mortality rate (per 1,000 live births)	14.9	10.9	12.0	17.4	19.3
Under 5 mortality rate (per 1,000 live births)	20.6	16.7	16.5	23.7	24.6
Maternal deaths (per 100,000 live births)	29.2	49.3	29.9	15.4	31.7
Health problems (per 100,000 pop)					
SDR of circulatory system diseases	754.2	804.8	710.9	706.9	752.1
SDR of respiratory system diseases	66.4	42.3	86.6	197.8	56.4
Newly diagnosed TB cases	76.0	77.4	68.3	137.6	66.9
Anemia incidence	7,803.7	13,567.5	12,237.1	15,004.1	8,360.4
Endemic goiter incidence	1,807.8	2,387.8	2,078.5	626.5	4,730.0
Microbiological food borne diseases	30.1	43.6	16.1	50.8	61.2
Traffic accident with injury	41.7	26.6	22.8	28.0	38.6
Persons injured by work-related accidents	2.7	11.1	1.7	0.5	1.9
Water and sanitation (%)					
Households with access to water supply	84.2	95.3	65.5	73.7	88.7
Households with access to sewage, etc.	60.0	66.6	50.8	16.4	48.4
No. of ambulance calls (per 100 pop)	21.4	31.1	16.3	12.6	23.3
No. of general practitioners (per 100,000 pop)	74.9	79.0	100.3	62.0	62.1
Average length of stay (days)	10.6	9.6	9.4	11.8	10.2
No. of abortion (per 1,000 live births)	91.3	112.1	50.4	55.3	87.0

Note: SDR is short for standardized death rate.

Source: State Committee of the Republic of Uzbekistan on Statistics (2006) Healthcare in Uzbekistan: Facts and Figures

### 7-3 Survey of Bukhara Oblast

#### 7-3-1 General Information

Bukhara Oblast is located south of Navoi Oblast. According to the Bukhara Oblast Health Administration, the population is 1,535 thousand and has a population density of 38 people per /km<sup>2</sup>. Owing to the presence of World Cultural Heritage sites, tourism is the major source of income in the oblast as well as agriculture and the processing of agricultural products.

Bukhara Oblast consists of 11 rayons. In the transition of the oblast border just before independence of Uzbekistan from the Soviet regime, Navoi City was a part of Bukhara Oblast from 1989 to 1992.

#### 7-3-2 Key Findings

##### (1) Health Situation in Bukhara

The total number of hospital beds is 6,537, and the Oblast General Hospital holds 450 beds. The total number of emergency beds in the oblast is 578. The Emergency Hospital holds 255 beds and the remaining 323 beds are held by RCHs. Each RCH has 30-60 beds according to the population in the rayon. The average length of stay in the emergency department is 3-5 days based on the level of the emergency. After a patient's condition has improved, he/she is moved to non-emergency wards of the Oblast General Hospital or RCHs.

Bukhara Oblast has 16 different Oblast Dispensaries: psychiatric (270 beds), narcotic (80), cardiac (90), oncology (100), TB (300), endocrinology (120), dermatology (120) and pediatric

rehabilitation (70). The health administrators are considering the merger of these dispensaries or to reduce the number of beds. Thus, they try to optimize the utilized bed capacity and decrease the administrative expenses, as well as to ensure that some of those Oblast Dispensaries follow the fee collection policy.

The Bukhara Medical Institute was established 10 years ago. Most doctors working in the Oblast are graduates from either Samarkand or Tashkent.

Common causes of mortality in Bukhara are heart diseases (52%), respiratory tract diseases (8%), malignancies (7.5%), accidents including poisoning and drowning (5.5%) and other causes (19%).

## (2) Finance

The portion of self-financing by patients will be further increased in the coming 5 years. This policy was initiated by Presidential decree and this year is the 7th year. The final target in 2010 will be 50% from non-governmental sources and 50% from the government budget. The hospitals which offer health services to exempted patients do not collect fees at all. The following categories are exempted patients: children under 14 years old, emergency, obstetric, oncological, TB, psychiatric patients, patients with transplanted kidneys and heart valves, and invalids of the I-II groups. Also in 2009, the Bukhara Oblast General Hospital will open special departments for the elderly, the disabled, and for people who live alone, and provide them with follow-up treatment free of charge. The other patients will receive self-pay medical services. The non-governmental sources may consist of users' fee, rent, donations by sponsors, etc.

This year the total amount of the oblast public health budget in Bukhara is 36,620 million soums, which comprises 18% of Oblast GDP. The proportion of self-supporting services is 6.1% of the total oblast health system budget.

The budget for the Oblast General Hospital is allocated from the Oblast's general budget. During the last two years, the hospitals with the budget have started to charge for treated cases. In the last year, the sum for each case was 14,500 soums/patient, this year – 19,000 soums/patient. From this year, the budget of oblast hospitals/dispensaries is formed according to their requests (according to the amount of money spent in the previous year). The amount of the actual budget allocation will be decided by the Ministry of Finance and the money will be directly transferred from the Oblast exchequer to the bank account of each hospital.

The budget for the RCHs and the primary-level medical facilities (SVPs) is allocated by each rayon. The financing mechanism for the SVPs has been reformed. Last year, the per capita budgeting system was only applied in 4 rayons (131 SVPs) and the amount was 3,663 soums per capita. This year, another 7 rayons (332 SVPs) have transferred to the per capita budgeting system and the amount (4,857 soums per capita) is calculated according to the size of their catchment population.

(3) Referral

While the Navoi area formerly belonged to Oblast Bukhara, 30-35% of patients admitted to Oblast hospitals/dispensaries were from the Navoi area. However, after its independence, a limited number of Navoi people come across the border. Exceptionally, patients with psychiatric, narcotic and endocrinological problems are more often admitted to the dispensaries located in Bukhara. The Neuropsychiatry dispensary and the Narcology dispensary in Navoi have relatively small number of beds, and the endocrinology dispensary in Navoi does not have a ward to admit patients. This situation seems to be the reason why the patients with such problems often spill from Navoi oblast into Bukhara oblast.

(4) Bukhara Branch of Republican Emergency Center

The Emergency Centre was converted from the former City Hospital of Bukhara in 2000. It closed non-emergency departments such as obstetrics, oncology or pediatric surgery, and transferred toxicology and emergency pediatric/infant surgery from the Oblast Hospital. At the time of opening, it employed staff doctors through public advertisements within the oblast.

Drowning is one of the common causes of childhood deaths. Most victims drown in the irrigation canals in rural areas, and the incidence rate is the highest in older children (6-7 years and older).

The majority of the patients of the center are not from remote areas but from Bukhara city because emergency cases in rural areas are mostly treated in RCHs. The average length of a patient's stay in the center should be four or five days, however, patients too serious to be moved to other hospitals are permitted to stay for a month, depending on their condition.

(5) Bukhara Oblast Diagnostic Center

The Bukhara Oblast Diagnostic Center was reconstructed and opened last year. The physical structure has been built by the Oblast Government (Khokimiyat), doctors were hired through public advertisements, the equipment was donated by local private companies and emirates of gulf countries, and reagents are purchased by money collected from users. The Oblast Khokimiyat established a special fund for health care system support and development. The oblast factories and plants transfer some part of their profits to this fund. This year, the construction of a new maternity hospital has been started in the remote rayons, financed by this fund. This mechanism is exactly the same as a public private partnership (PPP).

The installed equipment is from Western manufacturers. There are two ultrasound scanners: one is a color doppler type mainly used for cardiological examination and the other is an ordinal type mainly used for general and gynecological examination. Every organ can be examined in this section. The user fee is set from 3,000 to 4,000 soums according to the types of examination. A CT scanner was bought by the oblast three years ago and transferred to the center when it opened. The user fee is set from 28,000 and 35,000 soums according to types of examination.

The Diagnostic Center has maintenance service contracts with dealers of manufacturers in Tashkent. Engineers are dispatched to the center for check-ups and basic maintenance of

equipment every other month. When equipment needs to be repaired, the technical service is free of charge, but the center has to pay for spare parts.

#### 7-4 Survey at Republic of Karakalpakstan

##### 7-4-1 General Information

The Republic of Karakalpakstan is a national administrative unit of the Republic of Uzbekistan and borders with the Republic of Kazakhstan in the north, with Turkmenistan in the south, with Khorezm Oblast in the southeast, and with Navoi Oblast in the northeast. It was established in 1924 as a national administrative unit, and has 2 towns and 14 rayons. Among a total population of 1,582.7 thousand, children aged 1 to 5 comprise 32.9% (521,320), 15-17 years old 7.7% (122,100), women 49.9% and the elderly aged 55-60 years old 6.2%. 51.5% of the people live in rural areas. Karakalpakstan is the second most scarcely-populated oblast (9.5/km<sup>2</sup>) after Navoi, since 70% of the territory (166.6 km<sup>2</sup>) is desert.

The Irrigated area is 625,000ha, and its water source is the Amudarya River. Agriculture focuses on the production of cotton, rice, horticultural crops, vegetables and livestock, which are the main source of economic development. The population's living level mainly depends on agricultural production, the mining of natural resources and their partial processing. Therefore, the economic status of the population is rather low: Gross regional product per capita was 211,502 soums in 2004, and 1,048.2 out of every 100,000 people received social/disability benefits.

The climate is dry, sharp continental-style wind, summer temperatures are between 40-45 degrees centigrade with a small amount of rainfall, and the winter is cold with dry winds. Besides the severe climatic conditions, the population of Karakalpakstan is permanently faced with the negative impact of environmental changes, caused by the shrinkage of the Aral Sea. Low quality drinking water, insufficient provision of tap water for the population, together with the above-mentioned environmental factors have a negative impact on the health of the inhabitants of the republic.

##### 7-4-2 Key Findings

###### (1) Health Situation in Karakalpakstan

Five major causes of morbidity in the Republic of Karakalpakstan are blood and hemopathic diseases (38.7% of all causes), respiratory diseases (19.8%), endocrine diseases, cardiovascular diseases and genitourinary diseases. As for mortality, cardiopulmonary diseases (43.2%), respiratory diseases (13.1%), neoplasm/tumors (6.8%), trauma/poisonings (5.9%) and tuberculosis (5.4%) are the major causes. In comparison with other oblasts, tuberculosis is quite serious, especially around the Aral Sea. The incidence of anemia is also more than twice the national average.

Because of the increase of environmental problems around the Aral Sea, the Republic of Karakalpakstan has received the most external assistance in Uzbekistan from 2000 to 2006: 15,303,776 US dollars (USD) through grants and technical assistance (22.5% of the total) and 6,554,034 US dollars through loans and guarantees (9.8%).

## (2) Health Services

In the Republic of Karakalpakstan, 21 republican health facilities for tertiary care, 5 dermatology/STI (sexually transmitted infections) dispensaries and 9 tuberculosis dispensaries, including one for tertiary care, 14 RCHs, 8 SUBs, 166 SVPs, 4 GVPs/MVPs (PHC facilities for towns) and 189 FAPs have been allocated as of June 2007.

In remote rayons, primary health care services are rendered by FAPs, SVPs and SUBs, while qualified health care services are provided by RCHs and dispensaries. To allocate enough staff and budget, 86 FAP will be maintained after health sector reform.

Emergency care is rendered by the emergency care station in Nukus, which is the department of the branch of the emergency health care center and 15 emergency departments in rural administrative districts, which are located in the RCH of each rayon. Among these, four RCHs have been upgraded to provide emergency care including sanitary aviation for remote areas.

Sanitary aviation is rendered by the Emergency Center. Medical personnel can be dispatched from both Nukus (republican level) and the nearest RCH, especially the above-mentioned four reinforced RCHs. Usually, RCHs can provide the necessary care and a few cases are referred to the republican health facility and/or Tashkent. In the southern part of Karakalpakstan, emergency patients are sometimes referred to Urgench, in Horazm Oblast, because it is nearer than Nukus.

## (3) Finance of Health Sector

Nineteen percent (19%) of the republican budget is allocated for the health sector, i.e., 27,552 million soums. The cost of health care services is more than the allocated amount. The rest of the funds are allocated from local budgets, and also from funds obtained by paid health care services, donations, and humanitarian aid. Seven republican health facilities have started mixed finance (introducing paid service) since 1996 and 20% of their total income is earned from paid services.

Rayon-level health care facilities are mainly maintained by local budgets. Beginning from 2004, through Health-1 and Health-2 Projects, the primary health care facilities of pilot rayons were financed by the republican budget, and this financing was finished in 2007. At the RCH level, a health check-up service for the general public requires payment, and 5 RCHs in urban areas have introduced paid inpatient wards. Initially, these paid services were also introduced at SUBs, but it was stopped because of the unfavorable balance of income and expense.

## 7-5 Survey of Fergana Oblast

### 7-5-1 General Information

Fergana Oblast is located southeast of Tashkent, the most densely populated area along with the neighboring oblasts of Andijan and Namangan: their respective population densities per km<sup>2</sup> are 431.5 in Fergana, 567.1 in Andijan and 285.1 in Namangan. Totally unlike Navoi, Fergana is one of the smallest and the most populated oblasts in Uzbekistan, with a population of 2.9 million. 70% of the people live in rural areas.

The oblast consists of 4 cities (Fergana, Kukon, Margilon and Kuvasoy) and 15 rayons. Agriculture, oil refining and production of fertilizer and cements are the major industries of the oblast, but many people of a working age temporarily migrate for work outside Fergana Oblast.

### 7-5-2 Key Findings

#### (1) Health Situation in Fergana

In Fergana Oblast, the pattern of disease is almost the same as Navoi. Major diseases are respiratory diseases, anemia (iron deficiency) and goiter (iodine deficiency), while the major causes of death are cardiovascular diseases, respiratory diseases and trauma.

A total of 16 hospitals/dispensaries/centers and 8 sanatoriums are functioning as tertiary care facilities. As secondary care facilities, the cities have several City Hospitals consisting of Central, Pediatric, Maternal and Infectious Diseases, while a Rayon Central Hospital is allocated in each rayon. In addition, there are 293 SVPs in the oblast.

As for health personnel, 6,173 medical doctors and 32,759 nurses/midwives/feldshers are stationed in Fergana Oblast. In 2006, the number of doctors and nurses per 10,000 people was 21.16 and 112.28, respectively, while there are 18.85 and 91.69 per 10,000 people in Navoi.

#### (2) Reform of Health Care Services in Fergana

The reform of health care services in Fergana Oblast began in 1999 within the context of the Health-1 Project assisted by the World Bank. The Project consisted of the following three components:

##### i) Reinforcement of facilities and medical equipment

In Fergana Oblast, a total of 214 SVPs and 16 RCH laboratories were reequipped from 1999 to 2004.

##### ii) Training of PHC workers

Around 400 medical doctors and 210 nurses working for SVPs were trained as general practitioners and universal nurses, respectively. USAID assisted technically, and some doctors and nurses were dispatched to Estonia and Israel for training.



### iii) Strengthening of financing

Through the reforms, SVPs were granted legal status and bank accounts and allocated qualified financial managers. In addition, the allocation of budgets to SVPs was transferred from rayons to oblasts and with a per capita basis. Consequently, the share of expenditure for SVPs increased from 13.6% in 1999 to 24.3% in 2003, and its amount also increased from 367 soums in 1999 to 1,615 soums in 2003.

The implementation of the Health-1 Project in Fergana Oblast contributed to the improvement of people's SVP utilization by 15-20%.

Within the succeeding Health-2 Project started from 2006 with assistance from the World Bank and the Asian Development Bank, several policlinics that had been separated for adults and children in urban areas were integrated into a single family policlinic. In Fergana Oblast, 7 family policlinics have been established so far. Their staff is very active regarding home visits, and this enables them to communicate more with families covered by the policlinics.

According to the First Deputy Director of the Fergana Oblast Health Administration, a reform plan of the hospital sub-sector is currently being prepared. The Fergana Oblast Health Administration (FOHA) intends to launch the reform plan from the year 2008.

### (3) Electrical Medical Record at Emergency Center

The Fergana Branch of the Republican Emergency Center was established in 2000 as the first oblast branch of the Center, following the Presidential Decree No. 2107 of 1998. The branch has 360 beds and 18 departments including cardiology, traumatology, pediatric surgery, neurosurgery and a burns clinic. The buildings were the former General Hospital's, and part of the staff was newly selected through exams and years of experience in emergency medicine. Medical equipment was procured through a loan from the Islamic Development Bank.

One of the remarkable findings is the experimental introduction of an electronic medical record system named "EXTERNET". It enables the Center to understand the case history of specific patients (drugs prescribed, results of laboratory tests, etc.), the daily number of patients by department, and also the cost for drugs used for each patient. There is still some room for improvement, but the system itself is fine. It will lead to the calculation of the total cost for the care of each patient, contributing to the standardization of medical intervention.

### (4) Finance of General Hospital

The Oblast General Hospital, called the "Clinical Hospital", was transferred following the establishment of the Emergency Center of Fergana. Officially it has 320 beds and 12 departments including pulmonary, gastroenterology, neurology, hematology, ENT, septic, neurosurgery, etc. The hospital procured ultrasound apparatus, operating tables and lamps, laboratory equipment, etc., through the grassroots grant aid scheme of the Government of Japan in 2006.

In principle, the Emergency Center provides free hospitalization service for only the first 7 days. Some of the patients are referred from the Center after this period and get paid service.

Actually the General Hospital earns 50% of its income from user fees that the patients pay. This income supplements the budgets for the procurement of drugs and consumables, additional allowances for staff, maintenance of medical equipment, etc.

70% of patients come from other cities/rayons. This hospital can concentrate on tertiary care due to the existence of City Hospitals at Fergana City as providers of secondary care.

## 7-6 Discussions

This survey led to the answers to the following questions:

- From a nationwide viewpoint, what is the ranking of Navoi Oblast?
- What points do Navoi and the other three oblasts (including Karakalpakstan) have in common?
- What are the differences between Navoi and the others?
- What is useful from the experiences of other oblasts for health care reform in Navoi Oblast?

The survey shows the overall health situation in Navoi is not behind the other oblasts. As indicated in Tables 4-1 and 4-2, major health indicators reveal the crude birth/death rates in Navoi are close to the national average, while the under-five mortality rate is above the average and maternal mortality is below. Disease patterns of these oblasts are another common point. Heart diseases are the major and most common causes of death. Incidences of anemia are common in Navoi, Bukhara and Karakalpakstan, while Navoi, Bukhara and Fergana have a problems associated with goiter. Traffic accidents are also a common problem.

As far as there is little difference in the health situation between Oblasts of Navoi, Bukhara and Fergana and the Republic of Karakalpakstan, it seems that specific interventions only for Navoi are not necessary.

The biggest difference between Navoi oblast and the other three regions in the health care system is that Navoi lacks the Oblast General Hospital and secondary level facilities at city like City Hospital. Actually, it is the Oblast General Hospital that can easily introduce and run the full-scale user fee scheme. The Clinical Hospital of Fergana collects half of its budget from the patients, and Bukhara Oblast Health Administration also sets a target that 50% of the income should come from non-governmental sources. Therefore, the absence of this system prevents NOHA from getting extra funding for financing health services.

The presence of the City Hospital enables the health administration to demarcate between secondary and tertiary care more easily. In the case of Fergana, 70% of patients visit from the

cities/rayons level. Therefore, it can be seen that the referral system in Fergana functions better than Navoi.

From the view of strengthening the diagnosis level, the system of the Oblast Diagnostic Center in Bukhara can be a model. However, it goes without saying this useful information on the experiences of other oblasts should be utilized while taking into consideration the dynamism of tertiary care and the socioeconomic context of Navoi Oblast.

#### 7-7 List of Organizations Interviewed in the Survey

##### (1) Bukhara Oblast

- i) Bukhara Oblast Health Administration
- ii) Bukhara Branch of Republican Emergency Center
- iii) Bukhara Oblast Diagnostic Center

##### (2) Republic of Karakalpakstan

- i) Ministry of Health of Karakalpakstan
- ii) Emergency Center of Karakalpakstan
- iii) General Hospital of Karakalpakstan

##### (3) Fergana Oblast

- i) Fergana Oblast Health Administration
- ii) Fergana Branch of Republican Emergency Center
- iii) Oblast General Hospital (called "Clinical Hospital")
- iv) Fergana Branch of "Dori-Darmon"
- v) Margilon Family Polyclinic

## **Chapter 8      Activities for Environmental Improvement**

### **8-1    Introduction**

In the course of the survey in Field Mission 1, the JICA Study Team found the awareness of patient-friendliness as an important issue to be discussed with NOHA. Since NOHA also thought it to be the most important point of health service activities, the Study Team and NOHA decided to call for action by health facilities in the oblast during Field Mission 1. In reply to this, many facilities had made considerable efforts by the time of Field Mission 2 and there were some noteworthy results. Their positive attitude was essential for the effective implementation of the action plan to improve the health care service system in the oblast. The Study Team recommends further encouraging patient friendliness and challenge of attitude of health care service providers.

From the view that health services are in the service industry, hospitals should provide the best services with levels of patient friendliness. In order to achieve this, it is essential to upgrade clinical services and to secure good hospital management. And it is also important to maintain cleanliness and comfort levels for patients.

### **8-2    Problems Identified and Recommendations Made by the Study Team**

Based on observations of the health facilities at Field Mission 1, the Study Team identified some problems that can be voluntarily and immediately tackled by hospitals. These two include facilities of toilets and waiting places for patients. Observations by the Team identified the following problems concerning the facilities:

#### **(1)      Toilets**

- Most of the toilets are not clean
- They are not maintained regularly
- Some toilet doors are broken
- There are no ventilators

#### **(2)      Hand washing basins**

- There are no places to wash hands after using toilets

#### **(3)      Waiting places for patients**

- No places for patients to wait in front of registration, diagnosis and laboratory testing areas
- No chairs or benches to use even if there are some places they can be installed

### 8-3 Actions Taken by Health Facilities

The Study Team considered that these problems could be managed by taking the following actions voluntarily and immediately by health facilities.

(1) Toilets

- To keep clean every day
- To maintain regularly
- To repair doors
- To put signs for male and female
- To improve ventilation

(2) Hand washing basins

- To set up hand washing basins near the toilets

(3) Waiting places for patients

- To place chairs and benches there if there are not any: for patients to take a rest

As shown in Table 8-1, a total of 186 health facilities including hospitals, dispensaries, centers, polyclinics, SUBs and SVPs initiated voluntary actions, while these recommendations had been made only for RCHs. At the Field Mission 2, the actions and their status were reported at the monthly directors' meeting in the Oblast.

**Table 8-1: Summary of Actions**

Health Facilities	No. of facilities	Toilet improvement			Wash basin			Waiting hall improvement		
Hospitals, SUB, Dispensaries, Prophylactic Center & Centers	46	○	39	84.8%	○	44	95.7%	○	40	87.0%
		△	7	15.2%	△	2	4.3%	△	6	13.0%
		×	0	0.0%	×	0	0.0%	×	0	0.0%
Polyclinics and SVPs	140	○	112	80.0%	○	132	94.3%	○	110	78.6%
		△	28	20.0%	△	8	5.7%	△	30	21.4%
		×	0	0.0%	×	0	0.0%	×	0	0.0%
TOTAL	186	○	151	81.2%	○	176	94.6%	○	150	80.6%
		△	35	18.8%	△	10	5.4%	△	26	19.4%
		×	0	0.0%	×	0	0.0%	×	0	0.0%

Note: ○: Completed △: Ongoing ×: Still not started

Source: From interview with an officer in charge in NOHA

The actions by RCHs and their latest situation as of June 2007 were evaluated as shown in Table 8-2. In fact, all RCHs, except Nurata and Uchkuduk, are facing difficulties regarding water supply. It was thought that this problem was beyond mere voluntary actions.

**Table 8-2: Evaluation of Actions by RCHs**

RCHs	Toilet condition	Wash basin	Waiting hall	Remarks
Nurata	○ ⇒ ○	○ ⇒ ○	○ ⇒ ○	
Uchkuduk	○ ⇒ ○	○ ⇒ ○	○ ⇒ ○	
Khatirchi	○ ⇒ ○	△ ⇒ ○	△ ⇒ ○	Lack of water supply
Navbakhor	△ ⇒ ○	△ ⇒ ○	× ⇒ △	Lack of water supply
Kiziltepa	△ ⇒ ○	△ ⇒ ○	○ ⇒ ○	Lack of water supply
Karmana	× ⇒ △	× ⇒ △	△ ⇒ ○	Lack of water supply
Kanimekh	× ⇒ △	× ⇒ △	△ ⇒ ○	Lack of water supply, provided 2 hrs./day only
Tomdi	× ⇒ △	× ⇒ △	○ ⇒ ○	No water supply & broken heating system

Note: ○: Good, △: Slightly good, ×: Not good [ Before action ⇒ After action ]

#### 8-4 Good Practices

Some good practices were confirmed among the reported actions. At Kanimekh RCH, chairs and facilities to wash hands were put in place, while the cleanliness of its toilets would be a good enough example to be followed by the other facilities (Figure 8-1).

Kanimekh Rayon Central Hospital

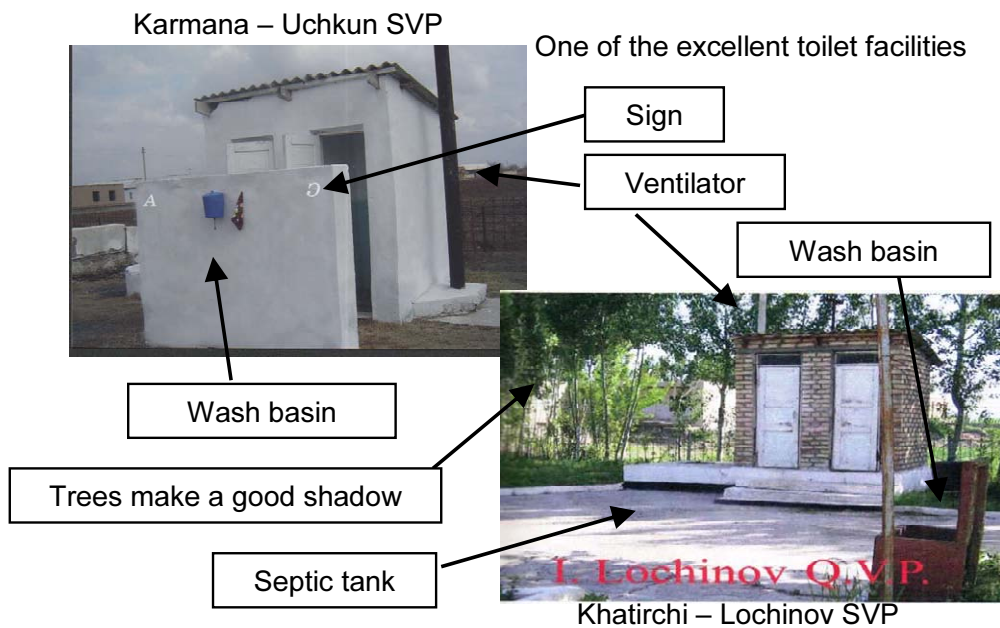


Kanimekh Rayon Central Hospital

**Figure 8-1: Good Practice 1 - Kanimekh Rayon**

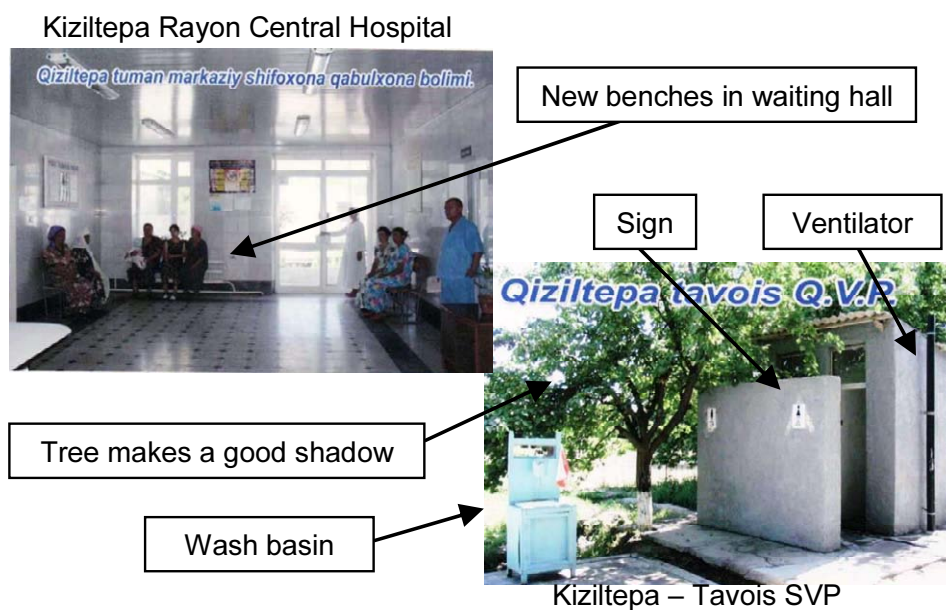
Another good practice was observed at Uchkun SVP in Karmana rayon and I. Lochinov SVP in Khatirchi rayon, where they had improved their toilet facilities (Figure 8-2). The new signs for

male and female were displayed on the walls, doors were renovated, and hand-washing basins and ventilators were installed. The septic tank was also adequately installed. Some trees made a good shade near the toilet, which was separate from the ward.



**Figure 8-2: Good Practice 2 - SVPs of Karmana and Khatirchi**

Kiziltepa RCH also placed benches for patients waiting for consultations. Tavois, an SVP in Kiziltepa, improved the conditions of the toilets by putting up male-female signs, and putting in place hand-washing basins and ventilators (Figure 8-3).



**Figure 8-3: Good Practice 3 – Kiziltepa Rayon**

## 8-5 Discussions

The initiative for environmental improvement was triggered by two factors: (i) the Study Team's identification of problems that are manageable by quick and voluntary responses of health facilities; and (ii) NOHA's awareness that accumulation of small improvements could turn into big improvements and its positive attitude toward taking action immediately. The Study Team strongly recognizes that cleanliness is a fundamental point for facilities working for people's health and is a basic requirement for patient friendliness. On the other hand, health facilities in Navoi have also already made some improvements by themselves, e.g., Kanimekh RCH voluntarily repaired the floor of the surgery department, and Nurata RCH established meeting places for patients and their families so they can avoid the cold weather in winter. That is why the Study Team decided to call for action.

Actions reported by NOHA were beyond the expectations of the Study Team. Although the Study Team only pointed out the problems of RCHs, NOHA ordered that measures be undertaken by all facilities including SVPs. As a result, more than 180 facilities responded.

However, the initiative is not the project but the set of continuous activities for cleanliness and toward patient-friendliness. More important is to continue these activities and take the next step for improvement. For example, whenever they have broken chairs, benches and doors, they are advised to repair them as soon as possible. Moreover, the Study Team found some facilities that have facilities available for tap water had water leakage problems. It is highly recommendable to stop these water leakage problems.

Even so, there are some problems for which the solutions are beyond the voluntary efforts of health facilities: e.g., water supply. In these cases, it is necessary for NOHA and also Oblast Hakimiyat to support the improvements.



**PART III**  
**BASIC STRATEGY**

### **Part III. Basic Strategy**

Hereafter in Part III, the basic strategy to improve the health care service system in Navoi Oblast is discussed through the main issues to be tackled, the pillars of strategy and idea of optimizing tertiary care in the oblast.

The various problems, which were appeared through the relevant surveys in the basic study and described in Part II, were carefully examined considering the historical and sociocultural backgrounds as well. Consequently, the problems were reclassified to the issues to be tackled in the future health reform as described in 9-1, Chapter 9. Uzbekistan is in the face of “epidemiological transition,” and the health care system of the country should be transformed into the modern system which can meet the changing health needs. Then, how are the needs changing? The future situation is yet to be realized in Uzbekistan, and it can not be projected solely from the interpretation of the current situation in the country. Therefore, a case study of Japan’s experience, a precedent of transition of disease pattern and its implication, is shown in 9-2, Chapter 9. In addition, the trend of health care expenditure in Uzbekistan is forecasted based on the past performance in 9-3, especially because the scale of public health expenditure will surely be a crucial factor or determinant of health care, when Uzbekistan accelerates and puts through the health reform.

The issues to be tackled shown in 9-1 is discussed with the government's new policy of health reform in 10-1, Chapter 10, and then the basic strategy, being composed of five aspects are explained in 10-2. The five aspects are all basic principles of improvement of health care service system in Navoi Oblast, and a proper balance among all these five should be carefully attained, regardless of an issue to be addressed. For example, upgrading tertiary-level health services is a crying need of Navoi Oblast, where the importance of non-communicable diseases (NCDs) is increasing and the health system should cover NCDs as well as infectious, perinatal and childhood diseases. NCDs can not be managed only by indoor treatment at tertiary facilities, because NCDs often progress chronically and require both timely detection and long-term follow-up by the primary- or secondary-level facilities. Therefore, skills should be developed and equipment should be modernized at each facility according to its position in the hierarchy of health care system as described in 10-3. There are many diseases classified as NCDs to be covered by public health care system. It is highly recommended that the health authority prioritizes the most common diseases, as shown in 10-4, for which effective treatments are well established.

Tertiary-level health system should be renewed and maintained in an efficient manner, otherwise sufficient budget can not be assigned to primary- and secondary-level health system, remote areas or preventive programs. In this context, three different options are proposed, and then an approach to optimize the tertiary care system in Navoi Oblast was selected as described in Chapter 11.

## Chapter 9      Issues to Be Tackled

### 9-1      Summary of Problem Identification

Uzbekistan has inherited its health care system from the former Soviet Union. The network of health facilities has been established on the basis of the administrative divisions, hierarchy and norms. It was focusing mainly on infectious diseases; including their prevention, control of epidemics, and isolation and indoor treatment of patients. The system has achieved fairly good results, and premature deaths by communicable diseases have been effectively reduced. Today, most Uzbek people survive beyond childhood, adolescence, and young adulthood. The health statistics from the government shows that heart disease is the top cause of deaths among the Uzbek population. A review of mortality cases carried out as a part of the Study has proved that the NCDs have an overwhelming majority as the cause of hospital deaths in the oblast. In the foreseeable future, NCDs will further increase both in the morbidity and mortality of the population, as its aging proceeds. As described in Section 9-2, many countries, including Japan, have already experienced similar transitions of disease patterns (epidemiological transition) after World War II.

Based upon the common understanding of demographic trends, changing disease patterns, and results of basic studies, candid discussions were undertaken among the Ministry of Health (MOH), Navoi Oblast Health Administration (NOHA), other stakeholders and the Study Team. During a series of workshops subsequently held in Navoi and Tashkent, they actively participated in the discussion to identify the problems appearing at the field level through the policy level and to analyze the causal relationship among those problems. The details of the workshops are reported in Annex 3. The problems identified, analyzed and targeted through the Study so far are summarized as follows:

(1) Improvement of primary health care (PHC) services is not enough yet.

A comprehensive health project for “Increasing the Quality of Child Survival and Maternal Care Services” has been conducted in some rayons of Navoi Oblast jointly by NOHA and Project HOPE, an international health NGO. This project aims to improve the knowledge, practice, and behavior of healthcare providers as well as of the target population. Several protocols at local and national levels have been developed to support maternal and neonatal health care, family planning, and Integrated Management of Childhood Illnesses (IMCI). A variety of training programs have been prepared for and given to health professionals, including patronage nurses, and the following areas have been tackled: control of diarrheal diseases and ARI/pneumonia, child nutrition, breastfeeding promotion, maternal/newborn care, and family planning. The project has contributed to improving the level of PHC service through implementing a wide variety of training, including the upgrading of patronage nurse skills and motivation.

The project will be soon completed, and then, as the first step, the project activities should be succeeded by NOHA and institutionalized as a routine work of the health system in Navoi

Oblast. As the second step, achievements of the project should be expanded nationwide. An enhanced commitment by MOH is required.

The role of PHC is not limited to promoting maternal and child health. As described below, potentials of PHC are open to changing people's behaviors or prevention, early detection and follow-up of NCDs.

(2) Preventive services have not been adapted to the epidemiological transition.

The above-mentioned project for Child Survival and Maternal Care Services did not focus its energy on adult or NCDs. Today, people do not receive health check-ups as regularly as they did in the Soviet era. They are not well motivated to prevent future diseases in consequence of their lifestyle at present, partly because health workers fail to supply adequate information on prevention and a healthy lifestyle to the general population. Diet therapy has yet to be seriously introduced regarding management of patients with NCDs or high risk groups, although it is the most cost-effective measure to control or prevent the diseases. Some parts of the activities at primary level do not meet the health issues regarding NCDs, although health personnel especially at primary level are working hard for disease prevention. They do not have enough access to new medical knowledge and opportunities to share their experience and information with other health care service providers.

(3) Curative services have not been adapted to the epidemiological transition.

NOHA has been increasing its health budget for the last five years. However, it is completely attributable to the increase of salaries of health staff (see Chapter 4). As explained in the following section, developed countries have experienced a sharp increase in health expenditure, which is mainly due to the surge in expenses used for treating NCDs. Uzbekistan will follow the same scenario in the coming decades; however, recent trends in health expenditure could not meet the changing demand of health services.

Medical equipment is neither reasonably allocated nor properly maintained. The days when infectious diseases were the main target for practices, health facilities required minimal medical equipment. Although the progress of medical science demands more sophisticated diagnostic and therapeutic apparatus, an austere health budget hinders most health facilities from replacing their obsolete machines, much less purchasing modern expensive equipment to introduce innovations in patient management. Exceptionally, Pediatric Hospital, Maternal Hospital and Khatirchi RCH received equipment in the past through Japanese grant aid, and Nurata RCH received equipment from a Finnish donor. The emergency department of each RCH and the Oblast Emergency Center have benefited from the equipment distribution through the former National Health Reform Program (1998-2005). However, these facilities were hit by the shortage of a maintenance budget. As a result, some machines could not be fully operated due to a shortage of reagents or consumables, and others could not be repaired because spare parts were too expensive or because the manufacturer had stopped supplying both the spare parts and

machines themselves. Even the equipment in use is sometimes not fully utilized due to the lack of end users training in operational procedures or daily maintenance.

Diagnosis and treatment of NCDs is not updated. Clinical guidelines to diagnose and treat NCDs are now under development on the initiative of MOH. As mentioned above, the equipment operated at health facilities is not standardized; some RCH are equipped with modern diagnostic machines, but others are not. In such a situation, it is impossible to follow the national guidelines and to standardize the health services offered by different RCHs. In fact, the best performing RCH offers the services equivalent to those of oblast-level facilities (see Chapter 4 and 5). That might be a major reason why patients are rarely referred to oblast health facilities. Currently, sharing knowledge, experience and patient information between health facilities is not well systematized. The specialists working in different dispensaries or departments could cooperate with each other under the present conditions if they try. However, it is very inconvenient for doctors and patients, respectively, to offer and receive integrated care without a general hospital. Even after different specialists start working under the same roof, it will be very difficult to provide integrated services by different specialists without mediation by an experienced generalist who can fill the gaps between respective specialists.

(4) Secondary- and tertiary-level health services in Navoi Oblast are not optimal.

A financial shortage is the biggest factor hampering the health facilities in upgrading their level of practice. The user fee scheme is expected to play a role in supplementing the shortages in the health budget, and the general hospital is the type of facility that can easily introduce the scheme. NOHA faces some difficulties in expanding the scheme. Above all, there is no tertiary-level general hospital in Navoi and that is in sharp contrast to the other oblast. As a result, Oblast Emergency Center has to receive both non-emergency (planned) and emergency patients, and offer free health services to anyone, irrespective of their status or requirements for exemption.

The specialized health care function is segmented into ten or more specialized hospitals and dispensaries, and they are distributed in Navoi City and the midtown area of Karmana. They are mainly serving charge-exempted people like children, narcotic patients, those with tuberculosis, sexually transmitted infections or other infectious diseases, those with endocrinological problems, psychiatric diseases, and others. Thus, every oblast health facility, except the Eye Hospital, is fully dependent on the oblast budget. The cost to manage multiple facilities could be much bigger than that to manage a well-integrated general hospital.

In the secondary-level hospitals, namely RCHs, departments for emergency care have been established. They often have their own reception wards, and separate surgery beds, therapeutic beds and pediatric beds (usually 10 beds each). This creates a sub-hospital within the RCH system, and it is not efficient from the viewpoint of hospital management (cf. The Final Report of JICA Study on the Restructuring of the Health and Medical System in the Republic of Uzbekistan). On the side of patient management, as explained in Chapter 4, very few patients

were referred regarding critical diseases such as heart diseases, strokes, head injuries, pediatric pneumonia or prolonged labor. RCHs mostly manage such severe patients by themselves, utilizing the sanitary aviation service only occasionally.

The physical structures of health facilities have not been well planned or maintained. Health facilities provide the places for medical practice, but their designs are not always user-friendly. If floor planning in the hospitals is not rational, patients and staff have to walk long distances to take all the necessary examinations. In most of the RCHs and SVPs, toilets are often located far from the main building, and they are not in an adequate hygienic condition. Just as in the case of equipment, the maintenance budget is not enough to maintain the facilities. If a health facility lacks a basic infrastructure, such as water supply, sewage or electricity, the problem can not be sorted out at the level of the facility chief.

Offering quality health services to non-emergency NCD patients is a challenging issue in such a situation.

(5) Presence in remote areas

Navoi is the biggest and the least populated Oblast in Uzbekistan, and there is a serious gap between urban/suburban rayons and remote rayons. Nearly 80% of the people live in Navoi City and the rayons along the Motor way No.37 which connects Samarkand to Bukhara via Karmana. The remaining people are scattered over the arid regions of Tomdi or Uchkduk rayons, which are 300-400 km away from the oblast's capital. In such remote rayons, transporting emergency cases to Navoi City is not a realistic solution, and thus, those rayons should maintain a semi-autonomous health care system covering primary-, secondary-level and, for some diseases, more advanced services. Standard vehicles and fuel are allocated to health facilities, by the government, according to the size of the population regardless of the size of catchment areas or the distance which health personnel or patients have to travel. This norm is disadvantageous to remote areas. Even if they have old vehicles, they usually do not have enough funds to repair and use them again. Moreover, health facilities in some remote areas do not have telephone lines or radios to communicate with others. This situation means remote areas cannot attract experienced specialists from cities through economic-related incentives.

The most important issue to be addressed is access to drugs in remote areas. The budget allocated to health facilities is not large enough to meet the total drugs demanded, and there are few or no regular pharmacies in rural areas. As a matter of fact, people have to pay for drugs as well as the transportation to reach a health facility or a private pharmacy, although such areas generally have a lower economic status than cities or suburban rayons.

(6) People's awareness

Year by year, people recognize and want more innovative health care services, and the imbalance between people's expectation and the reality of health care might be widening. The basic study has revealed that people want to be seen by more qualified doctors near their homes.

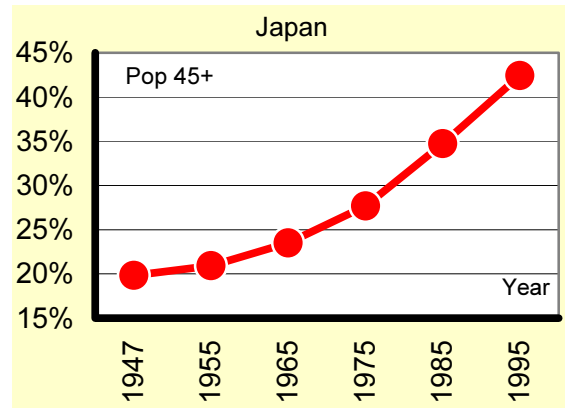
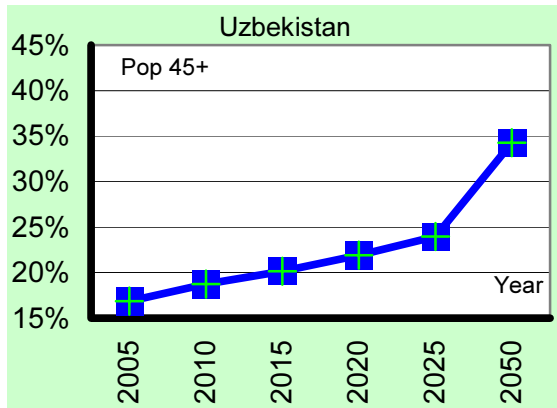
If a dozen specialized doctors could be placed in each community, health care might gain in effectiveness; however, this approach would never be efficient or could never sustain its effectiveness. The basic study also suggests that the unavailability of drugs is the biggest reason for people's dissatisfaction about public health facilities. William Thompson described the situation in the Russian Federation as such; "the high share of spending on pharmaceuticals may also reflect an ingrained cultural expectation, left over from the Soviet period, in which any consultation with a physician will result in a prescription." Generally, such attitudes and behavior can be more or less observed in other countries, including Uzbekistan and Japan. Satisfying the people with plentiful drugs for any cases is not always the preferable choice regarding adequate health care. The people's concern about drugs found in the basic study might be interpreted that there is room for improvement of social awareness on good health care, even though access in the remote areas mentioned above needs to be addressed. Actually, if each and every patient gets any drugs under the present conditions, drugs stocked at hospitals/SVPs in Navoi Oblast would be soon scarce and some patients may miss out on the medicines critical for serious conditions.

People's attitude is another issue regarding the ineffective prevention of NCDs. Through the Study, some tendencies among people have been found; for instance, people especially in remote areas, do not seek out health care services until they feel really bad, while people especially in urban areas sometimes do not take the advice given by patronage activity very seriously. The importance of a healthy lifestyle, early detection of NCDs, and the prevention of disabilities needs to be realized among people. There are delays in obstetrical care seeking behavior on the part of community members. Operations research is recommended to find out more about the causes of the delays.

## 9-2 Transition of Disease Pattern and Implication on Health Care Expenditure

It is necessary to know the future prospects in order to formulate the basic strategy and its programs for a brighter future. Therefore, based on the results of the basic study and the experiences in Japan, this section describes the projection on the transition of disease patterns stemming from population aging and its implication on health care expenditure.

According to the projection on the population in Uzbekistan, population will start aging. As indicated in Figure 9-1, the percentage of people aged over 45 years will increase year by year:

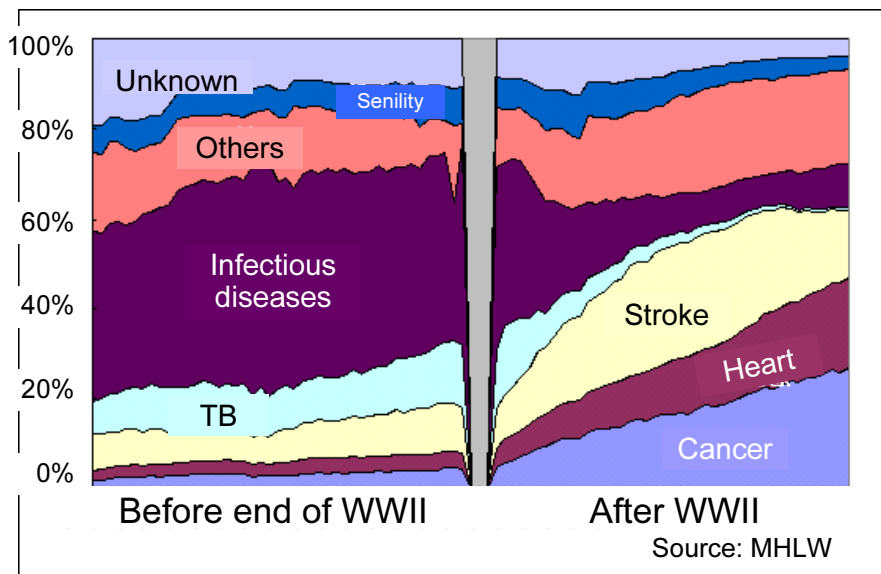


Source: U.S. Census Department for Uzbekistan, and Statistics Bureau of Ministry of Internal Affairs and Communications for Japan

**Figure 9-1: Projection of Population Aged over 45 in Uzbekistan and Japan**

20.1% in 2015 and 24.0% in 2025. This trend is quite similar to that in Japan between 1955 and 1975, so the aging process in Uzbekistan occurs 60 years later. As the development of a nation results in the decline of mortality and demographic transition, it inevitably brings aging of the population regardless of where it is.

The advancement of population aging always involves the transition of disease patterns. Figure 9-2 shows a time-series change on the proportion of causes of deaths in Japan before and after World War II. Deaths from TB and other infectious diseases sharply decreased after WWII, while NCDs like strokes, heart diseases and malignancy (cancer) have been the major killers in Japan. According to the Ministry of Health, Labor and Welfare of Japan, the mortality rate for TB per 100,000 people fell from 187.2 in 1947 to 2.0 in 2001. On the other hand, the mortality rate for malignancy and heart diseases jumped up from 69.0 and 62.2 in 1947 to 238.8 and 117.8 in 2001, respectively.

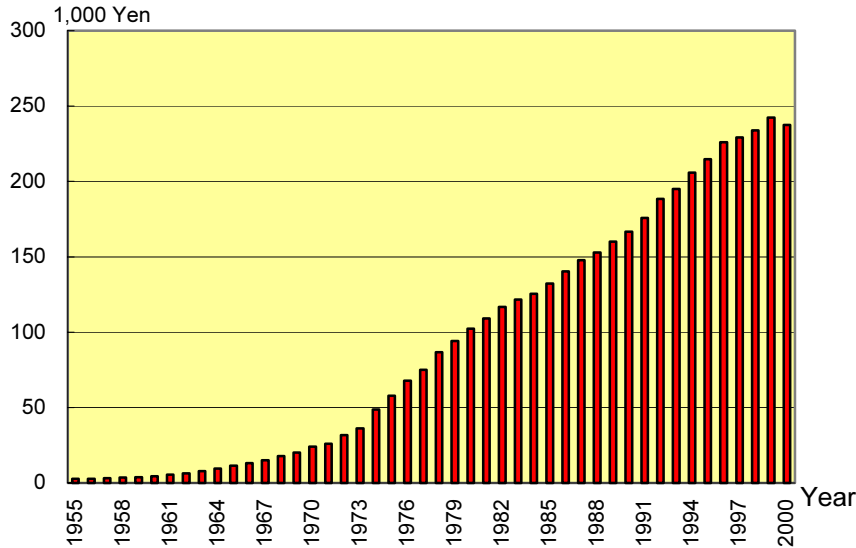


Source: Ministry of Health, Labor and Welfare, the Government of Japan

**Figure 9-2: Causes of Deaths before and after World War II in Japan**



As the prevalence of NCDs became higher, more money was spent on health care, based on the Japanese experience (Figure 9-3). Per capita expenditure soared over 20 times between 1955 and 1975: from 2,700 yen (27,000 soums) to 57,900 yen (579,000 soums). Judging from the similarity of the population structure between Uzbekistan in 2015-2025 and Japan in 1955-1975, such a huge increase in health care expenditure in Uzbekistan will be a reality in the very near future.

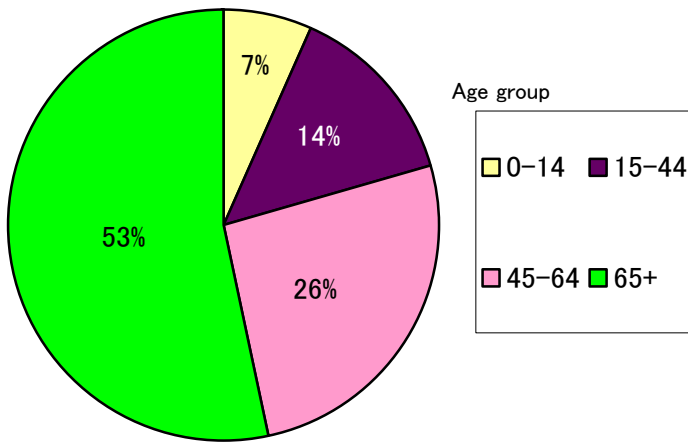


Note: 1 Yen = 10 Soums

Source: Ministry of Health, Labor and Welfare, the Government of Japan

**Figure 9-3: Trend of per Capita Health Care Expenditure in Japan**

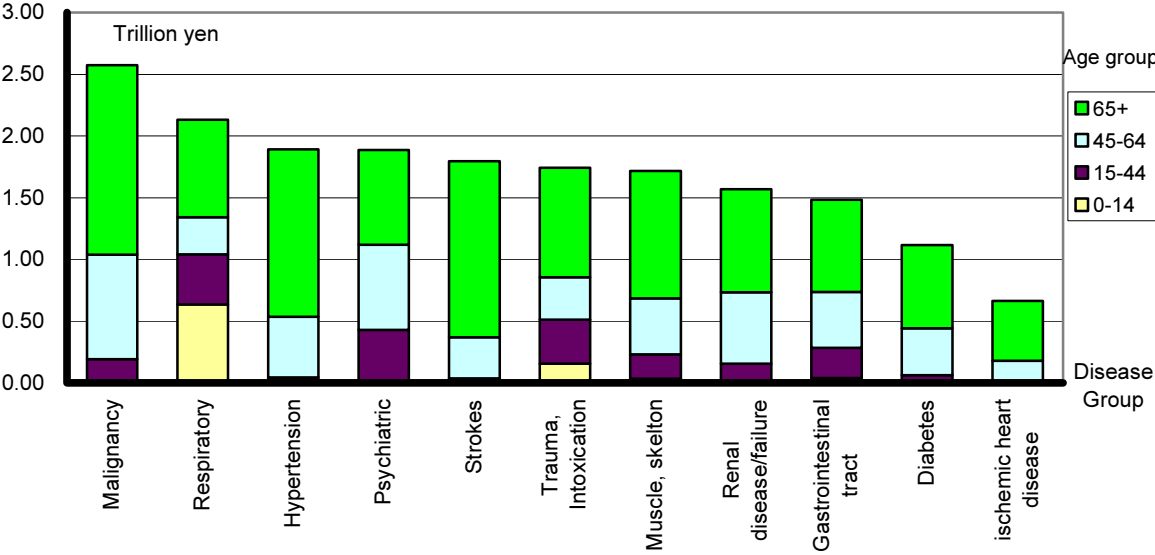
The Japanese experience also says that 80% of health care expenditure is used for the population aged over 45 years (Figure 9-4). Aging imposes a severe burden on financing health care.



Source: Ministry of Health, Labor and Welfare, the Government of Japan

**Figure 9-4: Percentage of Health Care Expenditure in Japan by Age Group in 2005**

In addition, according to Figure 9-5, it is people aged 45 years or over that mainly suffer from chronic diseases requiring costly treatment. Aging increases risk of chronic diseases. Most of the expenditures for malignancy, hypertension, strokes, renal diseases/failure, diabetes and ischemic heart disease are for this age group.



Note: 1 Yen = 10 Soums

Source: Ministry of Health, Labor and Welfare, the Government of Japan

**Figure 9-5: Health Care Expenditure by Major Disease in Japan in 2005**

With future prospects described above, the time has come for the Uzbek Government to take special consideration regarding how to cope with skyrocketing health care expenditure. Regardless of the national economic capacity, there are just four modes of financing: government budget, health care insurance, out-of-pocket payments by users and donations. Currently, the government budget and out-of-pocket payments are available in Uzbekistan. According to the World Bank, public health expenditure in Uzbekistan was only 2.4% of GDP in 2003. Therefore, considerable efforts will be required for obtaining a greater budget.

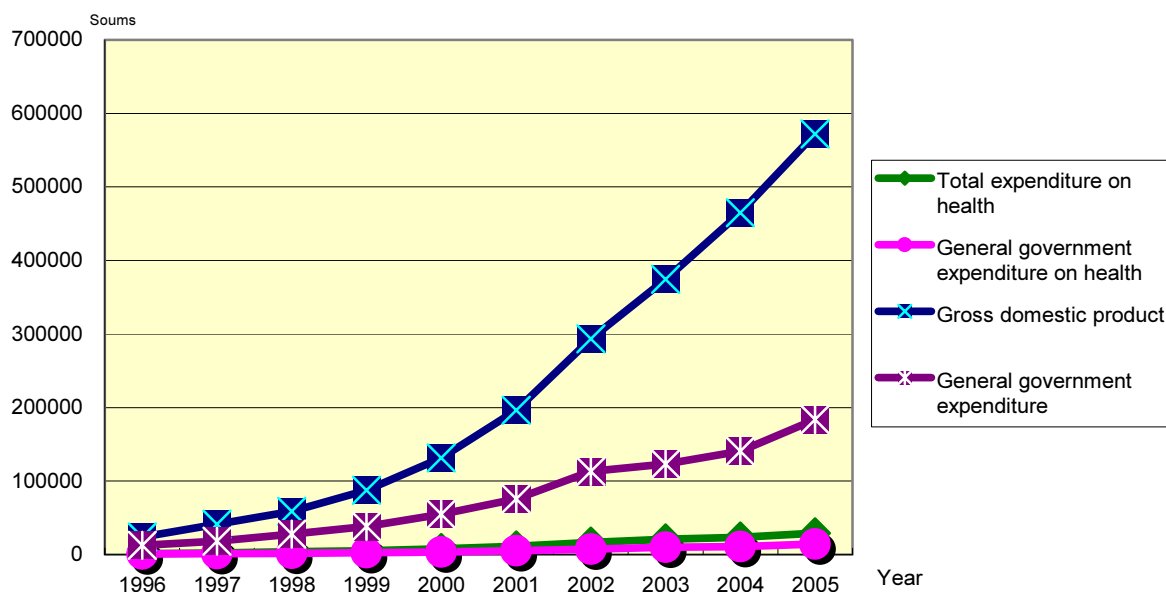
A health insurance scheme has been under consideration since the launching of the National Health Plan 1998-2005 and it is still not clear when to implement a full-scale introduction. In addition, the Ministry of Health needs to consider what percentage it will finance health care through insurance. In Japan, just 49% of the total expenditure on health was financed through insurance and 36% by government budget in 2005. The Russian Federation covered 40% through insurance in 2004. It should be noted that health insurance is not the panacea for financing health care.

The out-of-pocket payments by users also need to be reexamined. The points to ponder include if the Uzbek Government will continue free services for emergency medicine as a whole, PHC, treatment for malignancy and diabetes, etc.

### 9-3 Projected Trend of Health Care Expenditure in Uzbekistan

Based on unavoidable aging and subsequent epidemic transition, next it is needed to know how health care expenditure in Uzbekistan will change in the future.

Figure 9-6 and Table 9-1 show the trends of per capita gross domestic product (GDP), total general government expenditure, total expenditure on health and general government expenditure on health from 1996-2005:



Source: Estimation using data of national health accounts in Uzbekistan compiled by WHO

**Figure 9-6: GDP, Government Expenditure and Total Health Expenditure in 1996-2005**

**Table 9-1: Trends of GDP and Expenditures between 1996-2005 in Uzbekistan**

(soms)	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total expenditure on health per capita	1303	2147	3929	5330	7628	11276	16432	20933	23632	29258
General government expenditure on health per capita	887	1361	1886	2533	3424	5046	7337	9917	11006	14208
Private expenditure on health per capita	416	786	2043	2797	4204	6230	9095	11016	12626	15050
Gross domestic product per capita	23974	41237	58923	87330	131680	196358	293469	374173	465087	571952
General government expenditure per capita	12760	18109	27995	38442	54761	75580	113347	123159	140395	183661

Source: National health accounts in Uzbekistan compiled by WHO

Changes of these indicators can be approximated by the quadratic functions of time. They are applied for the projection of GDP and three indicators on expenditures for the next five, ten and fifteen years. It is assumed that these four indicators will change in accordance with the same trends in the future. In addition, they depend only on time trends. Therefore, it is assumed that other factors such as the level of technology and the capacity of personnel in the health sector will be advanced gradually, at the same pace as at present. It is also assumed that inflation will be the same level as the current one.

According to WHO, total health expenditure in Uzbekistan is the sum of government expenditure on health and private expenditure on health. The latter includes payments of user fees and the purchase of drugs, as estimated by the World Bank's Uzbekistan Living Standard Assessment in 2000-01. As indicated in Table 9-2, the share of the government expenditure has been around 45-48% since 1998.

**Table 9-2: Share of Health Care Expenditure between 1996-2005 in Uzbekistan**

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
General government expenditure on health as % of total	68.1	63.4	48.0	47.5	44.9	44.8	44.7	47.4	46.6	48.6
Private sector expenditure on health as % of total	31.9	36.6	52.0	52.5	55.1	55.2	55.3	52.6	53.4	51.4

Source: National health accounts in Uzbekistan compiled by WHO

Table 9-3 describes the results of the projection. Total expenditure on health per capita will be 1.95 times (81,191 soums) in 2012, 3.20 times (133,747 soums) in 2017 and 4.78 times (199,401 soums) in 2022 from the level for 2007 (41,735 soums). Government expenditure on health will increase 2.03 times (41,532 soums) in 2012, 3.42 times (70,134 soums) in 2017 and 5.18 times (106,314 soums) in 2022 from the current level (20,510 soums). Therefore, the remainder between total health expenditure and the government one will be the private health expenditure that users should finance by out-of-pocket and the health insurance scheme. Currently it is 21,226 soums, and it will be 1.87 times (39,659 soums) in 2012, 3.00 times (63,613 soums) in 2017 and 4.39 times (93,087 soums).

**Table 9-3: Projection of Health Expenditures in Uzbekistan for the Next Fifteen Years**

(soums)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total expenditure on health per capita	41735	48579	55946	63837	72252	81191	90655	100642	111153	122188	133747	145830	158436	171567	185222	199401
General government expenditure on health per capita	20510	24108	28009	32214	36722	41532	46646	52064	57784	63807	70134	76764	83696	90932	98471	106314
Private expenditure on health per capita	21226	24471	27937	31623	35531	39659	44008	48578	53369	58380	63613	69066	74740	80635	86751	93087
Gross domestic product per capita	843594	995339	1159967	1337478	1527871	1731148	1947308	2176351	2418277	2673086	2940778	3221353	3514811	3821152	4140375	4472482
General government expenditure per capita	248898	287276	328439	372387	419120	468639	520943	576032	633906	694565	758010	824240	893255	965055	1039640	1117011

Source: Estimation and projection from national health accounts in Uzbekistan compiled by WHO

From the projection, it can be said that increasing health care expenditure in Uzbekistan will be slower than that in Japan. The proportion of the population aged over 45 years in Japan between 1954-1961 is nearly equal to that projected in Uzbekistan between 2016-2022. In that time, Japanese health expenditure is projected to expand 2.27 times, while the Uzbek one is projected to expand by 1.63 times.

However, it is not doubted that health care expenditure in Uzbekistan will increase in a geometrical progression, not an arithmetic progression, judging from the increment. So, the Ministry of Health will be required to secure the rate of increase of its own budget at least at the current level.

In addition, it is meaningless to attribute such increase of the budget mostly to the increase in personnel expenses, such as is happening now. The Ministry will be required to allocate more to the

expenditure items regarding maintenance of medical equipment, purchase of drugs and consumables, etc.

As for private expenditure, it is desirable to introduce a health insurance scheme as soon as possible in order to secure the amounts projected above and examine the realistic burden from out-of-pocket means and insurance.

It should not be forgotten that the above projection is made under the assumption that the level of technology and the capacity of the personnel in the health sector will gradually advance. If the Ministry of Health aggressively intends to introduce new technology for the improvement of care, the increase in expenditure will be beyond that projected.

#### 9-4 Structural Imbalances in the Uzbek Health Care System

The health care system in Uzbekistan has been faced with various imbalances since its independence from the Soviet Union. As the country is shifting from the planned economy to the market economy, her health care system is also in transition from the so-called “Semashko model” to a new model which enables health care suppliers to react to changing health care needs. In view of the expected rapid increase of NCDs, the existing imbalances may not decrease, rather, they may widen in the coming decades.

The biggest imbalance is between actual health care needs and the health care supply. During the Cold War, modern medicine has highly developed in the form of the health care industry on the western side of the so-called ‘Iron Curtain’. Many important innovations have been introduced through a market mechanism. In those countries, their economies grew fast, while health expenses grew faster than the economy. On the eastern side of the ‘Iron Curtain’, in contrast, health care had been offered as a part of the free services for the public that were fully planned and financed by the Government. When the ‘Iron Curtain’ was opened in the early 1990s, innovative diagnostic and therapeutic measures came into view of the former Soviet Union countries, but most of them were very expensive to introduce and maintain. The government has tried hard to accelerate its health reform program, but it is still ongoing. It is true that an imperfectly reformed health care system cannot meet the constantly increasing needs for better health care services, especially in Navoi Oblast where there is no general hospital.

Most of the current problems in the Uzbekistan health sector derive from this imbalance; e.g., fragmented tertiary health facilities, lack of modern medical equipment, and a weak commitment to the prevention and treatment of NCD at the primary and secondary level. Modern medical equipment has been designed by a sophisticated health care industry, which usually sells machines at a competitive price and extracts a long-term profit from consumable supplies and/or maintenance services for the machines. This is a typical business model selected in the matured health care market. Pharmaceutical companies make enormous investments to develop new drugs, and they try to earn a fair return on the capital invested by selling their products at high prices. The intensive treatment for

NCD heavily depends on such expensive equipment and drugs. However, the health sector in Uzbekistan has not yet adapted itself to the commercialism process.

When the health reform program is designed for Navoi Oblast, the basic strategy should be carefully planned to correct this imbalance. The situation may be too complex for either NOHA or MOH to handle effectively. However, if the national economy of Uzbekistan grows in the coming years, decision-making at the very highest level will be expected to increase the investment in the health sector and to change the scenario.

## **Chapter 10 Basic Strategy to Improve the Health Care Service System of Navoi Oblast**

### **10-1 Challenges for Health Reform in the Future**

The State Health Care Reform Program (1998-2005) focused on the provision of quality primary health care (PHC) and a preventive care system, strengthening of the emergency health care system, improvement of the system of organization, allocation and quality of the health care network, establishment of a market in health services and improvement of healthcare management, improvement of the financial resources of the health care system, improvement of the process of training, re-training and advanced training for health personnel, and establishment of a legal basis of and the organizational support for health care reform.

Although some progress has made under the program, many problems remain in the Uzbek health sector, and the health reform continues under the latest Presidential Decree and Resolution as described in Chapter 2, Part I. Following the announcement of the governmental policy, MOH and the oblast governments developed their orders, respectively, in order to accelerate the health reform.

As previously described, the identified problems of the health situation in Navoi Oblast have been summarized to detail the necessities regarding maintaining the improved PHC services, adapting the preventive and curative services to changing diseases (“the epidemiological transition”), optimizing secondary- and tertiary-level health services, and raising people's awareness in the oblast.

One of the main tasks defined by the Presidential Decree is to improve the quality of care for women and children, especially in rural areas. In Navoi Oblast, the achievements of the previous project for maternal and child health should be maintained and expanded horizontally to the whole oblast and vertically to rural areas in the oblast. The government's policy sets the direction of health care managed at the rayon level as to provide qualitative PHC services and to strengthen the organizational management of SVPs, family polyclinics and others. In view of the expected surge of NCDs, PHC services should preferably expand their scope to NCDs. On a parallel with the strengthening of PHC services, people's awareness of health promotion should be encouraged for a better realization of PHC services.

The necessity for the adaptation of medical services for “the epidemiological transition” (changing diseases) is evident, as described in the previous chapters. Accordingly, it should be the desired purpose of the establishment of diagnostic centers and a nationwide network for diagnosis, which is underlined by the government, although the medical demand related to NCDs is not directly mentioned in the new policy.

The new policy also gave birth to the oblast medical center and gave it the direction to ensure relevant examinations for diagnoses, to provide qualitative medical services, to organize inpatient treatment for planned surgery, internal medicine, cardiology, gynecology, and to introduce modern

medical technologies. It is hoped that the establishment of oblast medical and diagnostic centers produces the most desired effect, namely, an environment in which any case regarding NCDs can be appropriately diagnosed and treated. Oblast general hospitals in the whole county are renamed as 'medical centers' under the new policy, while, currently, Navoi Oblast lacks a general hospital and a diagnostic center. It is thought inevitable to optimize the oblast's tertiary care by consolidating the scattered specialized dispensaries into a general hospital, reducing the number of beds, and equipping the new hospital with modern medical equipment. At the same time, it is strongly recommended to introduce integrated care, or general internal medicine, into the medical services to be provided at the new hospital, considering the optimization of the oblast's tertiary care to be the best occasion to update the ways of the medical services.

In this context, the extent of optimization should not be limited to the oblast general hospital and dispensaries. When the oblast general medical center is formulated based on a general hospital and specialized dispensaries, the demarcation of non-emergency and emergency cases should be optimized, too. The emergency health care system has been successfully strengthened, and emergency centers are attracting many patients with a variety of health problems. In the coming decade, these centers need to bring expenses into line with income and simultaneously to improve the level of practice in step with the latest innovations. To strike a balance between cost and quality of service, authorities may seriously consider narrowing down the indications for emergency care.

At the same time, integrated care is not a subject only for medical services at oblast level, but the idea should be practiced at rayon level, too. In this regard, improvement of the system of development of human resources, which is another basic task outlined by the policy, should be the most important challenge and the contents of training and retraining programs should be deeply considered. In the Soviet era, the post-graduate medical training in all the republics had been specialists-oriented. The last State Health Reform Program trained many specialists in general medical practice and converted them into general physicians (GPs) in a few years, which was a great achievement. However, they are basically trained as general practitioners for SVPs and no advanced training course has been prepared for secondary- or tertiary-level generalists who can serve as high-quality coordinators among specialists or gatekeepers for specialized health care. However, NCD patients often have problems regarding several organs at the same time and require both long-term follow up as outpatients and indoor medical or surgical treatment on the occasion of acute exacerbation. It might be another challenge to set up such training programs and to regularly produce tens of young qualified physicians who have experience both in outpatient and inpatient care for a broad range of health problems. Improvement and standardization of NCD care can be done by high-quality generalists rather than specialists for individual organs. In this context, oblast general hospitals are also expected to offer in-service training to secondary-level doctors.

The geographical conditions, which sometimes hamper the provision of health care, should not be overlooked in order for substantial improvements of health care, especially in Navoi Oblast. The resolution of problems regarding the water supply in some rayons is essential. Efficient equipment



maintenance with fewer burdens for respective facilities in rural areas may be considered. At the same time, the equality of people's access to drugs in the oblast shall be further improved.

## 10-2 Basic Strategy

The Study has been commenced with the agreed objective to formulate a concrete program for the improvement of health care services with an emphasis on reform at the tertiary level. In fact, some adverse effects caused by the incompleteness of tertiary care in the oblast were recognized, and to establish reliable tertiary care under the governmental policy is considered to be very important. At the same time, it is also true that improved tertiary care cannot solve all the current problems in the health sector of Navoi Oblast. The basic strategy has been proposed as a series of methodologies for the comprehensive improvement, namely establishing a system of health care directed toward the changing needs. Naturally, it takes a certain amount of time to achieve such improvement. The under-mentioned basic strategy shall be the determined pillars for the challenge of ten years or more in Navoi Oblast.

### **Strategy 1: To organize an effective and efficient health care service system at oblast level**

The health care service system should be organized or re-organized to maximize the service effect and to minimize the operational costs, especially at tertiary level.

At present, oblast health facilities in Navoi are scattered and operated almost individually. The Oblast Emergency Center takes care of both emergency and non-emergency (planned) patients, because there is no oblast general hospital. This structure is neither effective nor efficient.

NCDs often develop as complications of other chronic diseases like hypertension or diabetes mellitus (DM), and once NCDs progress they often affect multiple organs. "The epidemiological transition" expands demands for comprehensive health services. Such demands may not be fully satisfied by inter-subject consultation. Accordingly, health facilities in the oblast level should offer more sophisticated and specialized services in a more integrated manner.

Diagnoses and treatment of NCDs require more resources than communicable diseases, and the economic burden on the public sector, i.e., central and local government, might increase. In other words, securing total health expenditure, including from the government budget and out-of-pocket expenditure, is an essential prerequisite for the successful execution of health reform.

### **Strategy 2: To mitigate difficulties of health care services in remote areas**

People living in remote areas have difficulty in accessing health care services, such as drugs, surgery and adequate human resources.

The secondary-level health facilities in such areas should have a certain level of diagnostic and therapeutic functions to alleviate the economic and physical burden of going to Navoi City. Dispatching well trained and motivated health personnel to remote areas is the key to providing such services effectively and efficiently. Access to drugs should also be improved to reduce the economic burden placed on patients who have to go far to buy the prescribed medicine.

**Strategy 3: To enhance secondary care services in suburban rayons**

The function and role of secondary-level health facilities in Navoi suburbs, including Karmana, Navbakhor, Kanimekh, Khatirchi and Kiziltepa, should be enhanced. About 75% of the total population lives in Navoi City and its suburbs. Especially secondary health facilities located in this area should enhance their level of practice, so that common diseases could be dealt with within the secondary level. They also should obtain a reliable “gatekeeping function” to identify patients to be treated in the rayon and patients to be referred to the tertiary level.

Since these rayons have easy access to Navoi City, the inhabitants can easily visit oblast health facilities if they want. When reliable health care can not be provided in the rayons, people will seek better care in Navoi City, skipping primary or secondary health facilities. As a consequence, oblast-level facilities might be overcrowded by patients with relatively mild cases, and the effect of optimized tertiary care would be reduced.

It might be necessary to confirm and clarify the demarcation in role and function between secondary care and tertiary care according to the conditions in each area. The interaction between secondary and tertiary facilities should be promoted to ensure the function of the service system as a whole.

**Strategy 4: To improve diagnostic skills in accordance with level of facilities**

The tasks and functions of diagnoses given to the facilities in the respective service levels need to be reconsidered and redefined, and then the diagnostic capacity levels of each facility should be improved and the diagnostic functions of primary through tertiary-level facilities should be networked.

Currently, many facilities lack some essential examination capabilities, while some dispersed oblast health facilities unnecessarily have the same diagnostic functions, and SVPs are equipped with automatic analyzers which have a capacity that is beyond the actual demand. To fully utilize the existing medical equipment, a mechanism for regular maintenance should be ensured with stable financial sources, and the end users should be trained for the operation and daily maintenance of the equipment.

At oblast-level, dispersed laboratories can be optimized by centralizing them to an oblast diagnostic center or a general hospital and networking with other facilities. In remote areas or in suburban

rayons, medical equipment should be distributed to health facilities according to their tasks and functions.

The most important factor is the doctors' skill to design a workup plan to reach a diagnosis quickly. For this purpose good clinical guidelines are useful.

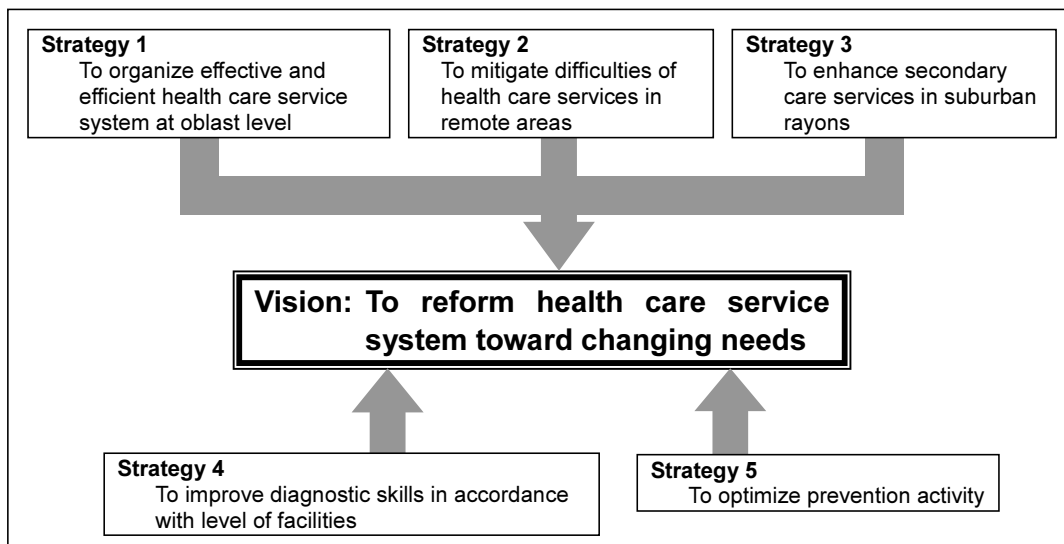
<b>Strategy 5: To optimize prevention activities</b>
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As mentioned in Section 9-2, the treatment of NCDs is quite costly and it might be a heavy burden on health-related finance in the near future. On the other hand, prevention activity needs much lower costs and guards against such financial burden for both the government and the people.

Early diagnosis and control of hypertension and DM should be emphasized to prevent cardiac diseases, strokes (or cerebrovascular accidents, CVA) and diabetic complications, which are costly for treatment. Anemia prevention and control are also to be prioritized to cut the vicious spiral of pregnant women's anemia and their children's anemia.

To operate these activities successfully, patronage activity should be modified according to future health needs and to raise the awareness of the general population regarding the importance of disease prevention. Such prevention and control activities can be done more efficiently in close coordination with secondary- or primary-level health facilities.

The above mentioned strategies 1-5, which have been lead by the situation analysis and discussions in the previous missions of the Study, are respective prerequisites to realize health reform as shown in Figure 10-1. In addition, it should be noticed that the well-balanced relation between the five pillars is a most important precondition of the challenge if it is to be successful. Accordingly, the components and activities in the program shall be planned carefully, considering a sequence of improving steps and the likelihood of a working budget through the program period. In this context, how to optimize the tertiary care is a point of the first magnitude, because of not only cost planning but also detail planning of the diagnostic network and patient referrals between the tertiary and secondary levels. In other words, a design for improving tertiary care exerts a certain influence on the action plans as a whole program. The relevant discussions and determination are described in Chapters 11 and 12.



**Figure 10-1: Vision and Strategies of Health Reform Program in Navoi Oblast**

**Mission, Vision and Strategy**

The strategies for health reform described here have been proposed with the idea recommended by Zuckerman A. M., namely, the direction in which the program aims should be shown through a clear strategic plan, which is composed of a mission, vision, strategy, goal, objectives and actions.

Generally, a mission is the permanent direction of the particular organization. A vision is the overall direction of an organization or a system on a long-term basis, often ten years or more. Usually there are several possible ways to reach the vision. Such ways or a series of methodologies on how to achieve the vision are defined as strategies. Goals mean general ends toward which the organization will direct itself. Objectives are the targets for each goal. In order to achieve these objectives, actions or activities are planned as specific tasks.

The Ministry of Health of the Republic of Uzbekistan (MOH) and Navoi Oblast Health Administration (NOHA) exist for the following reason, namely, this is their permanent direction.

**Mission**  
**MOH and NOHA will continue to provide good quality health care services to the people of Uzbekistan and Navoi, respectively, and promote their health condition and quality of life.**

Now, the health care service system in the oblast should respond to the changing needs of the general population for the next ten years. Changing needs includes epidemic transition (the burden of NCDs will increase according to the demographic transition); and demands/requirements for better health and medical services according to increasing income. The mission and associated challenges lead the following vision:

**Vision**  
**Through the execution of the Health Reform Program, MOH will establish a new health care service system oriented toward changing needs. Along the same lines, NOHA will convert the health care service system in Navoi Oblast into the best reformed system in Uzbekistan.**

Strategic Plan Framework, Zuckerman A.M. "Healthcare Strategic Planning"

### 10-3 Roles of Primary-, Secondary- and Tertiary-level of Health Care in Navoi Oblast

A challenge to obtain a new system of health care, namely a program of improvement, should be a series of activities to meet the changing demands of health issues. The tertiary care at oblast level will achieve reliable medical services with modern technologies and the secondary and primary care at rayon level will strengthen the effective follow-up procedures for patients. At the same time, the prevention of NCDs will be practiced at primary, secondary and tertiary levels.

Basically, SVPs' roles are to receive every patient, judge the severity and urgency of the cases, and directly treat mild or moderate cases of common diseases. The cases in emergency, severe or complicated cases, undiagnosed patients or women in labor should be referred immediately without any delay. The most important is to define the clinical guidelines for SVPs on their coverage and practices. And then, according to the guidelines, the necessary auxiliary testing should be routinely available; for example, sphygmomanometry, urinalysis, complete blood count, and basic biochemical analysis of a serum, such as electrolytes, glucose, urea nitrogen, creatinine, and total bilirubin. Diet therapy with or without exercise therapy is an indispensable and cost-effective intervention for the patients with various NCDs, and hopefully, the necessary education will be given by trained GPs.

At the rayon-level polyclinics offer outpatient services, and RCHs offer inpatient care and planned operations for common diseases and delivery care including emergency caesarean section. The doctors of secondary-level facilities have to distinguish the cases to be referred to the higher level from the cases manageable at their level. This task will be effectively assisted by microscopic examination of blood smears or urine/stool specimens in addition to those available at laboratories of SVPs, diagnostic imaging including plain X-rays, ultrasonography, laparoscope and gastro fiberscope, and physiological examinations such as ECG and pulse oximeter. Severe or complicated cases should be referred to the tertiary-level facilities, but patients who are referred back to rayon-level facilities should be followed up by the rayon-level facilities according to the long-term management plan prepared by specialists. Rayon polyclinics are expected to utilize the auxiliary diagnoses, which are available at RCHs, and to follow up these patients. When a patient requires some modification to their treatment regimen, the doctor will refer the patient to an oblast-level specialist. In future, advice on diet therapy and therapeutic exercises should be offered by professionals working for rayon-level facilities.

Severe or complicated cases should be referred to and adequately treated by oblast-level health facilities. Accordingly, the tertiary facilities should be equipped with more specialized and sophisticated investigation procedures in addition to basic diagnostic procedures. Intensive care, including respiratory management and control of blood pressure, arrhythmia, hyperglycemia, in-out balance or acid-base balance should be backed up by cardiac monitoring, arterial blood gas analysis, mechanical ventilation and others. The tertiary-level facilities are responsible for referring the

improved patient back to the secondary or primary-level facilities. In view of the situation of weak clinical capacity in the rayons, the oblast-level health facilities should show the overall follow-up plan for each patient, including medication regimen, target value of serum glucose, serum HbA1c, blood pressure and so on. Furthermore, specialists should occasionally recall the discharged patients to the oblast-level facilities, directly re-evaluate the progress of the diseases, modify the treatment plan, and communicate the revised plan to the secondary- or primary-level doctors with whom the patients are regularly meeting.

Through developing the referral network, services at first contacts (SVPs, RCHs, polyclinics), tertiary-level diagnostic and therapeutic services, and follow-up services for discharged patients will be reorganized into an integrated health care system without a break (c.f. Table 10-1). In order to remove a break between specialized departments in tertiary-level facilities, general hospitals are recommended to assign some doctors as general internists who will cope with interdisciplinary health problems. Otherwise, tertiary hospitals will be full of “in-hospital refugees,” the indoor patients who can never reach a proper specialist or department.

#### 10-4 Diseases to Be Prioritized

The criteria of prioritized diseases have been earnestly discussed through the workshop held in Tashkent. This section describes the agreed criteria and the diseases to be prioritized in the improvement program for health care in Navoi Oblast. The five categories of diseases shown below have been selected by the criteria:

- Diseases which already are or will be major causes of morbidity or mortality.
- Diseases for which the effective countermeasures to prevent or control are available.

##### **(1) Acute respiratory infections (ARI)**

ARI caused 13% of hospital mortality of Navoi Oblast in 2006. Case fatality rate in ARI can be improved through standardizing clinical protocols.

The MCH and Safer Delivery Project has trained the general physicians on how to manage the children with ARI. An increased respiratory rate (i.e., tachypnea) is a sign both sensitive and specific enough to detect ARI at any health facility of first contact, including SVPs, polyclinics in rayons and cities. In Navoi oblast, primary care for childhood ARI is well standardized. Patients with severer respiratory distress or those who do not respond to the oral antibiotic treatment will be referred to a higher-level facility. There is a weakness at the secondary- and tertiary-level facilities, partly because undergraduate medical education is not linked between basic medicines and clinical medicines, and partly because the MCH Project has mainly trained GPs, but the pediatricians' diagnosis and treatment is not standardized at higher-level facilities. As a result, properly referred patients may not be managed properly at hospitals. Hospital doctors are, at first, expected to understand the pathophysiology of respiratory failure, and then, logically

assess the patient's condition based on the evidence from physical examination, pulse oximeter and X-rays. Patients who do not respond to oxygenation and intravenous antibiotics should be referred to an oblast-level facility, where the pediatricians manage such patients carefully and, if necessary, aggressively with a wider spectrum of antibiotics and mechanical ventilation guided by gas analysis of arterial blood (cf. Column: Problem-oriented clinical protocol for tachypnea where there is no blood gas analyzer).

## (2) **Cardiovascular diseases**

Ischemic heart diseases (**IHD**) and **Strokes** caused 11.1% and 14.1%, respectively, of hospital mortality of Navoi Oblast in 2006. The case fatality rate in these diseases can be improved through standardizing clinical protocols and modern diagnostic or therapeutic measures. Early detection and strict control of **hypertension** and **diabetes mellitus (DM)** likely reduce morbidity of cardiovascular diseases.

Every health facility should have the facilities to measure patients' blood pressure and to follow up the detected hypertensive patients. The systematic efforts to control hypertension will reduce the future burden of myocardial infarction as well as stroke (c.f. Ch.9-5). If a doctor suspects some sort of secondary hypertension but can not diagnose the disease at his/her facility, the doctor should refer the patient to a higher-level facilities. Otherwise, the doctor will stratify and classify the patient by risk (see Data Book, Data 15 Attachment-4: Guideline for Management of Hypertension by The Japanese Society of Hypertension). And then, the doctor tries to convince the patient to improve their lifestyle, such as diet, exercise, smoking, etc. In the case of a low or middle risk group, the doctor can wait three months or one month, respectively, and see how an improved lifestyle works without any medication. High risk groups should consult with a proper specialist according to the complications the patients have. Patronage nurses may measure the blood pressure at patients' homes and check their drug, diet or exercise compliance between outpatient visits. They can arrange for the patients to come to the facility and reduce the dropout rate from the follow-up regimen.

The Navoi Branch of the Republican Emergency Center will be equipped with a CT scanner in the near future. After the machine starts operating, a management plan for suspected stroke patients should be prepared based on firm evidence. Improper practices currently occasionally seen, such as giving aspirin and heparin to the patients with brain hemorrhage or giving hemostatic drugs to the patients with brain infarction, should be eradicated. The role of RCHs in managing strokes will be limited to conservative treatment either for cases too severe to be transferred or for very mild cases. The "in-hospital mortality rate within 30 days of admission for stroke" is an indicator commonly used in developed countries to evaluate the quality of health services for strokes. The Government of Uzbekistan has been recommended to revise the clinical protocol for strokes in the coming years, and to start applying tissue plasminogen activator (t-PA) agents to the confirmed brain infarction cases within three hours from their onset. With this radical treatment the mortality rate for strokes will be significantly decreased.

Similarly, the “in-hospital mortality rate within 30 days of admission for acute myocardial infarction (AMI)” is a useful marker to reflect the quality of the health services for AMI. The skilful intensive care by specialists and early arrival at the specialists are the keys to improve performance. In order to make a breakthrough, the clinical protocol for AMI should be revised to allow for the application of thrombolytic agents, such as streptokinase or t-PA, to the confirmed AMI infarction cases within 12 hours from their onset. The role of the Emergency Center in treating IHD will be limited to the acute phase. The patients who have survived the acute phase should be transferred to the oblast medical center for further rehabilitation and evaluation of remained cardiac functions. Local health facilities may share the responsibility of following-up patients under the supervision of cardiologists in the oblast medical center.

### **(3) Diabetes mellitus**

DM caused 1.6% of hospital mortality of Navoi Oblast in 2006. DM is likely to be under-diagnosed, which means many patients with DM and people in pre-disease conditions have been neither detected nor followed up properly.

At SVPs, general physicians may suspect DM based on the history of polydipsia or polyuria, higher values of fasting blood sugar or a positive dip stick test for urinary sugar. With the current arrangement all such suspected cases are referred to the Oblast Endocrinology Dispensary, where a diagnosis and treatment regimen is given. This mechanism is quite convenient to assure the quality of management of diabetic patients.

For a long time, the endocrinology department has been separately operated as a specialized dispensary. However, the health authority has been recommended to consider the matters pros and cons. If the department is integrated into a general hospital, diabetic patients can be totally managed in one place; there can be strict control of blood sugar levels by an endocrinologist, and consultation with a surgeon about diabetic gangrene, a nephrologist about nephropathy, a neurologist about polyneuropathy and a diet advisor about diet therapy. A revision of laws will not be required to shift the Endocrinology Dispensary to the same premises of the medical center, keeping its independent status but integrating its functions.

Once the treatment regimen, including diet control, exercises, insulin and other medicines is prescribed by specialists, the patient can be referred back to the nearest health facility. If he/she is followed up by a rayon polyclinic, a general internist may try to control the patient’s blood sugar by monitoring HbA1c, serum creatinine and the serum urea nitrogen level. If he/she attends an SVP, a general physician can not check those tests. In either case, local doctors should follow the regimen prescribed by an oblast-level endocrinologist, and they should consult the endocrinologist regularly or on ad hoc basis if the treatment regimen needs some modification.

Patronage nurses may play an important role in assisting diabetic patients in their catchment area. They can visit patients at their home and check their drug, diet or exercise compliance



between outpatient visits. Such information is very helpful for SVP doctors, who have to follow up patients without monitoring HbA1c. Getting patronage nurses to take a dip stick for urinary tests is worth considering. They will be able to check the urine sugar and protein in diabetic and pregnant patients at patients' home.

The role of the Emergency Center in treating DM will be limited to intensive care for diabetic emergencies; i.e., hypoglycemia or extreme hyperglycemia.

#### **(4) Hepatic and renal diseases**

These diseases caused 6.4% and 2.2%, respectively, of hospital mortality of Navoi Oblast in 2006. Diet therapy can delay the process toward hepatic/renal failure, especially in the case with glomerulonephritis. Currently in Uzbekistan, the biggest causes of chronic renal failure are urolithiasis and urinary tract infections, and they should be properly treated.

The role of SVP and policlinics is limited in diagnosing hepatic or renal diseases, because there are no specialized hepatologists, nephrologists, or urologists. At these facilities, general physicians may suspect the existence of hepatic or renal diseases based on the history and the physical signs of jaundice, ascites or edema. At SVPs, urinalysis is feasible and helpful to detect bilirubinuria, proteinuria or occult blood, and at rayon-level facilities doctors may check serum transaminase or creatinine in addition to urinalysis. Ultrasonography is a sensitive investigation to check the progress of the cirrhotic change of the liver, but it is useful only for a trained investigator, such as a hepatologist. Therefore, health facilities that deal with first contacts are recommended to consult oblast-level specialists concerning hepatic or renal problems.

Only patients with acute problems, such as acute hepatitis, active bleeding from esophageal varices, hepatic coma, renal / ureteral colic or acute renal failure, may be referred to the Emergency Center. Other patients should be referred to the oblast medical center for specialized care, because diseases of these groups often follow the chronic clinical course. The specialists of the oblast medical center should take the responsibility for making diagnoses, arranging treatment plans, carrying out surgical interventions, and supervising general physicians/internists at SVPs, RCHs or policlinics for the long-term follow-up of patients.

Local health facilities will share the responsibility for following up chronic patients with monitoring basic diagnostic aids, for example, serum transaminase or creatinine, urinalysis, etc. Patronage nurses may effectively assist the patients with hepatic and renal diseases in their catchment areas, as they may assist the diabetic patients.

#### **(5) Cancers**

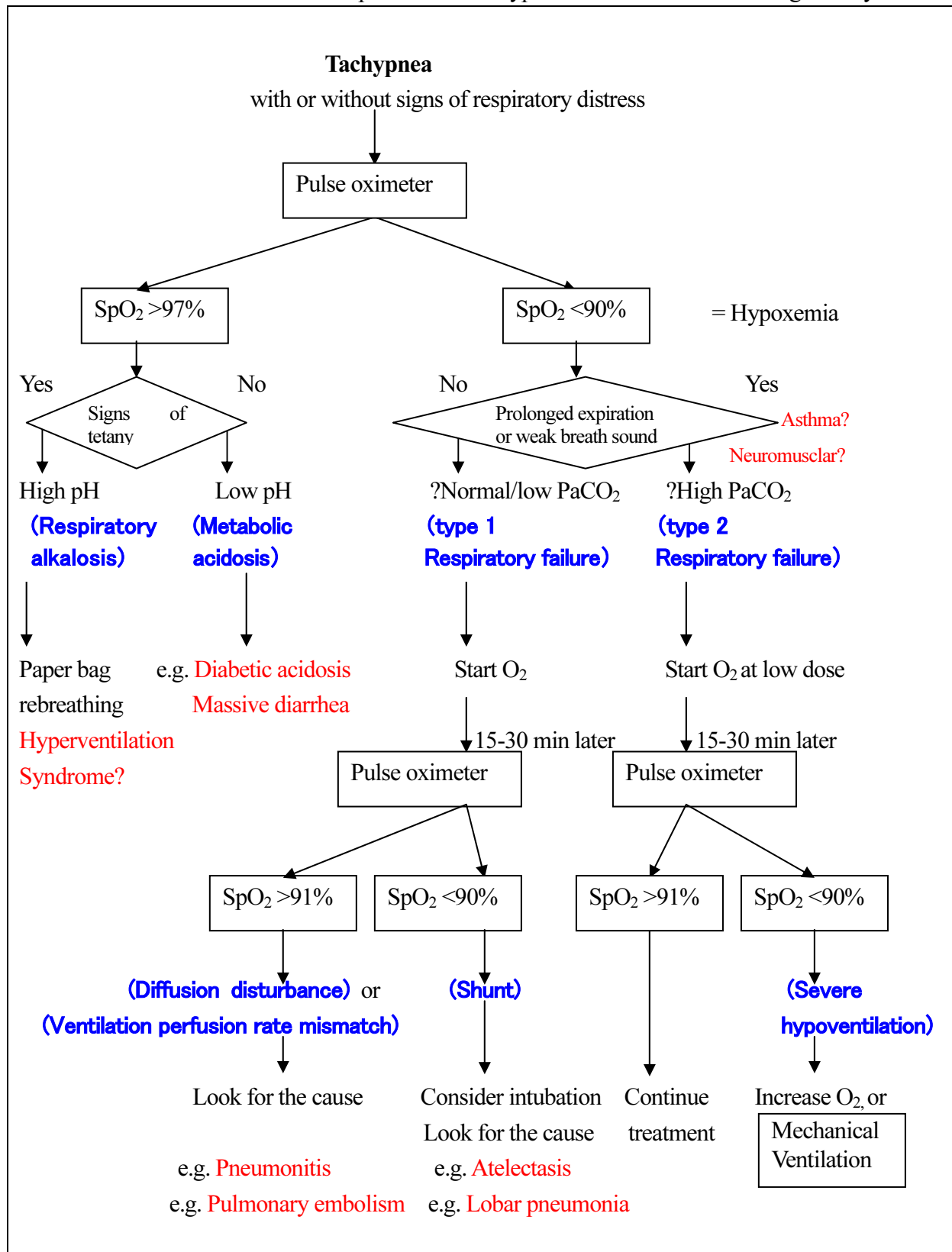
They caused 4.6% of hospital mortality of Navoi Oblast in 2006. Abstinence from tobacco, which is a potent carcinogen, should be promoted first. In the next step, introducing a cancer screening system is worthwhile, because it may detect cancers in early stages and improve long-term prognosis.

The role of RCHs, polyclinics, SVPs as well as the Emergency Center has been limited in diagnosing and treating cancers, and will be so in the future as well. Even though these facilities may try best to detect cancers, more than 80% of patients who visit doctors complaining of some of the symptoms and are diagnosed as cancers are already in an advanced stage.

It is high time that the oblast introduces modern diagnostic and therapeutic technology. On the other hand, the cost for investigation and treatment would be unacceptably inflated if adequate technology is applied to all the cases at a time. Given the first criteria, these diseases are proposed to be prioritized. The clinical guidelines for standardizing practices ought to be compiled based on the consensus and funding to carry it out.

As the second criteria shows, there are ways to prevent or control these diseases. However, as it usually requires considerable effort to make people change their lifestyle, the health authorities have to direct their efforts to enhance people's motivation. It is proposed that these diseases be focused on to develop a persuasive approach to the general population in the oblast.

Column: Problem oriented clinical protocol for tachypnea where there is no blood gas analyzer



## Problem oriented clinical protocol for tachypnea where there is no blood gas analyzer

Respiratory center which is located in the brainstem is stimulated by lower arterial O<sub>2</sub> concentration (hypoxemia), higher arterial CO<sub>2</sub> concentration (hypercapnea), or lower arterial pH (acidosis). Therefore, if your patient shows **tachypnea**, you should quickly differentiate between these conditions derived from different pathophysiology.

The gas analysis of arterial blood (ABG) will tell you overall picture, but most Obst- and Rayon-level facilities lack the ABG analyser. Under such circumstances, you should apply the pulse oximeter with careful interpretation.

If normal- or higher-level oxygen saturation of arterial blood (SpO<sub>2</sub>>97%) is shown, the patient is either breathing too often (hyperventilation syndrome due to psychological reasons) or breathing with great effort to decrease CO<sub>2</sub> concentration and neutralize the **metabolic acidosis**. You should look for the cause of metabolic acidosis, e.g. diabetic acidosis or massive diarrhea. Pure hypercapnea without hypoxemia seldom happens because perfusion of CO<sub>2</sub> from human alveolar surface is more than 10 times efficient than that of O<sub>2</sub>.

If lower SpO<sub>2</sub> (<97%) is shown, you should differentiate hypoxemia not accompanied by hypercapnea (**type 1 respiratory failure**) from hypoxemia with hypercapnea (**type 2 respiratory failure**). You may observe prolonged expiration and wheeze in the cases with type 2 respiratory failure. Such patients may respond to oxygenation, or may not respond if ventilation to their alveolus is very poor (“**severe hypoventilation**”). In the latter case, oxygenation under spontaneous respiration gives no help, and you should consider the mechanical ventilation.

Other patients are likely in type 1 respiratory failure. You should give the patients oxygen through nasal canula or mask, and repeat checking SpO<sub>2</sub> after 15-30 minutes. The hypoxemic patients due to “diffusion disturbance” or “ventilation perfusion rate mismatch” may respond to the oxygenation, and you will continue the diagnostic process and then start specific treatment. “**Diffusion disturbance**” is caused by pneumonitis, pulmonary fibrosis, lung edema, etc. “**Ventilation perfusion rate mismatch**” is caused by pulmonary embolism, emphysema, asthma, pneumonia, etc. If patients do not respond to oxygenation, higher dose of oxygen should be given. Most patients will show some improvement, but some other patients will not. You should think of the reason behind such intractable hypoxemia, which resists to oxygenation therapy. The likely reason is existence of “**shunt**.” Shunting may occur, for example, in newborns with Respiratory Distress Syndrome (RDS), in children with cyanotic heart anomalies, in adults who developed atelectasis, lobar pneumonia, adult RDS, liver cirrhosis, etc.

**Table 10-1: Proposed Demarcations between Different Level Health Facilities for the Management of NCDs**

The Study Team

Diseases	Health facility of first contact	Emergency care at EC	Specialized care at Oblast level	Follow-up at polyclinic, RCH or SVP
Hypertension	Based on protocol - checking blood pressure (BP) - diet therapy & exercise - consultation	- intensive care for hypertensive crisis	- looking for etiologies - treatment plan - diet therapy & exercise - retinal exam at Eye Dispensary	Follow-up at polyclinic, RCH or SVP - regular medication Patronage nurses check: - drug/ diet compliance - BP
Stroke	- refer to EC	- CT study Infarction: anticoagulants & anti- platelet Hemorrhage: hemostatics or glyceol	- rehabilitation - ruling out carotid atherosclerosis - carotid endarterectomy - considering anti- platelet/ anti- coagulant	- control of hypertension - prescribing anti- platelet Patronage nurses check: - activities of daily living - BP
IHD	- refer to EC	- intensive care - consider thrombolytics	- rehabilitation - evaluation of cardiac function	- regular medication - control of hypertension
Chronic heart failure	- refer to the oblast medical center or EC	- intensive care for acute aggravation	- education plan - education on salt restriction - admission, if necessary	- regular medication - early detection of impending heart failure
Arrhythmia	- palpation/ auscultation - ECG - consultation	- care for critical arrhythmia	- detailed evaluation - treatment plan	- regular medication
DM	Based on the protocol - history - check of blood/urinary sugar - diet therapy & exercise - consultation	- intensive care for diabetic emergencies	- control of blood sugar - check of HbA1c - check of renal function - diet therapy & exercise - retinal exam at Eye Dispensary	- control of blood sugar - regular medication Patronage nurses check: - drug/ diet compliance - dip stick for urinary sugar
Renal diseases	- history - check of urinalysis/ serum creatinine - consultation	Acute care for: - renal / ureteral colic - acute renal failure	- looking for etiologies - renal biopsy - treatment plan - education on diet - lithotomy - regular hemodialysis	- check of urinalysis/ serum creatinine - regular medication Patronage nurses check: - drug/ diet compliance
Liver diseases	- history - jaundice/edema/ascites - check of bilirubinuria/ serum transaminase - consultation	Acute care for: - hepatitis - variceal bleeding - hepatic coma	- looking for etiologies - PT/APTT, serum albumin - treatment plan - education on diet - planned operation for esophageal varices	- regular medication - alcohol restriction Patronage nurses check: - drug/ diet compliance - edema
COPD	- history - auscultation - chest X- ray - consultation	- intensive care for acute aggravation	- respiratory function test - treatment plan - mechanical ventilation - following up	- regular medication - counseling to stop smoking - early detection of impending respiratory failure
c.f. Acute Respiratory Infection	- history - respiratory rate, chest X-ray, pulse oximeter - oral or parenteral antibiotics - consultation	- more aggressive treatment for referred patients	- treatment for hospital-acquired pneumonia	

## **Chapter 11      Discussions on Tertiary Service in Navoi Oblast**

### **11-1      Importance to Optimize Tertiary Care System in Navoi Oblast**

The direction regarding the reform of health care services in Navoi Oblast is to execute five strategies described in the previous chapter under the vision to realize health services in accordance with the transition of disease patterns.

The system for effective and efficient health care services requires enhancement of secondary care and appropriate consideration given to services in remote areas as well as reorganization of tertiary care. That reform enables NOHA to take a first step to meet the present and future demands of health care services. It is also important to improve the diagnostic skills of health personnel and to optimize activities for prevention of NCDs, as discussed at a series of workshops in Navoi and Tashkent.

To organize an effective and efficient health care services system at oblast level is especially vital to the reform process since the absence of the Oblast General Hospital and the dispersed allocation of small-scale tertiary health facilities are the main obstacles to keeping up with changing demands of health services. In addition, the establishment of the Oblast General Hospital would enable it to play a role in the compilation of guidelines to practice the protocols for diagnosis and treatment of NCDs and implementation of in-service training.

It is also quite important to consider how to reach the effectiveness and efficiency. For completion of the reform process, actions must be taken regarding the secondary and primary care. Therefore, the allocation of the financial resources of NOHA for execution of the five strategies is a critical issue. The establishment of the Oblast General Hospital and the Oblast Diagnostic Center inevitably involves initial investment in the construction of new buildings and procurement of medical equipment, even if existing facilities and equipment are fully utilized. In addition, the manageability of the recurrent costs of the two oblast-level facilities must be taken into consideration while making a decision on the specialties and capacities of health care services.

Only after a proper option is chosen to organize an effective and efficient health care service system at oblast (or tertiary) level, a window of opportunity will be open for the health administrators to design a comprehensive plan which will put other strategies into actions. Consequently, the highest priority should be given to draft a plan to optimize the tertiary care.

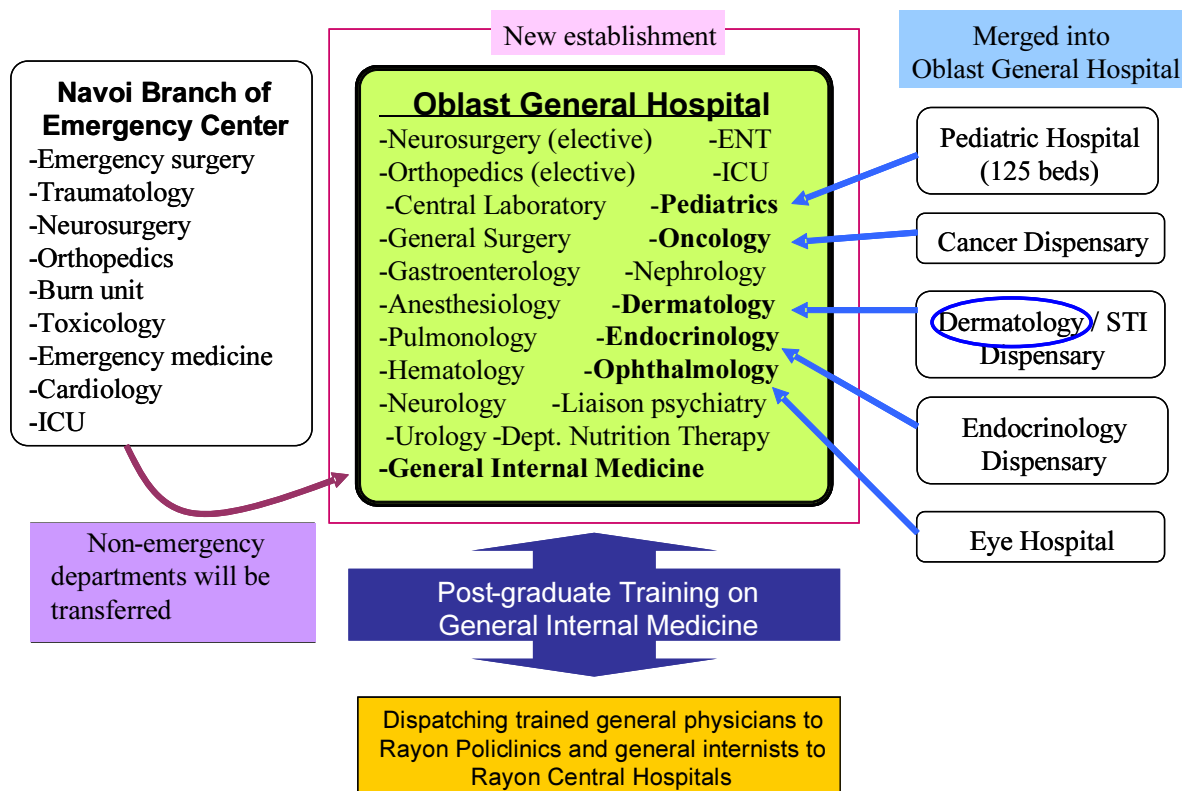
## 11-2 Options Suggested by Study Results

Based on the results of the Study, the Study Team proposes three different options for the optimal tertiary care system in Navoi Oblast. These features are described below and the investment and recurrent costs are compared in the next section.

### 11-2-1 Option 1: To Build an Integrated General Hospital including All Pediatric Subspecialties

This is a plan to create a new Oblast General Hospital by a radical merger of specialized dispensaries and specialty departments currently existing in separate locations (Figure 11-1). The hospital buildings should be large enough to accommodate the Oblast Pediatric Hospital as a whole. Most equipment of the Pediatric Hospital will be moved to the central laboratory of the new Oblast General Hospital. The Eye Hospital, the Cancer Dispensary, the Endocrinology Dispensary and the Dermatology Department of the Dermatology/STI Dispensary will be integrated as a part of the new Oblast General Hospital. The Oblast Chief Hematologist and the Chief Neurosurgeon will be invited from the Karmana RCH to the new Oblast General Hospital. There is a great deal of stress in society today, and many people develop various physical symptoms due to psychological stress (psycho-somatic disorders), and inpatients admitted for some physical diseases may also need sophisticated psychological support, e.g., ICU syndrome, steroid psychosis, cancer patients after being informed about their prognosis, etc. At least one psychiatrist should be invited from the Neuropsychiatry Dispensary to offer a liaison psychiatry service in the new General Hospital. The departments of general surgery, orthopedics (for elective cases), ophthalmology, otorhinolaryngology, urology, and anesthesiology may be established by experienced doctors currently working for the Oblast Emergency Center or senior doctors invited from Tashkent or other Oblasts. Subspecialties of internal medicine, other than hematology and neurology, should be founded in a similar way. If the strict legislation on the separate setting of endocrinology dispensaries were to be loosened in the future, endocrinologists could be invited to the General Hospital as an essential subspecialty of internal medicine. They are expected to see the diabetic patients or patients with endocrinological diseases and to give a consultation service to other specialists who care for the patients with those diseases. The new General Hospital should have an independent department of nutrition for more sophisticated diet therapy.

Currently, the EC spares 30% of its total beds for non-emergency patients in Navoi oblast where there is no Oblast General Hospital. When the General Hospital is newly set up, non-emergency departments together with their beds should be transferred from the EC to the General Hospital. In future the patients who have survived the acute phase in the EC should be referred to the General Hospital. In this way the EC in Navoi will be a pure emergency hospital which exclusively accepts emergency patients free of charge, and the General Hospital will serve the non-emergency patients and charge fees for its service.



**Figure 11-1: Integrated General Hospital Utilizing Equipment of the Pediatric Hospital Plus Downscaled Emergency Center (Option 1)**

An accumulation of different subspecialties may overlook diseases which are in a blind spot and not covered by any specialist. If a patient visits a wrong subspecialty, it may take a long time to be referred to the right subspecialty. The new General Hospital is, therefore, highly recommended to set up a department of general internal medicine as a receiving area for the patients with obscure diagnoses and as a coordinator of different specialists. If this department admits young post-graduate doctors and trains them in general internal medicine with the full support of the General Hospital and by permission of MOH, trained doctors may play the same role in rayon-level polyclinics and RCHs in the future.

Based on the numbers of patients in the Oblast Emergency Center and Oblast Pediatric Hospital in 2007 and population growth in Uzbekistan, the appropriate number of beds for the Oblast General Hospital is estimated at 419. Meanwhile, the Oblast Emergency Center will be limited by 30% since 30% of its function is allocated for non-emergency health services due to the absence of the General Hospital.

#### 11-2-2 Option 2: To Build a New Adult General Hospital and Oblast Diagnostic Center

This is a plan to create a new General Hospital exclusively for adults (Figure 11-2). The Oblast Pediatric Hospital will remain independent as it stands, and therefore, the number of beds can be smaller than in option 1. However, the equipment of the Pediatric Hospital can not be moved to the new adult General Hospital. The Eye Hospital, the Cancer Dispensary, the Endocrinology Dispensary and the Dermatology Department of the Dermatology/STI Dispensary will be integrated

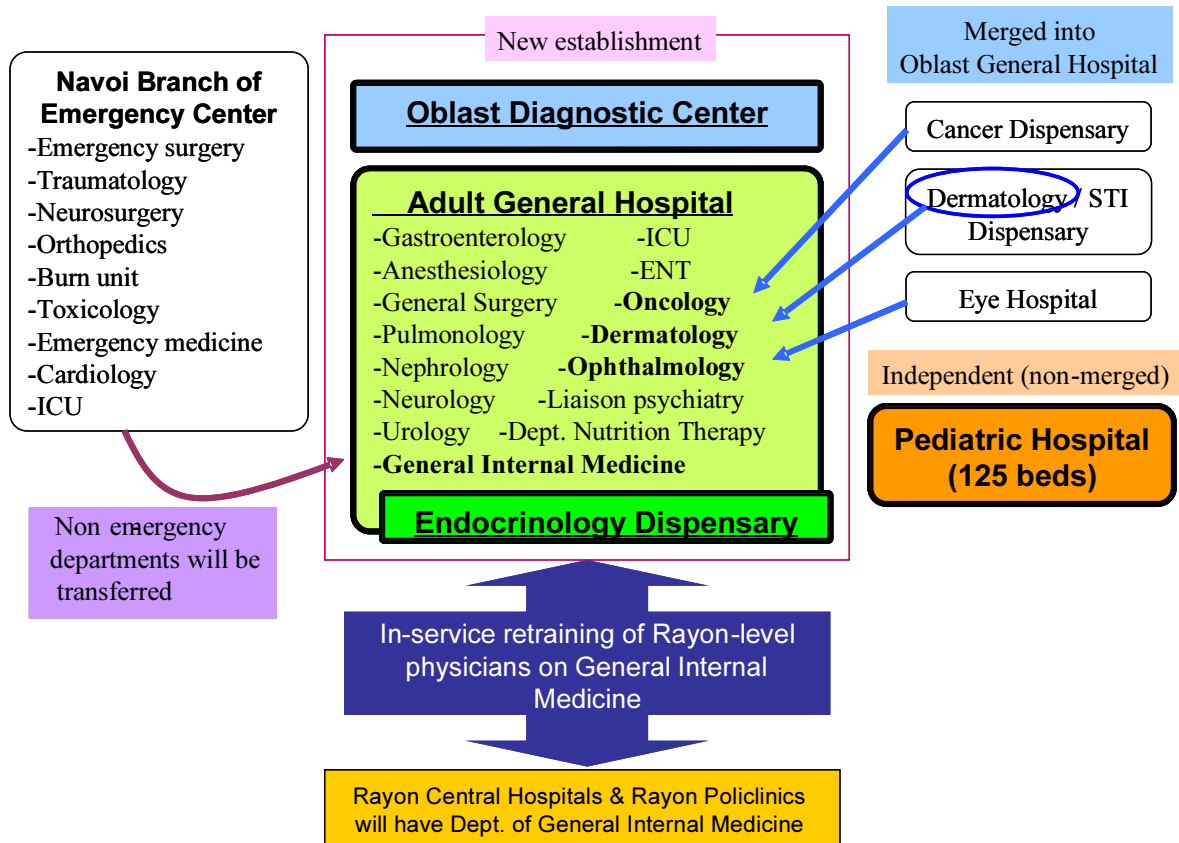


as a part of the new General Hospital. If the Oblast Chief Hematologist and the Chief Neurosurgeon continue to serve the Karmana RCH, the new Adult General Hospital can start functioning with an even smaller number of beds and save more initial construction costs. If the legislation on the separate setting of endocrinology dispensaries remains unchanged, the new building for the Endocrinology Dispensary may be built on the premises of the Adult General Hospital, and endocrinologists may carry out the dual duties for patients of the Dispensary and the General Hospital.

Based on the numbers of patients in the Oblast Emergency Center in 2007 and the growth of the adult population in Uzbekistan, the appropriate number of beds for the Oblast General Hospital is estimated at 282. The Oblast Emergency Center will be limited by 30%.

The Oblast Diagnostic Center will be set up separately from the General Hospital, and will have dual functions as the central laboratory of the General Hospital and as the reference laboratory for any other public or private health care facilities in the oblast. In principle, all the diagnostic procedures and assays will be done on a paid basis and NOHA may take over for the patients who meet the qualifications for exemption. Thus, the Diagnostic Center will not totally depend on the oblast budget for its running costs, but can offer its high-tech functions in a more stable manner.

There will be some financial merit to receive young doctors as post-graduate trainees if the new General Hospital can get highly motivated workers at a cheaper cost. Even if it is not allowed, the oblast can make an arrangement by itself to let the General Hospital invite the rayon-level physicians and offer them in-service refresher training on general internal medicine. Such activities will effectively facilitate communications between RCHs and the General Hospital, quality assurance regarding patient management and consensus on patient referral. The scale of budgetary arrangements is the decisive factor to offer such continued training to the staff doctors on a generous or minimal basis.



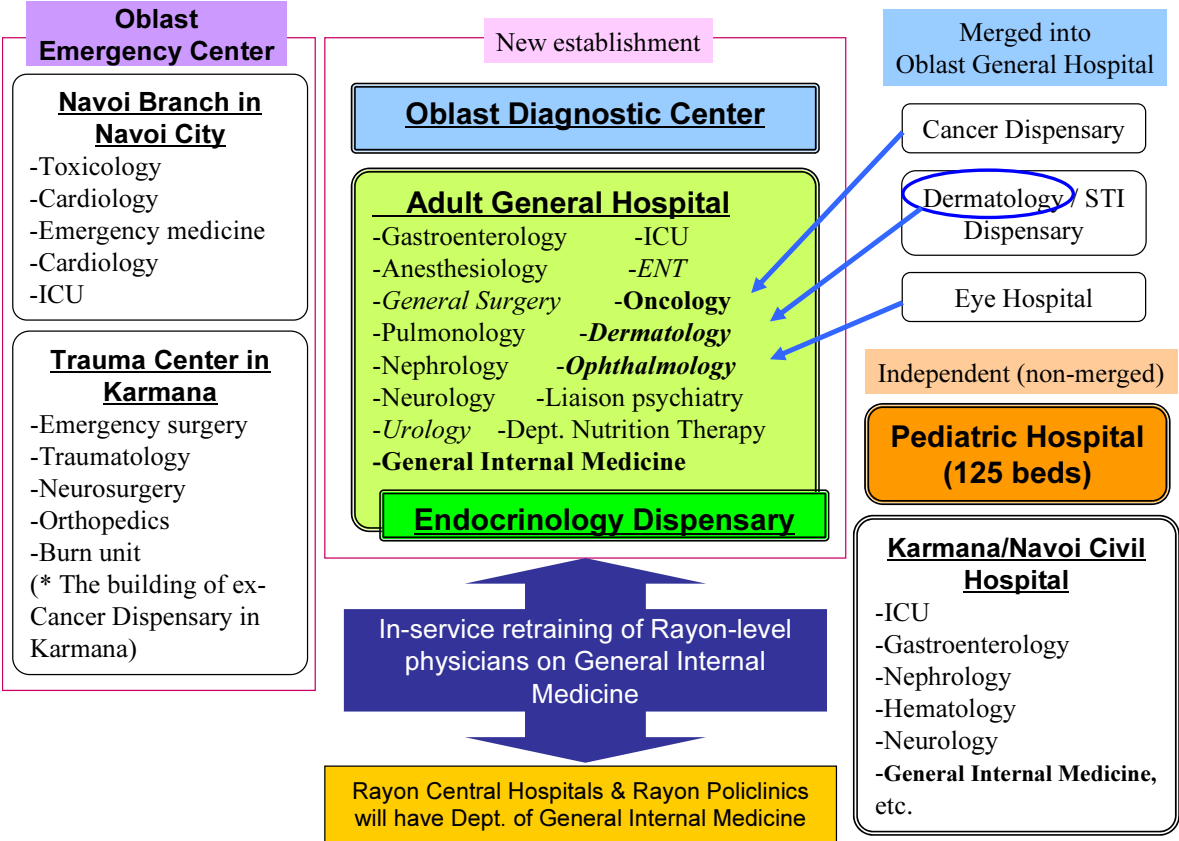
**Figure 11-2: Separate Arrangement of the Adult General Hospital, the Pediatric Hospital, Oblast Diagnostic Center and Endocrinology Dispensary (Option 2, modified from Option 1)**

**11-2-3 Option 3: To Separate Emergency Center and Utilize a Part of Building of Emergency Center for General Hospital**

The city area of Navoi and the midtown of Karmana are expanding and merging into one urban area. It is only 7 kilometers between the Navoi Hospital Complex, consisting of the Emergency Center, Maternal Hospital, Pediatric Infectious Diseases Hospital and TB Dispensary, and Karmana RCH. This is a great opportunity to design an optimized and cost-effective hospital network in this populous area.

Basically, this option is modified from option 2. A new Adult General Hospital will be created from specialized dispensaries and specialty departments. The Oblast Pediatric Hospital will remain independent. When the Eye Hospital, the Cancer Dispensary, the Endocrinology Dispensary and the Dermatology Department of the Dermatology/STI Dispensary are integrated into the General Hospital, the new building for the Cancer Dispensary, which is now under construction just off Motorway No. 37, will be vacant. This option includes a proposal to remodel this vacant building as the Trauma Center of the Oblast Emergency Center in Karmana, which chiefly handles the trauma patients. It is near the crossroad connecting all rayons to Navoi City, and in the best location to quickly transport victims of traffic accidents. Therefore, there is a good reason to shift the surgical

departments of the Oblast Emergency Center. After replacing them, the Oblast Emergency Center in Navoi City will mainly accept the non-surgical emergency cases. If surgical treatment is necessary, general emergency surgeons working there will consult with the patients and make a decision if they should be referred to the Trauma Center of the Navoi Emergency Center or to the new General Hospital.



**Figure 11-3: Double tertiary care centers in the greater Navoi/ Karmana urban area (Option 3, modified from Option 2)**

The wards and beds, which are currently allocated to surgical departments of the Oblast Emergency Center, will be given to surgical subspecialties of the new General Hospital, i.e. general surgery, ophthalmology, ENT, urology, dermatology, etc., under the control of the Director of the General Hospital (shown in *italics* in Figure 11-3). The appropriate number of beds for the Oblast General Hospital is the same as Option 2 (282), but construction costs for the new General Hospital can be minimized. The funds saved can be utilized to upgrade the Karmana RCH into the new Karmana/Navoi Civil Hospital, which can offer secondary health services and, in some specialties, tertiary-level services to the citizens of these areas. The Karmana/Navoi Civil Hospital will help to alleviate congestion in the Oblast General Hospital.

The Oblast Diagnostic Center will be an independent facility, which assists both public and private health care facilities including the General Hospital. The new building for the Oblast Cancer Dispensary can be utilized for alternative uses.

### 11-3 Comparison of Costs among Three Options

The costs of the three options described in the previous section are compared in Table 11-1. Since the General Hospital merges with the Oblast Pediatric Hospital under Option 1, the bed capacity and the total floor area constructed will be the largest (419 beds in 24,000 m<sup>2</sup>, based on the estimation by the Study Team). The cost for procurement of medical equipment can be lowered thanks to the opportunities to use the equipment owned by the Pediatric Hospital; however, the total investment cost for Option 1 will be 33,220 million soums, the highest among the three options. As for Options 2 and 3, the bed capacity of the General Hospital is the same (282 beds). However, the floor area constructed for Option 2 is larger (20,000 m<sup>2</sup> for Option 2; 14,000 m<sup>2</sup> for Option 3), as Option 3 assumes a part of the existing facilities of the Emergency Center that is utilized for the General Hospital. As a result, the investment cost for Option 3 will be the lowest.

The recurrent costs after inauguration of the General Hospital from 2012-2017 are also examined in Table 11-1. Since the hospital has more staff, beds and facilities under Option 1, its recurrent costs will be the highest. The option involving the lowest recurrent cost will be Option 3. It has the same number of staff and beds as Option 2, but depreciation expenses for Option 3 will be smaller because of fewer investment costs. Concerning the costs for the maintenance of facilities and equipment, Options 1 and 2 will not be so much different because the lowered costs for facilities in Option 2 are offset by the increased costs for equipment.

**Table 11-1: Initial Investment and Recurrent Costs of Three Options**

Unit: million soums

	Initial Investment	Annual Recurrent Cost					
		2012	2013	2014	2015	2016	2017
<b>Option 1</b>	33,220.0	4,055.9	4,607.3	5,216.6	5,874.7	6,601.1	7,388.2
<b>Option 2</b>	29,100.0	3,521.5	4,006.5	4,544.8	5,130.0	5,779.1	6,487.4
<b>Option 3</b>	21,420.0	3,164.8	3,598.3	4,078.6	4,599.2	5,175.6	5,802.7

Source: Estimation by the Study Team

Meanwhile, it should not be forgotten that all three options involve merging several existing health facilities in Navoi with the General Hospital. For the provision of more effective and efficient health care services, the Study Team positively suggests the General Hospital take in the six existing facilities: (1) Pediatric Hospital (Option 1 only), (2) a part of the Emergency Center for non-emergency patients (30% of its function), (3) Eye Hospital, (4) Cancer Dispensary, (5) Endocrinology Dispensary, and (6) Dermatology Department of Dermatology/STI Dispensary (35% of its function). From this point of view, NOHA can save on the extra financial requirements for running the General Hospital by shifting the budgets from these health facilities.

Table 11-2 compares the amounts of the budgets shifting from the facilities merged into the General Hospital and extra financial requirements imposed on NOHA for running the Hospital among three options. Regarding Option 1 with the highest recurrent cost, the budget shifting from the above

facilities will be the largest since only this option assumes the merger of the Pediatric Hospital. Consequently, NOHA can save on the extra financial requirements for running the General Hospital. In conclusion, Option 1 will involve the highest investments and the highest recurrent cost, but it can save on the extra costs if NOHA can successfully achieve the merger of existing health facilities noted above. Option 2 will require the highest extra funding to be placed on NOHA.

**Table 11-2: Comparison of Recurrent Costs for General Hospital among Options in 2012**

	Unit: million soums		
	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>
<b>Budgets Shifting from Facilities Merged</b>	2,616.8	1,656.4	1,656.4
<b>Extra Financial Requirements on NOHA</b>	<b>1,439.1</b>	<b>1,865.1</b>	<b>1,508.4</b>
<b>Total Recurrent Cost in 2012</b>	4,055.9	3,521.5	3,164.8

Source: Estimation by the Study Team

11-4 Selected Option to Optimize Tertiary Care System

Given the importance of optimizing the tertiary care system in the oblast, three options were shown by the Study Team to MOH and NOHA in Field Mission 4, and the relevant discussions were continued during the mission. In conclusion, an approach to optimize the tertiary care system has been determined. The point determined in the optimization, as described in the next section, is to inaugurate the Oblast General Medical Center (renamed from the Oblast General Hospital, used in 11-2, along with the interpretation of Presidential Decree No. 3923 and Resolution No. 700) and the Oblast Diagnostic Center at the hospital complex in Navoi City, where the Emergency Center, Maternal Hospital, Pediatric Infectious Diseases Hospital, TB Dispensary and NGMK Hospital are, while pediatric care is not to be included in the Medical Center to be integrated. In other words, the determined approach is some modifications of Option 2 shown in 11-2.

The approach has been determined after considerable discussions on conformity with the political direction of state health reform, namely the contents of the Presidential Decree and Resolution.

First of all, the basic design of service provision was highlighted. As described in Chapter 2, the Decree asserted to establish medical centers, children’s medical centers (initially renamed from pediatric hospitals) and diagnostic centers at oblast level. It means that the government has decided to continue the parallel systems of medical services for adults and children at oblast level. Consequently, MOH and NOHA thought it was too difficult to include the pediatric services into the integration of tertiary care, and they chose to set up a medical center for adults at oblast level.

Accordingly, the gravity of oblast diagnostic functions to be strengthened was placed on the Oblast Diagnostic Center, not only to maximize the effect of the user fee scheme but also to realize the quality diagnoses for all the medical services at oblast level.

The necessity of in-service training at oblast level was not contradictory to the policy of the central government. However, the specific plan to train quality health personnel is yet to be developed. The steps to implement an adequate training program should be determined.

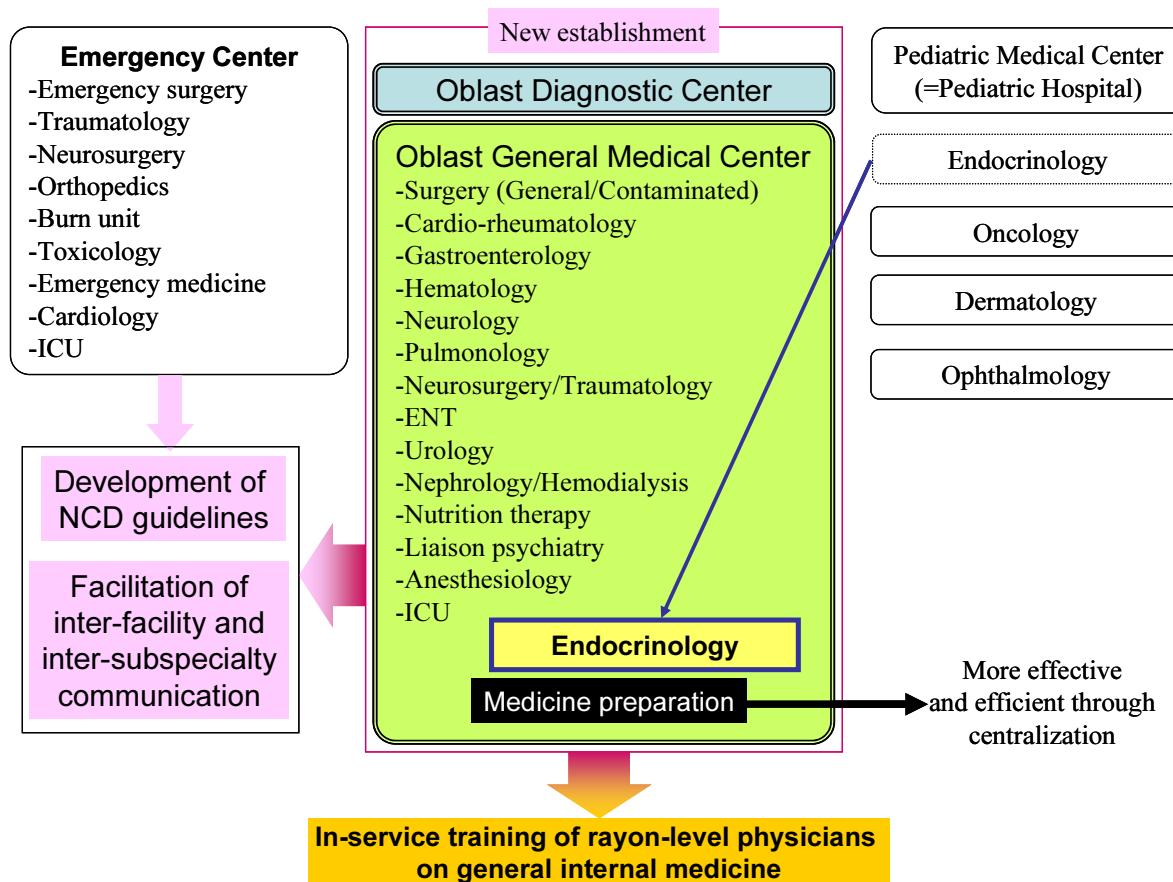
Based on the above selection, the details of the improvement program, including targets, schedule and concepts of each component, action plan and necessary budget were considered as described in Chapter 12.

#### 11-5 Features of the Identified Option

Figure 11-4 summarizes the identified option. Existing health facilities, including the Pediatric Hospital, Eye Hospital, Cancer Dispensary and Dermatology Dispensary, which would be integrated under Option 2, remain independent. The Oblast Diagnostic Center is also established as an independent facility playing the role of a provider of quality diagnosis, the reference laboratory for the oblast as well as the laboratory for the Oblast General Medical Center.

The departments of the Oblast General Medical Center include surgery, ENT, urology, pulmonology, gastroenterology, nephrology and neurology. Cardiology, neurosurgery, hematology and ICU are also available. One of the features of the Medical Center is the stationing of at least one psychiatrist, who will enable it to provide the necessary support to the patients suffering from psychological problems. For effective management of diabetes mellitus, Endocrinology Dispensary is to be integrated.

The Medical Center will be able to play the role as the nucleus of health services in Navoi Oblast. It can provide the quality tertiary services for non-emergency cases such as NCDs. It can be utilized for the in-service training of physicians on general internal medicine for its upgrading at RCHs and polyclinics. It can assure the quality of services in the oblast through leading the development of practical guidelines to manage NCDs and facilitating communication among facilities and subspecialties. It can also function as the center of medicine preparation for its effectiveness and efficiency.



**Figure 11-4: Summary of the Identified Option**

The bed capacity of the Oblast General Medical Center is 282, the same as Option 2. Initial investment for construction of the buildings and procurement of medical equipment is 29,100 million soums, also the same.

Assuming the Medical Center is inaugurated in 2012, the Study Team estimates the recurrent cost for the first year will be 4,042 million soums. Following that, the cost will rise with inflation, as shown in Table 11-3.

However, as no existing health facilities can be merged into the Oblast General Medical Center, the recurrent cost will fully require extra sources for financing. NOHA intends that it will finance 70% of the annual recurrent costs and that remaining 30% will be collected from patients as the value for the services. Based on this idea, the user fee per inpatient enough to finance the annual costs will be 305.1 thousand soums in 2012, regardless of the lengths of stay.

In reality, patients who are admitted to an oblast level hospital spend a significant amount on various items and purposes. Judging from this fact, NOHA estimates that most of the patients will be able to pay their fees, and expects that 30% of the recurrent cost can be collected from users.

**Table 11-3: Annual Recurrent Costs and Sources of Finance for Identified Option**

Unit: Soums

<b>Year</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
<b>Expenditure (,000)</b>						
1. Personnel	517,637	582,970	653,328	726,199	804,096	884,506
2. Utility	230,432	259,515	290,836	323,275	357,952	393,747
3. Maintenance (Facility)	250,000	281,553	315,534	350,728	388,350	427,184
4. Maintenance (Medical Equipment)	800,000	900,971	1,009,709	1,122,330	1,242,718	1,366,990
5. Fuels (Transportation)	63,448	71,456	80,080	89,012	98,560	108,416
6. Foods	205,918	231,907	259,896	288,884	319,872	351,859
7. Drugs/Other materials	222,480	250,560	280,800	312,120	345,600	380,160
8. Depreciations	1,487,700	1,675,468	1,877,680	2,087,113	2,310,990	2,542,089
9. Others	264,433	297,808	333,750	370,976	410,770	451,847
<b>Expenditure Total</b>	<b>4,042,047</b>	<b>4,552,208</b>	<b>5,101,613</b>	<b>5,670,639</b>	<b>6,278,908</b>	<b>6,906,799</b>
<b>Income (,000)</b>						
1. from Oblast Govt	2,829,433	3,186,546	3,571,129	3,969,447	4,395,236	4,834,759
2. User fee	1,212,614	1,365,662	1,530,484	1,701,192	1,883,672	2,072,040
<b>Income Total</b>	<b>4,042,047</b>	<b>4,552,208</b>	<b>5,101,613</b>	<b>5,670,639</b>	<b>6,278,908</b>	<b>6,906,799</b>
Estimated No. of Inpatients	13,249	13,514	13,784	14,060	14,341	14,628
<b>User fee/30% of inpatient (,000)</b>	<b>305.1</b>	<b>336.9</b>	<b>370.1</b>	<b>403.3</b>	<b>437.8</b>	<b>472.2</b>

Source: Estimation by the Study Team and Discussion between NOHA and the Study Team



**PART IV**  
**IMPROVEMENT PROGRAM**

## **PART IV. IMPROVEMENT PROGRAM**

### **Chapter 12 Improvement Program for Health Care Service System of Navoi Oblast**

#### **12-1 Goals of Improvement**

It is a big challenge to renew the health care service system of Navoi Oblast. The program proposed here is a series of activities to obtain the health care of optimal diagnosis and treatment for NCDs as well as quality services for maternal and child care to meet the changing demands of health issues.

First of all, health administrators have to develop the ground design for focusing diseases or areas to be prioritized and for introducing the latest medical knowledge and modern technologies.

The tertiary care at oblast level should reach the necessary standards of medical services with modern technologies. The tertiary-level facilities are expected to play a role as a team leader to follow up the NCDs patients and to offer them comprehensive health care including medication regimen, diet advice, therapeutic exercise, etc.

The secondary care is the responsibility of rayon level polyclinics and RCHs, where the cases to be referred to the higher level should be distinguished from the cases manageable at their level. Rayon polyclinics are expected to follow up the patients according to the management plan prepared by oblast-level specialists after they are referred back.

SVPs have been or will be equipped with essential auxiliary diagnoses through Health Project I and II. They are expected to stably maintain and utilize them, and to surely diagnose common diseases. Hypertension, obesity and diabetes mellitus are risk factors of more critical NCDs, and SVPs should more aggressively detect and control such conditions, and contribute to reduce the future workload of health care system.

Through developing an effective referral system, different level health facilities will be reorganized into an integrated health care network which meets the growing demand for more sophisticated health care services.

#### **12-2 Targets of the Program**

The basic strategy described in 10-2 is to reach a new health care system to cope with the epidemiologic transition which brings the increasing burden of NCDs. That is, the selected basic strategy is to intend a good outcome of health care under new system. Ultimately, the said outcome should be a health status of population without excessive mortality from NCDs. Given this ultimate purpose, the health reform program needs its targets with certain time span, or ten years. The program also needs interim, or five years milestones and the first steps passing the important entry points, namely mid-term goals and short-term objectives.

It is suggested to set the targets on mortality from NCDs to be achieved in next ten years. Considering that the population aged over 45 years in Navoi Oblast in year 2017 would increase 1.4 times of the figure in year 2007 as described in previous chapter, it would be a reasonable target to keep the increase of mortality from NCDs within 1.4 times during the same period. In this context, milestones should be defined regarding early diagnosis and treatment, standardization of medical care, and social awareness of prevention of NCDs.

Indispensable condition for feasibility and sustainability of those gradual steps of improvement is establishment of reliable management and practice of it. Considering transition of disease pattern and its implication on health care expenditure, it is strongly recommended to target the certain share of revenue from user fee at oblast level services. Improvement of management capacity should be confirmed from the early stage, otherwise outcome of health care never be expected. Accordingly, development of training program and implementation of it, optimizing health personnel and better staffing, establishing new system of equipment maintenance should be milestones of achievement.

Under these considerations, overall goals, mid-term goals and short-term objectives of the health reform program are suggested as follows. Some of them, especially short-term objectives could be determined when the option of action plan, shown in Chapter 12, was selected in Field Mission 4.

#### (1) Overall Goals

The overall goals of the program for health care service reform in Navoi Oblast could be suggested as follows. These are the goals to be achieved in year 2017.

##### **Overall goals for year 2017**

- Life expectancy will be increased.  
Life expectancy at 65 years old will be increased by 10 years  
Life expectancy at birth will be increased by 5 years
- The level of emergency health care will be improved.  
In-hospital mortality rate within 30 days of admission for AMI will be reduced by 20%  
In-hospital mortality rate within 30 days of admission for stroke will be reduced by 30%
- The mortality caused by NCDs will be contained within 1.4 times of the figures in year 2007.  
Cancer five-year survival rate (breast or cervical cancer) will be increased by 20%  
Asthma mortality rate will be reduced by 30%
- The preventive efforts are accelerated.  
Coverage of planned health checkup >70%
- The new Oblast General Medical Center can earn the half of its revenue from user's fee.

In order to reach these goals, it is necessary for MOH to secure financial resources enough to enrich preventive and curative service against NCDs and introduce new technology for emergency care. If MOH raises the public health expenditure (government budget) to 4.0% of GDP from the current level (2.4% in 2007), it will be able to utilize a quarter of public health expenditure for prevention activities and other three quarters for curative services.

It will be also preferable to keep the ratio of public health expenditure and private one (defined here as out-of-pocket payments plus health insurance) fifty-fifty. In this scenario, private health expenditure as percentage of GDP will be also 4.0%. Assuming the growth of out-of-pocket payments is unchanged from the current level of private health expenditure, health insurance should fill the gap.

Increased life expectancy will be a gross indicator of a successful health program. How can the life expectancy of Uzbek people be improved? One of the pathways to reach this goal is as follows. As described in Chapter 10-4, Navoi Emergency Center will be equipped with a CT scanner. CT imaging is helpful to investigate various organs, and it is quite true to differentiate between hemorrhagic stroke and ischemic stroke. A guideline for diagnosing and treating strokes in the Emergency Center should be developed before the CT is installed. Another guideline should be developed for referring patients suspected of stroke to the Emergency Center from secondary- or primary-level facilities, and the contents of the guideline should be disseminated to doctors in the whole oblast through some in-service training schemes. These are short-term objectives by the year 2010. In the future, hopefully, the Emergency Center will be able to offer neurosurgical interventions and thrombolytic treatment for selected cases with hemorrhagic and ischemic stroke, respectively. In this way the people of Navoi can get a good return on a huge investment in the CT machine.

## (2) Mid-term Goals

Mid-term goals are set as milestones at year 2012. To keep the mortality caused by NCDs low, the preventive efforts should be initiated in the earlier stage. Especially, DM and hypertension should be the most focused, because they increase the risk of other NCDs. In parallel with preventive efforts, early diagnosis and treatment of NCDs should be enhanced. High-quality generalists should be allocated to health facilities to coordinate specialists and treat emergency patients efficiently.

To ensure sustainable revenue of the OGMC, it should start collecting user fees and utilize those fees to improve clinical skills and quality of services at oblast level. At the same time, expenses for health care services at oblast level should be optimized to improve cost-effectiveness. When health facilities at oblast level provide quality care, it could be reasonable for patients to bare some costs from their pockets.

### **Mid-term goals in year 2012**

- The preventive efforts are accelerated.  
Coverage for basic vaccination will be kept 90% or more  
Incidence of vaccine preventable diseases will not increase  
80% of patients with hypertension or diabetes are regularly followed up  
Uncontrolled diabetes admission rate will be reduced by 30%  
Percentage of overweight\* or obesity\*\* among adult population will be reduced by 10%  
(\* $25 < \text{BMI} < 30 \text{ kg/m}^2$ , \*\* $\text{BMI} > 30 \text{ kg/m}^2$ )  
Alcohol consumption (liters per population aged 15+) will not increase  
Smoking rate will be reduced by 20%
- Diagnostic skills will be improved in accordance with level of facilities  
HbA1c will be checked at least once a year for every diabetics  
Number of diabetic patients with high HbA1c level will be reduced by 50%  
CT Scanners per million population in Navoi oblast will not be less than national average
- Trained doctors are assigned to health facilities as high-level internists.
- The Oblast General Medical Center (OGMC) and Oblast Diagnostic Center (ODC) start operating and collecting users' fees.
- The number of beds at Oblast Emergency Center (EC) is reduced.

### (3) Short-term Objectives

Short-term objectives, proposed milestones at year 2010, are shown below, while the short-term objectives may vary considerably based on the actions/activities which are selected in a program.

### **Short-term objectives in year 2010**

- The preventive efforts to curb the morbidity of NCDs are initiated.
- Guidelines for diagnosing and treating NCDs are developed.
- Based on the NCD guidelines, in-service training scheme is arranged.
- The permission is given to establish a new OGMC and ODC.
- The indication for emergency care is narrowed down.

In the first couple of years, MOH and NOHA should initiate various activities to achieve mid-term goals and overall goals. Spared money is utilized to improve the level of emergency care; e.g. prescription of expensive drugs by free of charge, offering expensive diagnostic procedure by free of charge, etc.

## 12-3 Framework of the Program

### 12-3-1 Concepts of the Components

The Improvement Program for Health Care Service System of Navoi Oblast consists of the following six components.

Component 1: Disease Prevention and Health Promotion

Component 2: Diagnosis and Treatment Process for NCDs

Component 3: Health Facility

Component 4: Medical Equipment

Component 5: Efficiency of Drug Supply

Component 6: Sanitary Conditions of Health Facilities

#### **Component 1: Disease Prevention and Health Promotion**

Optimization of preventive activities, as a pillar of basic strategies, takes concrete shape in this Component. Disease prevention and health promotion are essential to improve the health condition of the people and to avoid a sharp increase of the health budget. Especially, in response to the transition of the disease pattern, it is necessary to accelerate prevention activities against NCDs. As NCDs are closely related with the lifestyles of people and their living environment, the approaches to control NCDs are completely different from those adopted to control infectious diseases. The Navoi Branch of the Health Institute and NOHA will be expected to play a key role in this component to formulate and execute a concrete plan composed of preventive actions as per the following examples.

Firstly, mass education should be implemented to promote a healthy lifestyle. It will be done more effectively with the cooperation of leaders of makhalla (communities) and schools. In addition, checkup systems should be built up to detect NCDs in early stage. (**Activity 1.1 “Enhancement of Prevention Activities against NCDs and Health Promotion”**)

Current patronage activities are saddled with tremendous norms. It is recommended to optimize the current activities, so that the patronage system could be directed to the prevention as well as follow-up of NCDs. In this way an integrated approach will be taken to put Strategies 2 and 5 into action. A practical manual for patronage nurses should be prepared, and then, followed by re-training of personnel based on the manual. (**Activity 1.2 “Upgrading of Patronage Activity”**)

All these activities should be carefully planned to make complementary combinations to each other.

## **Component 2: Diagnosis and Treatment Process for NCDs**

The health care system as a whole should be ready to offer quality curative services against NCDs within reasonable expenditure limits. Strategy 4, to improve diagnostic skills in accordance with the level of facilities, shall be interpreted to the activities to be implemented in this component.

Practical guidelines on diagnosis and treatment for NCDs which will be applicable for each level in Navoi Oblast shall be developed (**Activity 2.1 “Standardization of Diagnosis and Treatment Processes for NCDs”**). The OGMC will be in the highest stage of the activity, while teaching-level generalists may be invited to the Medical Center for this activity. The developed guidelines enable NOHA to standardize the diagnostic equipment according to the level of facilities and treatment regimen for NCDs.

A department of general internal medicine will preferably be set up as a coordinator for the other specialists and as a receiver of referred patients with obscure diagnosis. For effective referral and counter-referral of patients, NOHA is expected to play a role in development of their guidelines and conduct training regarding the practices. (**Activity 2.2 “Coordination among Different Subspecialties”**)

Optimal distribution of human resources is the key to success for the optimization of health facilities. The new OGMC is expected to invite the staff doctors in rayons and to offer in-service training to update their knowledge and skills. Expenses for these activities should be covered by NOHA. (**Activity 2.3 “Personnel Plans and Regular Implementation of In-service Training Courses”**)

## **Component 3: Health Facility**

In order to realize the health reforms and materialize the effective and efficient health care system in Navoi Oblast, they have to have an effective and efficient tertiary-level facility (**Activity 3.1 “Establishment of Oblast General Medical Center and Oblast Diagnostic Center”**). After inauguration, the OGMC and the ODC are expected to be the focal points of tertiary care (cf. Strategy 1) and in-service training (cf. Strategy 4). Proper management of non-emergency adult patients and sophisticated diagnostic services shall be positively achieved.

In terms of optimization of the health service system in the oblast, oblast-level medical services including emergency care shall be optimized (cf. Strategy 1), and rayon-level medical services on common diseases shall be strengthened as well (cf. Strategy 3 & 4) (**Activity 3.2 “Optimization of Oblast Emergency Center” and Activity 3.3 “Strengthening of Rayon-level Health Facilities”**). However, detailed plans of these two activities should be considered a few years after OGMC and ODC start those operations when those actual function and scope of services become clearer.

#### **Component 4: Medical Equipment**

Adequate and sufficient medical equipment shall be provided to health facilities. Moreover, the provided equipment shall be maintained properly. Otherwise, sustainable use of provided equipment cannot be expected.

Particularly, Navoi Oblast needs to brush up the maintenance system for medical equipment, regardless of whether it is aged or newly purchased (**Activity 4.1 “Improvement of Maintenance of Medical Equipment”**). A mechanism to mobilize the current resources is required.

In relation to Component 3, medical equipment for the OGMC and the ODC shall be procured (cf. Strategy 1), and it is included in **Activity 3.1**. In addition, the quality of diagnosis and treatment of common diseases at RCHs shall be improved (cf. Strategy 2 & 3) through the procurement of essential equipment (**Activity 4.2 “Procurement of Medical Equipment for RCHs”**).

#### **Component 5: Efficiency of Drug Supply**

The concentration of medicine preparation on the oblast level through the establishment of a preparation unit gives the opportunity to stabilize preparation quality and to save on costs. In addition, seeking efficiency regarding medicine preparation requires the efficient storage and delivery system of the medicine (**Activity 5.1 “Centralizing of Medicine Preparation”**). This activity is relevant to Strategy 1.

In order to improve access to drugs, it is necessary to take various approaches since it is not attributed to the problem of budget allocations. The current situation regarding prescription of drugs and instructions on its compliance needs to be reviewed for reducing budgetary waste. From the context of remote areas, it would be worthwhile to discuss the possibility and practicability to open small-scale pharmacies at SVPs/FAPs for selling essential drugs (**Activity 5.2 “Improvement of Access to Drugs in Remote Areas”**). This is related to Strategy 2.

#### **Component 6: Sanitary Conditions of Health Facilities**

This component evolved from the activities during the basic study plan of action as described in Chapter 8 into a more systematic and drastic plan of action (**Activity 6.1 “Introduction of “Self-filling and Self-flushing” Toilet”**). As a driving force for continued activities, it is recommended to set up a working group. The proposed improved toilet can be usable even in rayons facing a shortage of water (water consumption for flushing is around 1.5 liters/day/person).

### 12-3-2 Overall Implementation Schedule

Figure 12-1 summarizes the overall implementation schedule and necessary investment and recurrent costs of the proposed activities. The recurrent costs after the year 2009 are estimated



considering price escalation or inflation. As shown in figure 12-1, all activities should be sustainable after initial investment, and some should be monitored or revised regularly to catch up with changing health needs.

Activity/ Cost		Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Component 1: Disease Prevention and Health Promotion</b>												
1.1 Enhancement of Prevention Activities against NCDs and Health Promotion												
	Investment Cost	6,725.2										
	Recurrent Cost	121,111.5										
1.2 Upgrading of Patronage Activity												
	Investment Cost	30.0	20.0	10.0	13.5	15.8	18.1	21.4	24.7	29.0	33.6	
	Recurrent Cost	173.5	5.9	11.5	13.5	15.8	18.1	21.4	24.7	29.0	33.6	
<b>Component 2: Diagnosis and Treatment Process for NCDs</b>												
2.1 Standardization of Diagnostic and Treatment Processes for NCDs												
	Investment Cost	36.0	10.0	5.0	5.0	6.0	7.0	8.0				
	Recurrent Cost	0.0										
2.2 Coordination among Different Specialties or Facilities												
	Investment Cost	14.5	11.0		40.4	3.5						
	Recurrent Cost	526.2	30.0	34.8	40.4	46.9	54.4	63.1	73.2	84.9	98.5	
2.3 Personnel Plans and Regular Implementation of In-service Training Courses												
	Investment Cost	10.0			10.0							
	Recurrent Cost	291.3			14.4	28.9	34.3	40.7	48.2	57.1	67.7	
<b>Component 3: Health Facility</b>												
3.1 Establishment of Oblast General Medical Center and Oblast Diagnostic Center												
	Investment Cost	20,500.0	0.0	6,000.0	14,480.0							
	Recurrent Cost	32,552.1				4,042.0	4,552.2	5,101.6	5,670.6	6,278.9	6,906.8	
3.2 Optimization of Oblast Emergency Center												
3.3 Strengthening of Rayon-level Health Facility												
<b>Component 4: Medical Equipment</b>												
4.1 Improvement of Maintenance of Medical Equipment												
	Investment Cost	32.6	2.0	19.4	11.2							
	Recurrent Cost	109.9		11.1	8.7	10.1	11.7	13.5	15.7	18.1	21.0	
4.2 Procurement of Medical Equipment for RCHs												
	Investment Cost	4,756.5	14.5	4,742.0								
	Recurrent Cost	8,233.7	474.2	550.2	638.5	740.9	859.4	997.2	1,156.4	1,341.3	1,475.6	
<b>Component 5: Efficiency of Drug Supply</b>												
5.1 Centralizing of Medicine Preparation												
	Investment Cost	30.0										
	Recurrent Cost	182.0	30.0	10.5	12.1	14.1	16.3	18.9	21.8	25.3	29.2	33.8
5.2 Improvement of Access to Drugs in Remote Areas												
	Investment Cost	720.6										
	Recurrent Cost	9,666.6	334.8	385.8	334.8	385.8	883.1	999.6	1,125.8	1,274.3	1,402.4	1,552.8
<b>Component 6: Sanitary Conditions of Health Facilities</b>												
6.1 Introduction of "Self-pouring and Self-filling" Toilet												
	Investment Cost	141.4	35.4	106.1								
	Recurrent Cost	25.4	0.4	1.7	2.0	2.4	2.8	3.3	3.7	4.1	4.9	
<b>Total Investment Cost</b>			<b>6,837.0</b>	<b>5,243.3</b>	<b>6,402.0</b>	<b>14,490.0</b>	<b>9.5</b>	<b>0.0</b>	<b>7.0</b>	<b>0.0</b>	<b>8.0</b>	<b>0.0</b>
<b>Recurrent Cost</b>			<b>0.0</b>	<b>8,673.1</b>	<b>10,014.0</b>	<b>11,924.6</b>	<b>17,572.2</b>	<b>19,819.7</b>	<b>22,265.1</b>	<b>24,791.2</b>	<b>27,522.5</b>	<b>30,289.8</b>
			Initial investment/ Preparation of the Activity									
			Regular operation									

Figure 12-1: Overall Implementation Schedule and Cost Estimate

### Component 1: Disease Prevention and Health Promotion

#### Activity 1.1 Enhancement of Prevention Activities against NCDs and Health Promotion

In response to the transition of disease patterns, it is necessary to accelerate preventive measures against NCDs. As NCDs are closely related with the lifestyles of people and their living environment, the Navoi Branch of the Health Institute and NOHA should formulate and execute a concrete plan composed of preventive activities. The activities should include mass education for the adult population to raise awareness for their responsibility for their own health and encourage them to have a regular health checkup to monitor their health condition themselves.

The adult population receiving regular health checkups may seriously change their lifestyle to prevent NCDs or seek health care at an earlier stage. As a result, costs for treatment of NCDs may be lower than for people who have medical care at the later stage of NCDs.

<b>Activity Goal:</b>	Incidence of major NCDs is contained. <i>Incidence rate of major NCDs in 2017 is within 130% (i.e., population increase) of 2005.</i>	
<b>Activity Purpose:</b>	<ul style="list-style-type: none"> <li>- Adult population in Navoi Oblast is aware of their responsibility for their own health.</li> </ul> <i>Prevention of NCDs is included in mass education.</i> <i>Major NCDs are included in checkup.</i>	
<b>Target Area(s):</b>	Whole Navoi Oblast	
<b>Implementing Agency/ Organization:</b>	<ul style="list-style-type: none"> <li>- Rayon Medical Associations (RMAs)</li> <li>- Navoi Branch of Health Institute</li> <li>- NOHA</li> </ul>	
<b>Starting Year:</b>	2007	
<b>Total Investment Cost:</b>	6,725.2 million Soums	
<b>Recurrent Cost</b>	Period: 2008-2017	121,111.5 million Soums
<b>Financial Source of the Investment Cost:</b>	Local budget	



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## Activity 1.2 Upgrading of Patronage Activity

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The health of women and children should be continuously focused upon in the patronage activity. Some of the items of the patronage activities should be revised in order that prevention activities such as the introduction of a healthy lifestyle, healthy diet and regular health check-up can be systematically included in the patronage activity, and that the activity can respond to the respective needs in urban areas and rural areas. In addition to those prevention-related activities, patronage nurses are expected to visit adult patients with NCDs, to enable them to follow the medical advice which they have received from doctors, and urge them to attend a follow-up OPD service (c.f. Table 10-1. Proposed Demarcations between Different Level Health Facilities for the Management of NCDs). In this way patronage nurses will contribute toward comprehensive oblast health care services including prevention, health promotion and curative medicine as well.

The patronage system should be upgraded through situation analysis, manual development and refreshers' training.

<b>Activity Goal:</b>	All chief nurses in RMA provide instructions to patronage nurses based on the revised manual from 2009.	
<b>Activity Purpose:</b>	<ul style="list-style-type: none"> <li>- Patronage activity can respond to the latest actual health problems efficiently.</li> </ul> <i>Situation analysis, evaluation of current activity, revision of manual is necessary.</i>	
<b>Target Area(s):</b>	Whole Navoi Oblast	
<b>Implementing Agency/ Organization:</b>	<ul style="list-style-type: none"> <li>- NOHA</li> <li>- Navoi Nursing Association (Navoi Branch of Republican Nursing Association) (NNA)</li> <li>- Rayon Medical Association (RMA)</li> </ul>	
<b>Starting Year:</b>	2008	
<b>Total Investment Cost:</b>	30 million soums	
<b>Recurrent Cost</b>	Period: 2009 - 2017	173.5 million soums
<b>Financial Source of the Investment Cost:</b>	Local budget	
<b>Activity Concept:</b>		

### Major Activities and Outputs:

Activities	Outputs	Verifiable Indicators	Sources of Information
1. NNA in cooperation with NOHA analyzes situation of the patronage activity.	Current situation of the patronage activity is analyzed. Current health needs are evaluated.	Report of situation analysis	NOHA/NNA
2. NNA in cooperation with NOHA develops the manual of patronage activity.	Patronage activity manual is developed based on the situation analysis.	The developed manual	NOHA/NNA
3. NNA in cooperation with NOHA provides training of trainers based on the developed manual.	All chef nurses related to patronage activities participate in the training.	Number of trainees	NOHA/NNA
4. RMA provides training for patronage nurses.	All patronage nurses participate in the training based on the developed manual. All patronage nurses provide their services based on the manual.	Number of trainees Number of distributed manuals	RMA RMA
5. RMA provides regular refreshers' training and information sharing.	All patronage nurses participate in refreshers' training once a year.	Number of trainees	RMA

### Implementation Schedule:

Activities	Responsibility	(year)										
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Situation analysis	NOHA/NNA	■										
Development of the manual	NOHA/NNA		■									
Training of trainers	NOHA/NNA		■									
Training at RMA	RMA		■									
Cost (million Soums)	Total											
<b>Oblast level</b>	<b>30.0</b>	<b>20.0</b>	<b>10.0</b>									
NOHA	10.0	10.0										
NNA	20.0	10.0	10.0									
<b>Rayon/City level</b>	<b>173.5</b>		<b>5.9</b>	<b>11.5</b>	<b>13.5</b>	<b>15.8</b>	<b>18.1</b>	<b>21.4</b>	<b>24.7</b>	<b>29.0</b>	<b>33.6</b>	
Navoi city	15.4		0.5	1.0	1.2	1.4	1.6	1.9	2.2	2.6	3.0	
Zarafshan city	15.4		0.5	1.0	1.2	1.4	1.6	1.9	2.2	2.6	3.0	
Karmana rayon	21.9		0.8	1.5	1.7	2.0	2.3	2.7	3.1	3.6	4.2	
Navbakhor rayon	15.4		0.5	1.0	1.2	1.4	1.6	1.9	2.2	2.6	3.0	
Nurata rayon	15.4		0.5	1.0	1.2	1.4	1.6	1.9	2.2	2.6	3.0	
Khatirchi rayon	21.9		0.8	1.5	1.7	2.0	2.3	2.7	3.1	3.6	4.2	
Kiziltepa rayon	21.9		0.8	1.5	1.7	2.0	2.3	2.7	3.1	3.6	4.2	
Kanimekh rayon	15.4		0.5	1.0	1.2	1.4	1.6	1.9	2.2	2.6	3.0	
Tomdi rayon	15.4		0.5	1.0	1.2	1.4	1.6	1.9	2.2	2.6	3.0	
Uchkuduk rayon	15.4		0.5	1.0	1.2	1.4	1.6	1.9	2.2	2.6	3.0	

■ Initial investment      ||||| Regular operation

(NB) NNA= Navoi Nursing Association, RMA=Rayon Medical Association

## Component 2: Diagnosis and Treatment Process for NCDs

### Activity 2.1 Standardization of Diagnostic and Treatment Processes for NCDs

The practical guidelines on diagnosing, treating and following up NCDs should be developed to improve the quality as well as outcome of medical services. The scopes of services of the respective health facilities shall be defined by the guidelines, and the future plans for facilities, equipment and drug procurements should be prepared in accordance with the scopes defined by the guidelines.

The guidelines should be regularly updated based on available evidence. Following the opening of the OGMC and ODC, the operational environment, such as referral flow, scope of services of oblast health facilities, and the required skills of doctors and nurses, might drastically change. Major revising of the developed guidelines will be required around 2012.

<b>Activity Goal:</b>	Diagnostic and treatment capacity of health care system is improved as a whole.	
<b>Activity Purpose:</b>	<ul style="list-style-type: none"> <li>- Mechanism of updating practical guidelines of managing NCDs is institutionalized: 1st version in 2010 (by inauguration of OGMC), and 2nd version in 2012 (after OGMC starts)</li> <li>- The guidelines are disseminated to the health personnel in the Oblast.</li> <li>- Plans of facilities, equipment, drug procurement follows the guidelines.</li> </ul>	
<b>Target Area(s):</b>	Health care system in Navoi Oblast from primary-level to tertiary-level	
<b>Implementing Agency/ Organization:</b>	<ul style="list-style-type: none"> <li>- NOHA</li> <li>- OGMC</li> <li>- EC, Navoi branch</li> <li>- Rayon Medical Associations (RMAs)</li> <li>- Navoi Nursing Association</li> </ul>	
<b>Starting Year:</b>	2008, minor revision in 2010 and major revision in 2012	
<b>Total Investment Cost:</b>	36.0 million Soums	
<b>Recurrent Cost</b>	Period: 2009-2017	none
<b>Financial Source of the Investment Cost:</b>	Local budget	

### Major Activities and Outputs:

Activities	Outputs	Verifiable Indicators	Sources of Information
1: The guidelines on management of NCDs are developed. 1.1 NOHA appoints a committee for drafting guidelines. 1.2 The committee reviews the national standards and drafts the Oblast's guidelines. 1.3 NOHA dispatch some committee members to a developed country to let them learn the actual practice.	The guidelines	The guidelines	NOHA
2: Every health facilities in the Oblast are informed of the guidelines. 2.1 The printed guidelines are distributed to the facilities. 2.2 The guidelines are explained to facility representatives at the medical board meetings. 2.3 The guidelines are explained to facility staff at each facility.	Knowledge on the guidelines	Number of distributed copy	NOHA
3. The guidelines are referred to in planning facilities, equipment and drug procurement.	Each plan	Each plan	NOHA
4. The guidelines are regularly revised.	The revised guidelines	The revised guidelines	NOHA

### Implementation Schedule:

Activities	Responsibility	(year)										
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
NOHA appoints a committee and the committee drafts the guidelines.	NOHA	■										
NOHA informs every facility of the guidelines	NOHA /Facilities	■										
The guidelines are referred in other planning.	NOHA											
The guidelines are revised.	NOHA			■		■		■		■		■
Cost (million Soums)	Total											
<b>Oblast level</b>	<b>36.0</b>	<b>10.0</b>	<b>0.0</b>	<b>5.0</b>	<b>0.0</b>	<b>6.0</b>	<b>0.0</b>	<b>7.0</b>	<b>0.0</b>	<b>8.0</b>	<b>0.0</b>	<b>0.0</b>
NOHA	36.0	10.0		5.0		6.0		7.0		8.0		
<b>Rayon level</b>	<b>0.0</b>				<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
	0.0											

Initial investment
  Regular operation



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## Activity 2.2 Coordination among Different Subspecialties

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When the practical guidelines on diagnosing, treating and following up NCDs are developed (as described in Activity 2.1), the criteria for referring and back-referring the patients should be defined, and the inter-facility coordination will be improved. In order to bridge gaps between specialized departments in tertiary-level facilities, the General Medical Center is recommended to assign some doctors as high-level general internists or “hospitalists” who will cope with interdisciplinary health problems. The “hospitalists” assigned in the General Medical Center will secure the in-hospital coordination between specialists and the smooth acceptance of patients referred from other facilities. At rayon-level health facilities, internists who received in-service training in the General Medical Center will play the role of coordinator. As a result, the patients can receive efficient and integrated medical care.

To ensure stable communication between the health facilities, the physical infrastructure should be improved.

<b>Activity Goal:</b>	Diagnostic and treatment capacity of health care system is improved as a whole.	
<b>Activity Purpose:</b>	<ul style="list-style-type: none"> <li>- Criteria of referring and back-referring NCD cases are defined.</li> <li>- The criteria are disseminated to the health personnel in the Oblast.</li> <li>- Internal coordination at OGMC and inter-facility coordination are improved through the activities of “hospitalists” at OGMC and those of trained internists at Rayon-level facilities</li> </ul>	
<b>Target Area(s):</b>	All health facilities from grassroots-level to tertiary-level	
<b>Implementing Agency/ Organization:</b>	<ul style="list-style-type: none"> <li>- NOHA</li> <li>- OGMC</li> <li>- EC, Navoi branch</li> <li>- Rayon Medical Associations (RMAs)</li> </ul>	
<b>Starting Year:</b>	2008, Major revision in 2012	
<b>Total Investment Cost:</b>	14.5 million Soums	
<b>Recurrent Cost</b>	Period: 2009-2017	526.2 million soums
<b>Financial Source of the Investment Cost:</b>	Local budget	

### Major Activities and Outputs:

Activities	Outputs	Verifiable Indicators	Sources of Information
<i>The guidelines on patient referral are developed and regularly revised. (see Activity 2.1)</i>	<i>The guidelines for referral.</i>	<i>The guidelines Frequency of their revision</i>	NOHA
<i>Every health facilities in the Oblast are informed of the guidelines. (see Activity 2.1)</i>	<i>Knowledge on the guidelines</i>	<i>Number of distributed copies</i>	NOHA
1. The candidates for oblast-level general internists (“hospitalists”) are sent abroad to learn actual examples.	The guideline for “hospitalists”	The guideline	NOHA and/or OGMC
2. All guidelines are regularly updated under the supervision of “hospitalists.”	The revised guidelines	The revised guidelines	NOHA
3. The communication infrastructure is improved	Fax machines and Internet connections	Number of facilities having access to fax and Internet	NOHA

### Implementation Schedule:

Activities	Responsibility	(year)									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
The committee drafts and revise the referral guidelines.	NOHA	■		■		■		■		■	
NOHA develops training plans and facilities conduct training.	NOHA /Facilities	■				■					
The General Medical Center sets up Dept. General Internal Medicine.	NOHA					■					
The communication infrastructure is improved	NOHA	■									
<b>Cost (million Soums)</b>	<b>Total</b>										
<b>Oblast level</b>	<b>296.2</b>		<b>27.0</b>	<b>18.6</b>	<b>21.6</b>	<b>28.6</b>	<b>29.1</b>	<b>33.8</b>	<b>39.2</b>	<b>45.5</b>	<b>52.8</b>
NOHA (Fax for facilities)	14.5		11.0			3.5					
Oblast Facilities/RHA (internet)	281.7		16.0	18.6	21.6	25.1	29.1	33.8	39.2	45.5	52.8
<b>Rayon level</b>	<b>244.5</b>		<b>14.0</b>	<b>16.2</b>	<b>18.8</b>	<b>21.8</b>	<b>25.3</b>	<b>29.3</b>	<b>34.0</b>	<b>39.4</b>	<b>45.7</b>
RMA (Internet)	244.5		14.0	16.2	18.8	21.8	25.3	29.3	34.0	39.4	45.7

Initial investment
  Regular operation

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### **Activity 2.3 Personnel Plans and Regular Implementation of In-service Training Courses**

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This activity is based on the activities 2.1 and 2.2. The guidelines on management and referral of NCDs will be developed, and the demarcation of clinical practices will be made between different tiers of health facilities. A stable system of human resource development is quite important for Navoi Oblast which does not have any medical institute. Accordingly, an in-service training system should be established to continuously upgrade skills and the knowledge of health personnel and to meet changing health needs.

The new General Medical Center will be the focal point of the system and may invite some teaching-level specialists and generalists from outside, if necessary. The Center offers in-service training for the staff doctors working at secondary- and primary-level facilities. Trained doctors will serve as internal and external coordinators in RCHs or as gatekeepers in Rayon polyclinics.

<b>Activity Goal:</b>	Diagnostic and treatment capacity of health care system is improved as a whole.	
<b>Activity Purpose:</b>	<ul style="list-style-type: none"> <li>- In-service training upgrades skills and knowledge of health personnel continuously.</li> <li>- OGMC is the focal point and may invite teaching-level specialists or generalists from outside.</li> <li>- Properly trained health personnel are properly distributed over the Oblast.</li> </ul>	
<b>Target Area(s):</b>	All health facilities from primary-level to tertiary-level	
<b>Implementing Agency/ Organization:</b>	<ul style="list-style-type: none"> <li>- NOHA</li> <li>- OGMC</li> <li>- Rayon Medical Associations (RMAs)</li> </ul>	
<b>Starting Year:</b>	2008, Major revision in 2012	
<b>Total Investment Cost:</b>	10.0 million Soums	
<b>Recurrent Cost</b>	Period: 2009-2017	291.3 million soums
<b>Financial Source of the Investment Cost:</b>	Local budget	



### Component 3: Health Facility

#### Activity 3.1 Establishment of Oblast General Medical Center and Oblast Diagnostic Center

Establishment of OGMC and ODC will streamline the patient flow and improve the efficiency of health care service operation as a whole. Secondary-level facilities can refer the patient to ODC in order to confirm the diagnoses, or refer them to OGMC expecting specialized indoor treatment. The EC is partially responding to such needs, so the EC can concentrate their services on the emergency patients after the establishment of these facilities. ODC will offer a diagnostic service principally as a paid service. This mechanism insures their operation will be more stable and alleviates the financial burden of the Oblast. The enhanced quality of health care services and their stable delivery ultimately improves the well-being of patients.

<b>Activity Goal:</b>	OGMC and ODC are smoothly operated as centers of tertiary health care and in-service staff training.	
<b>Activity Purpose:</b>	<ul style="list-style-type: none"> <li>- OGMC and ODC are inaugurated.</li> <li>- Non-emergency adult patients are properly managed.</li> <li>- Financially-independent diagnostic center offers sophisticated services to both adults and children.</li> </ul>	
<b>Target Area(s):</b>	Whole Navoi Oblast	
<b>Implementing Agency/ Organization:</b>	NOHA	
<b>Starting Year:</b>	2008	
<b>Total Investment Cost:</b>	20,500.0 million soums	
<b>Recurrent Cost</b>	Period: 2012-2017	32,552.1 million soums
<b>Financial Source of the Investment Cost:</b>	<ul style="list-style-type: none"> <li>- Republican budget</li> <li>- External donor</li> </ul>	

### Major Activities and Outputs:

Activities	Outputs	Verifiable Indicators	Sources of Information
1: NOHA does the following for the establishment of the OGMC and the ODC: (1) NOHA makes administrative arrangements necessary for construction and equipment of the OGMC and the ODC. (2) Oblast government draws detailed design for the OGMC and the ODC. (3) NOHA implements tender for construction of the OGMC and the ODC and procurement and installment of equipment. (4) NOHA supervises the work for construction and equipment.	Construction of the OGMC and the ODC and installment of their equipment are completed by the year 2011.	Building Facility Equipment	OGMC ODC NOHA
2: MOH and NOHA recruit staff for the OGMC and the ODC.	Number of staff can meet the standard of MOH as the OGMC and ODC.	Number of staff by category and specialty	OGMC ODC NOHA
3: The OGMC and the ODC start operations from the year 2012.	The OGMC and the ODC can play a role as the top facility of Navoi Oblast.	Performance of OGMC and ODC	OGMC ODC NOHA

### Implementation Schedule:

Activities	Responsibility	(year)										
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Administrative arrangements	NOHA	■										
Design works	NOHA		■									
Tender	NOHA			■								
Construction	NOHA			■	■	■						
Procurement of equipment	NOHA				■	■						
Recruitment of staff	MOH/NOHA				■	■						
Operation	OGMC/ODC											
Cost (million Soums)	Total											
<b>Oblast level</b>	<b>53,052.1</b>	<b>0.0</b>	<b>20.0</b>	<b>6,000.0</b>	<b>14,480.0</b>	<b>4,042.0</b>	<b>4,552.2</b>	<b>5,101.6</b>	<b>5,670.6</b>	<b>6,278.9</b>	<b>6,906.8</b>	
Oblast General Medical Center and Oblast Diagnostic Center	53,052.1	0.0	20.0	6,000.0	14,480.0	4,042.0	4,552.2	5,101.6	5,670.6	6,278.9	6,906.8	

Initial investment
  Regular operation

(NB) OGMC: Oblast General Medical Center; ODC: Oblast Diagnostic Center

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**Activity 3.2 Optimization of Oblast Emergency Center**

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Restructuring and optimization of the tertiary health care system would not be completed only by merging of specialized dispensaries into a general hospital.

When the OGMC starts operating, the EC will be able to concentrate on emergency patients. NOHA is recommended to review and re-plan the optimal size and capacity of the EC in advance. Because the free-of-charge policy under the emergency care will be unchanged, NOHA should put a realistic limit on expenses for the EC. The EC will be requested to pursue quality rather than quantity, and to introduce recent innovations to treat critically ill patients.

These two sub-components, namely the establishment of the OGMC and the streamlining of the present EC, should be undividedly examined and planned.

Major activities and their implementation schedule shall be determined after the range of services offered by the OGMC is determined. Accordingly, the details are not presented in this report.

### Activity 3.3 Strengthening of Rayon-level Health Facilities

One of the strategies is “to mitigate difficulties in remote areas,” and this strategy should be translated into a detailed plan of action. RCHs in remote areas have to offer a comprehensive emergency service within the rayon. In this context, the emergency unit of Uchkuduk RCH could be strengthened, counting on cooperative operation with NGMK hospitals in Uchkuduk. In contrast, the emergency unit at Tomdi RCH has to operate semi-independently.

Trained doctors shall be posted to RCHs and rayon polyclinics in the Navoi suburbs, namely Karmana, Navbakhor, Kanimekh, Khatirchi and Kiziltepa, and medical equipment will be improved.

In either case, the number of allocated doctors is limited, because the catchment population is small. As doctors posted to rayons should cover a broader range of diseases, they should have been trained in general practice. It is desirable that every secondary-level facility set up a department of general internal medicine, and the gatekeeping function be born by trained generalists.

Major activities and their implementation schedule shall be determined after the range of services offered by the OGMC and the EC is determined. Accordingly, the details are not presented in this report.

In other words, Activity 2.1 of Component 2, standardization of diagnostic and treatment processes for NCDs, should be prioritized to place a basis of Component 3 and 4.



## Component 4: Medical Equipment

### Activity 4.1 Improvement of Maintenance of Medical Equipment

Equipment maintenance is systematically enhanced with improved inventory, effective users' manuals, training on preventive maintenance, and "help-desk" services in the oblast. A working group, controlled by the Permanent Committee for Control of Medical Equipment Usage headed by the deputy director of NOHA, will carry out activities 2 to 4 till the "help-desk" service starts at OGMC in the year 2011.

<b>Activity Goal:</b>	Medical equipment is kept functioning more. 90% or more of existing equipment is functioning in 2017.	
<b>Activity Purpose:</b>	<ul style="list-style-type: none"> <li>- Medical equipment of all health facilities is maintained through an efficient approach.</li> <li>- Preventive maintenance by users is enhanced.</li> </ul>	
<b>Target Area(s):</b>	Whole Navoi Oblast	
<b>Implementing Agency/ Organization:</b>	- NOHA	
<b>Starting Year:</b>	2008	
<b>Total Investment Cost:</b>	32.6 million soums	
<b>Recurrent Cost</b>	Period: 2010 – 2017	109.9 million soums
<b>Financial Source of the Investment Cost:</b>	Local budget	

## Major Activities and Outputs:

Activities	Outputs	Verifiable Indicators	Sources of Information
1: NOHA assigns the members of a working group to be controlled by the Permanent Committee.	Working group is formed.	Report of Permanent Committee	NOHA, Permanent Committee
2. Improvement of inventory (1) To upgrade the existing inventory of medical equipment (2) To integrate information of local agents and providers of consumables into upgraded inventory	Inventory is upgraded	Integrated inventory	Permanent Committee
3. Improvement of users' manuals for important equipment listed in the upgraded inventory. (1) To collect electronic users' manual (2) To make electronic users' manuals from printed manuals (3) To develop Uzbek instant manual including trouble shooting table/chart (4) To develop daily check-up sheets for preventive maintenance based on improved manuals.	Electronic users' manuals of medical equipment are formulated.	Electronic database	Permanent Committee, Working Group
4. Workshop (1) To instruct the health facilities to use the instant manuals and daily check-up sheets. (2) To give training to health staff regarding practical daily check-up of equipment.	Health facilities receive updated information of maintenance	Report of Workshop and distributed documents	Working Group
5. "Help-desk" services starts in new building of OGMC in 2011 (1) To provide necessary information to health facilities (2) To upgrade periodically inventory and users manuals. (3) To respond to inquiries from health facilities	Health facilities inquire about maintenance trouble at the help desk.	Record of help desk activities	Working Group

## Implementation Schedule:

Activities	Responsibility	(year)									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Set up working group	NOHA/Committee	■									
Improvement of inventory	Committee/Working Group		■								
Formulation of users' manual database	Committee/Working Group		■								
Holding of workshop	Committee/Working Group			▮	▮	▮	▮	▮	▮	▮	▮
Preparation of help desk services in OGMC	Working Group			■							
Operation and updating information	Working Group			▮	▮	▮	▮	▮	▮	▮	▮
Cost (million Soums)	Total										
<b>Oblast level</b>	<b>43.6</b>	<b>2.0</b>	<b>6.8</b>	<b>7.6</b>	<b>2.4</b>	<b>2.8</b>	<b>3.2</b>	<b>3.7</b>	<b>4.3</b>	<b>5.0</b>	<b>5.8</b>
NOHA		2.0	2.0	2.0							
Medical facilities in Navoi city			4.8	5.6	2.4	2.8	3.2	3.7	4.3	5.0	5.8
<b>Rayon level</b>	<b>98.9</b>		<b>12.6</b>	<b>14.7</b>	<b>6.3</b>	<b>7.3</b>	<b>8.5</b>	<b>9.8</b>	<b>11.4</b>	<b>13.1</b>	<b>15.2</b>
Karmana rayon	14.1		1.8	2.1	0.9	1.0	1.2	1.4	1.6	1.9	2.2
Navbakhor rayon	12.3		1.6	1.9	0.8	0.9	1.0	1.2	1.4	1.6	1.9
Nurata rayon	10.6		1.4	1.6	0.7	0.8	0.9	1.0	1.2	1.4	1.6
Khatirchi rayon	23.4		3.0	3.5	1.5	1.7	2.0	2.3	2.7	3.1	3.6
Kiziltepa rayon	17.4		2.2	2.6	1.1	1.3	1.5	1.7	2.0	2.3	2.7
Kanimekh rayon	7.9		1.0	1.2	0.5	0.6	0.7	0.8	0.9	1.0	1.2
Tomdi rayon	6.6		0.8	0.9	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Uchkuduk rayon	6.6		0.8	0.9	0.4	0.5	0.6	0.7	0.8	0.9	1.0

■ Initial investment

▮ Regular operation

(NB) Committee : Permanent Committee for Control of Medical Equipment Usage

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## Activity 4.2 Procurement of Medical Equipment for RCHs

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All RCHs have a responsibility of medical care in common diseases for all territorial inhabitants; moreover RCHs should have a gate-keeping function of diagnosis and medical treatment even for critical and emergency patients. Accordingly, the medical equipment related with a function of radiology/imaging diagnosis, physiological diagnosis, therapeutic care and surgical treatment is essential. Also, in Uchkuduk RCH and Tomdi RCH, surgery function, which is currently missing or insufficient, should be improved with high priority.

Prioritized major medical equipment for RCHs to be improved is;

- Radiology/imaging : Fluoroscopy apparatus, General X-ray apparatus, Ultrasound apparatus
- Physiological diagnosis: Gastrofiberscope, Laparoscope, Bronchofiberscope
- Therapeutic care : Patient monitor, Pulse oximeter, Ventilator
- Surgical treatment : Electro surgical unit, Anesthesia machine, Operating light

See "12 Detailed Plan of Activity 4.2" in Data Book

In addition, the Oblast's health staff shall be trained for better use of medical equipment. Improved equipment shall be supported by systematic maintenance and information system of medical equipment (Activity 4.1).

<b>Activity Goal:</b>	Diagnosis and treatment of common diseases are ensured in RCHs. <i>Number of examinations of common diseases increases in RCHs in 2017.</i>	
<b>Activity Purpose:</b>	<ul style="list-style-type: none"> <li>- Quality of diagnosis and treatment in RCHs is improved.</li> <li>- Adequate diagnosis and treatment in Uchkuduk and Tomdi RCHs mitigate the burden of remote areas.</li> </ul>	
<b>Target Area(s):</b>	All RCHs in Navoi Oblast	
<b>Implementing Agency/ Organization:</b>	<ul style="list-style-type: none"> <li>- NOHA</li> <li>- Navoi Oblast government</li> </ul>	
<b>Starting Year:</b>	2008	
<b>Total Investment Cost:</b>	4,756.5 million soums (Procurement of equipment)	
<b>Recurrent Cost</b>	Period: 2009 – 2017	8,233.7 million soums
<b>Financial Source of the Investment Cost:</b>	<ul style="list-style-type: none"> <li>- Republican budget</li> <li>- External donor</li> </ul>	

## Major Activities and Outputs:

Activities	Outputs	Verifiable Indicators	Sources of Information
1: NOHA does the following: (1) Proposal for improvement of medical equipment of RCHs is approved by the Cabinet of Ministries. (2) Medical equipment will be procured by year 2009.	NOHA prepared inventory of equipment and proposal for the improvement plan	Inventory of equipment	NOHA RCHs
2: NOHA gives necessary training to RCH staff in order to utilize equipment effectively.	Number of RCH trained staff	Number of trained staff	NOHA RCHs
3: NOHA gives adequate instruction to RCHs for budgetary planning for maintenance and operation.	Number of patients and number of diagnosis examinations are increased	Number of patients Working ratio of equipment in Inventory List	NOHA RCHs

## Implementation Schedule:

Activities	Responsibility	(year)													
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017				
Administrative arrangements	NOHA	■													
Design work	NOHA/RCHs	■													
Tender	NOHA	■													
Procurement of equipment	NOHA/RCHs	■	■												
Training to staff	RCHs	■	■												
Operation	RCHs														
Cost (million Soums)	Total														
<b>Oblast level</b>	<b>4,747.0</b>	<b>5.0</b>	<b>4,742.0</b>												
NOHA		5.0	4,742.0												
<b>Rayon level</b>	<b>8,243.2</b>	<b>9.5</b>	<b>474.2</b>	<b>550.2</b>	<b>638.5</b>	<b>740.9</b>	<b>859.4</b>	<b>997.2</b>	<b>1,156.4</b>	<b>1,341.3</b>	<b>1,475.6</b>				
Karmana rayon	931.2	1.0	53.6	62.2	72.2	83.8	97.2	112.8	130.8	151.7	166.9				
Navbakhor rayon	931.2	1.0	53.6	62.2	72.2	83.8	97.2	112.8	130.8	151.7	166.9				
Nurata rayon	931.2	1.0	53.6	62.2	72.2	83.8	97.2	112.8	130.8	151.7	166.9				
Khatirchi rayon	931.2	1.0	53.6	62.2	72.2	83.8	97.2	112.8	130.8	151.7	166.9				
Kiziltepa rayon	931.2	1.0	53.6	62.2	72.2	83.8	97.2	112.8	130.8	151.7	166.9				
Kanimekh rayon	931.2	1.0	53.6	62.2	72.2	83.8	97.2	112.8	130.8	151.7	166.9				
Tomdi rayon	1,235.9	1.5	71.3	82.7	95.9	111.2	129.0	149.6	173.5	201.3	221.4				
Uchkuduk rayon	1,410.6	2.0	81.3	94.3	109.4	126.9	147.2	170.8	198.1	229.8	252.8				

Initial investment
  Regular operation

(NB) RCHs: Rayon Central Hospital

## Component 5: Efficiency of Drug Supply

### Activity 5.1 Centralizing of Medicine Preparation

Centralizing medicine preparation would save on the cost of medicine preparation which is done in every health facility at the moment. And the surplus will be utilized to increase the drug supply in remote areas. At the same time, the quality control of medicine preparation and effective distribution in the whole oblast should be assured.

<b>Activity Goal:</b>	Efficiency of medicine preparation increases. <i>Cost for medicine preparation in 2017 is within 3 times of the year 2006.</i>	
<b>Activity Purpose:</b>	- Preparation of medicine (transfusions) is centralized in the oblast and distributed to RMAs on demand. <i>Surplus cost is utilized to increase drug supply in remote areas (5.2)</i>	
<b>Target Area(s):</b>	Whole Navoi Oblast	
<b>Implementing Agency/ Organization:</b>	- NOHA - Rayon Medical Association (RMA)	
<b>Starting Year:</b>	2008	
<b>Total Investment Cost:</b>	30.0 million soums	
<b>Recurrent Cost</b>	Period: 2009 - 2017	182.0 million soums
<b>Financial Source of the Investment Cost:</b>	Local budget	

#### Major Activities and Outputs:

Activities	Outputs	Verifiable Indicators	Sources of Information
1. NOHA establishes the oblast medicine preparation unit.	The oblast medicine preparation unit is established in 2008.	Personnel Facility Equipment (Drug transportation vehicle, etc.)	NOHA
2. NOHA establishes the unified medicine supply system.	- The system of on-demand supply between health facilities and the oblast medicine preparation unit.	Medicine request manual Request records Supply records	NOHA RMA The oblast medicine preparation unit
3. NOHA and RMA monitor the effectiveness and efficiency of the system.	The centralized medicine preparation system increases cost effectiveness of medicine preparation.	Costs for medicine supply Request and supply records	NOHA/ The oblast medicine preparation unit/ RMA

**Implementation Schedule:**

Activities	Responsibility	(year)									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Establishment of the oblast medicine preparation unit	NOHA	■									
Establishment of unified medicine supply system	NOHA /OMPU	■									
Monitoring	NOHA										
Cost (million Soums)	Total										
<b>Oblast level</b>	<b>212.0</b>	<b>30.0</b>	<b>10.5</b>	<b>12.1</b>	<b>14.1</b>	<b>16.3</b>	<b>18.9</b>	<b>21.8</b>	<b>25.3</b>	<b>29.2</b>	<b>33.8</b>
NOHA	8.1	2.0	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9
OMPU	203.9	28.0	10.0	11.6	13.5	15.7	18.2	21.1	24.5	28.4	32.9

■ Initial investment      ||||| Regular operation

OMPU= Oblast Medicine Preparation Unit

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## Activity 5.2 Improvement of Access to Drugs at Remote Areas

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In order to improve the issues regarding drugs, it is necessary to approach them from the following various aspects:

Doubling the budgets for procurement of drugs enables NOHA to alleviate the difficulties associated with their supply.

To minimize the wasteful use of drugs, NOHA assesses the actual prescription and patients' compliance with it. In the case where there is something that can be improved, NOHA conducts the necessary training.

Even if these measures have been done, the problem of the efficiency of the drug supply might not be solvable, especially in remote areas. Therefore, RMAs and NOHA consider seeking the possibility of cooperation with local entities that sell drugs at such places.

<b>Activity Goal:</b>	Inequality regarding people's access to drugs is mitigated. <i>People with adequate access to drugs are doubled by 2017 (in total 8 Rayons)</i>	
<b>Activity Purpose:</b>	<ul style="list-style-type: none"> <li>- Budget for drugs is increased.</li> <li>- Drug prescription and compliance is improved.</li> <li>- Local entities start selling drugs in remote areas.</li> </ul> <i>Rules might be examined regarding involvement of local entities.</i>	
<b>Target Area(s):</b>	Eight rayons of Navoi Oblast	
<b>Implementing Agency/ Organization:</b>	<ul style="list-style-type: none"> <li>- Rayon Medical Associations (RMAs)</li> <li>- NOHA</li> </ul>	
<b>Starting Year:</b>	2009	
<b>Total Investment Cost:</b>	720.6 million soums	
<b>Recurrent Cost</b>	Period: 2009 – 2017	9,666.6 million soums
<b>Financial Source of the Investment Cost:</b>	Local budget	





## Component 6: Sanitary Conditions of Health Facilities

### Activity 6.1 Introduction of “Self-filling and Self-flushing” Toilet

This activity evolved from the small-scale activities initiated in the Study into a more systematic and drastic plan of action. As a driving force for continued activities, it is recommended to set up a working group, consisting of heads of RCHs, staff of NOHA and Sanitary Epidemiology Station (SES).

This self-filling and self-flushing type of toilet can be usable even in rayons facing a water shortage. Judging from the Study Team’s observation of the current situation regarding the water supply, the RCHs of Tomdi, Kanimekh and Karmana are priorities. It is assumed that each hospital constructs four toilets, and the cost for construction is estimated at 8.75 million soums per toilet.

<b>Activity Goal:</b>	Infections caused by unsanitary condition are avoided. <i>Incidence of infectious diseases at target areas is decreased by 2017.</i>	
<b>Activity Purpose:</b>	- Sanitary conditions in health facilities are improved in target rayons and facilities. <i>A total of 16 toilets of the “self-filling and self-flushing type” are constructed at rayons and facilities.</i>	
<b>Target Area(s):</b>	Rayon Central Hospitals, especially at Tomdi, Kanimekh and Karmana	
<b>Implementing Agency/ Organization:</b>	- Rayon Medical Associations (RMAs)	
<b>Starting Year:</b>	2007	
<b>Total Investment Cost:</b>	141.4 million soums	
<b>Recurrent Cost</b>	Period: 2008-2017	25.4 million soums
<b>Financial Source of the Investment Cost:</b>	Local budget	



## 12-5 Total Cost of the Program and Financial Requirements

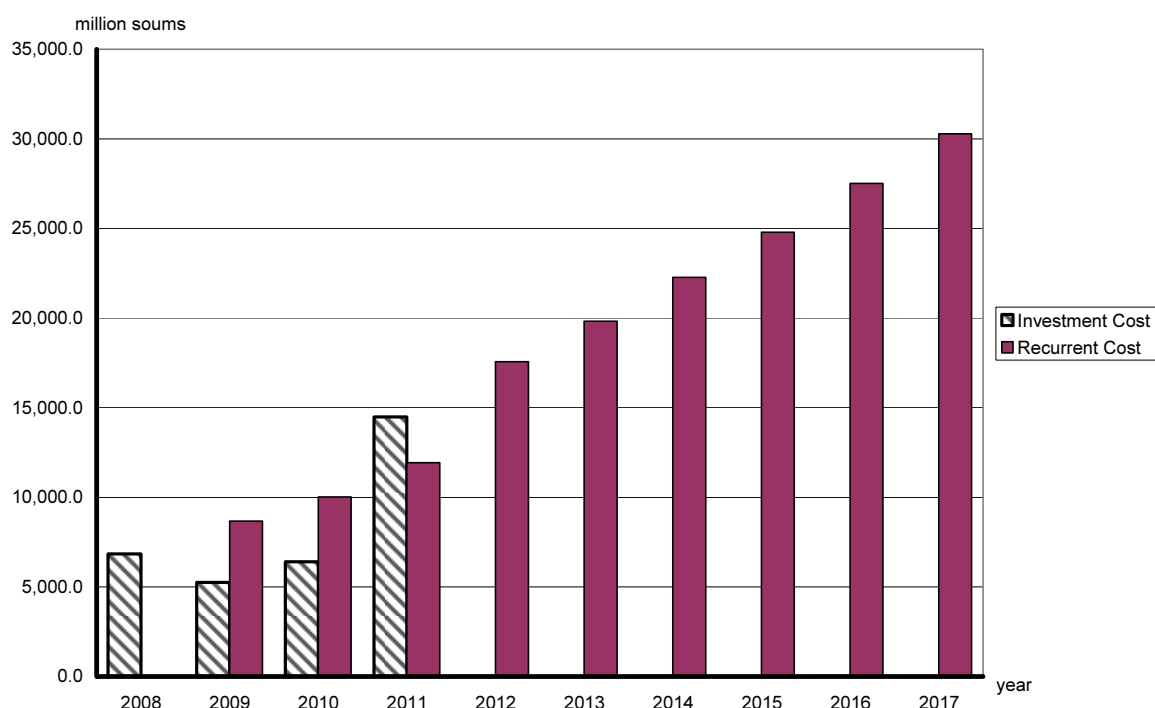
As shown in Table 12-1 and Figure 12-2, the Study Team prospects the total cost of initial investments and preparation for the activities enumerated in Section 12-4 will be 32,996.8 million soums and that 172,872.2 million soums will be needed for regular operation of these activities in the years 2008-2017.

The Study Team defines the cost for preparation and initial arrangements necessary to commence the activities as well as construction of the buildings and procurement of medical equipment as investment. Therefore, a part of the investment cost is financed by the recurrent budget of NOHA. According to the estimation by the Study Team, it is necessary for MOH to secure a total of around 25.0 billion soums from the investment budget. The Study Team assumes that most of the investment will be concentrated in the first four years from 2008, especially for construction of the OGMC and the ODC and procurement of medical equipment for these facilities.

**Table 12-1: Total Cost for Activities within the Health Reform Program in Navoi**

Activity/ Cost	Year	Unit: million Soum									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Total Investment Cost</b>	<b>32,996.8</b>	<b>6,837.0</b>	<b>5,243.3</b>	<b>6,402.0</b>	<b>14,490.0</b>	<b>9.5</b>	<b>0.0</b>	<b>7.0</b>	<b>0.0</b>	<b>8.0</b>	<b>0.0</b>
<b>Recurrent Cost</b>	<b>172,872.2</b>	<b>0.0</b>	<b>8,673.1</b>	<b>10,014.0</b>	<b>11,924.6</b>	<b>17,572.2</b>	<b>19,819.7</b>	<b>22,265.1</b>	<b>24,791.2</b>	<b>27,522.5</b>	<b>30,289.8</b>

Source: Estimation by JICA Study Team

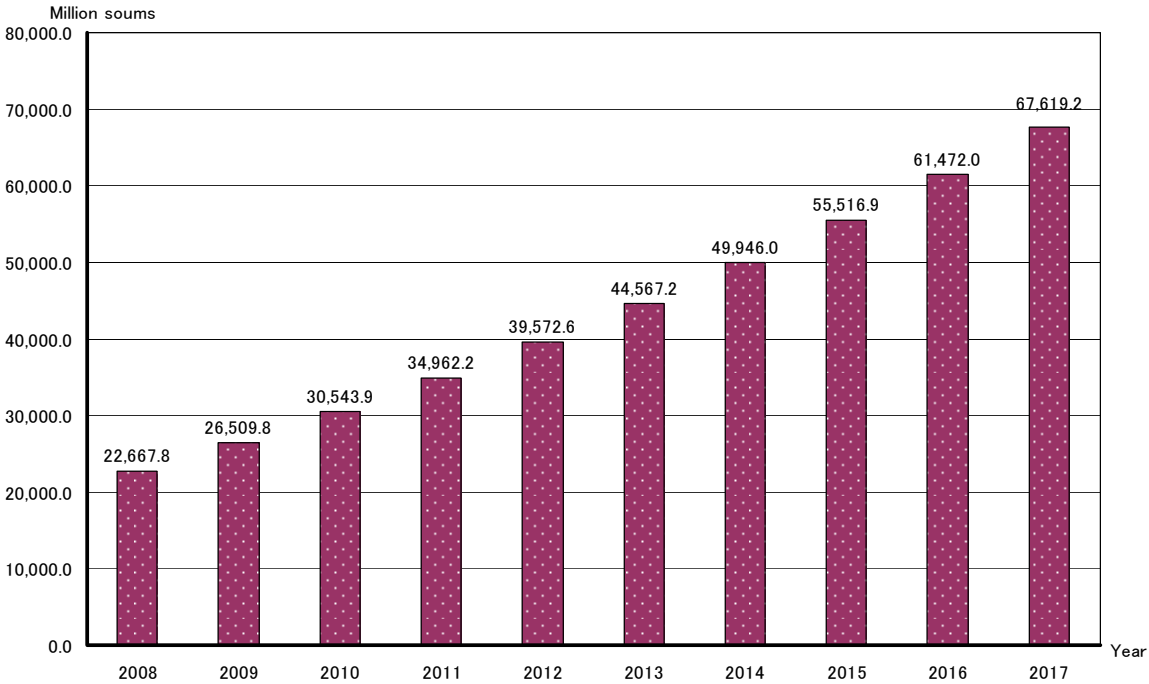


Source: Estimation by the Study Team

**Figure 12-2: Cost for Activities within Health Reform in Navoi in 2008-2017**

After the commencement of these activities, NOHA is responsible for operating them by utilizing its recurrent budget. These activities include ones requiring additional budgets for implementation. In addition, as already mentioned, some of the investments have to be financed by the recurrent budget. Therefore, the financial capacity of NOHA is the next issue.

The prospects of NOHA’s recurrent budget for the next ten years are summarized in Figure 12-3. Assuming that the growth of NOHA’s budget is the same as that of MOH for the next ten years and that the percentage of distribution of the MOH budget to the oblast health administrations is unchanged at the current level, the Study Team prospects that NOHA’s budget will be 39,572.6 million soums in 2012 and 67,619 million soums in 2017 and that the cumulative total of NOHA’s budget will be 433,377.5 million soums in 2008-2017.



Source: Estimation by the Study Team

**Figure 12-3: Prospects of NOHA’s Budget in 2008-2017**

Meanwhile, the cost of the activities described in the previous section totals 180,486.9 million soums, 41.6% of NOHA’s budget (Table 12-2). However, some of the activities do not involve additional financial inputs, namely prevention of NCDs (Activity No. 1.1) and the activity regarding the centralization of medicine preparation (Activity No. 5.1).

Review of mass education on disease prevention and the inclusion of the contents on NCDs can be done within the routine activities of the Navoi Branch of the Institute of Health. The system of checkups can also be reestablished within the existing framework of the patronage activities, through focusing the contents on those for screening the risk of NCDs. Therefore, there is no need to put this item into the additional budget.

The centralization of medicine preparation (Activity No. 5.1) can save on the expenditure of NOHA through optimizing the allocation of pharmacists.

**Table 12-2: Cost of Activities and NOHA's Recurrent Budget in 2008-2017**

Year	Unit: million soums										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
NOHA Budget (A)	22,667.8	26,509.8	30,543.9	34,962.2	39,572.6	44,567.2	49,946.0	55,516.9	61,472.0	67,619.2	433,377.5
Cost of Activities Financed by Recurrent Budget (B)	6,802.1	9,049.4	10,416.0	11,934.5	17,581.7	19,819.7	22,272.1	24,791.2	27,530.5	30,289.8	180,486.9
Additional Cost to Implement Activities (C)	87.7	886.8	1,011.3	1,169.1	5,396.3	6,095.8	6,891.2	7,693.7	8,597.8	9,462.1	47,291.7
(B)/(A)	30.0%	34.1%	34.1%	34.1%	44.4%	44.5%	44.6%	44.7%	44.8%	44.8%	41.6%
(C)/(A)	0.4%	3.3%	3.3%	3.3%	13.6%	13.7%	13.8%	13.9%	14.0%	14.0%	10.9%

Source: Estimation by the Study Team

On the other hand, operation of the OGMC and ODC (Activity No. 3.1), maintenance of medical equipment (Activity 4.1 and 4.2) and improvement of access to drugs (Activity 5.2) especially require additional budgets from NOHA, as shown in Table 12-3. As it is assumed that OGMC and ODC will be inaugurated in 2012, these operational costs will be imposed on NOHA from that year. Currently, the budget for the maintenance of medical equipment is not appropriated in the recurrent budget, so Activity 4.1 and Activity 4.2 clearly involve additional financial inputs. Regarding access to the drugs, doubling the budget itself is one of the outputs for Activity 5.2.

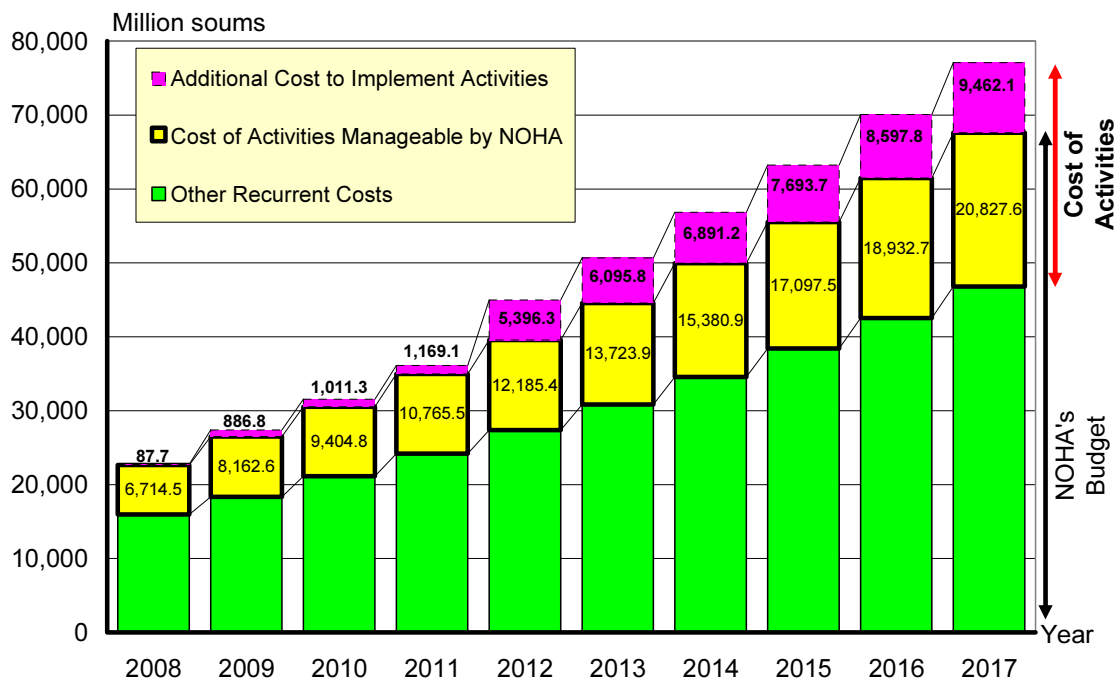
**Table 12-3: Breakdowns of Additional Costs in 2008-2017**

Year	Unit: million soums										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Activity 1.1	40.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.8
Activity 1.2	20.0	15.9	11.5	13.5	15.8	18.1	21.4	24.7	29.0	33.6	203.5
Activity 2.1	10.0	0.0	5.0	0.0	6.0	0.0	7.0	0.0	8.0	0.0	36.0
Activity 2.2	0.0	41.0	34.8	40.4	50.4	54.4	63.1	73.2	84.9	98.5	540.7
Activity 2.3	0.0	0.0	0.0	24.4	28.9	34.3	40.7	48.2	57.1	67.7	301.3
Activity 3.1	0.0	0.0	0.0	0.0	4,042.0	4,552.2	5,101.6	5,670.6	6,278.9	6,906.8	32,552.1
Activity 4.1	2.0	19.4	22.3	8.7	10.1	11.7	13.5	15.7	18.1	21.0	142.5
Activity 4.2	14.5	474.2	550.2	638.5	740.9	859.4	997.2	1,156.4	1,341.3	1,475.6	8,248.2
Activity 5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Activity 5.2	0.0	334.8	385.8	441.6	499.8	562.9	643.4	701.2	776.4	854.0	5,199.9
Activity 6.1	0.4	1.5	1.7	2.0	2.4	2.8	3.3	3.7	4.1	4.9	26.7
<b>Additional total costs</b>	<b>87.7</b>	<b>886.8</b>	<b>1,011.3</b>	<b>1,169.1</b>	<b>5,396.3</b>	<b>6,095.8</b>	<b>6,891.2</b>	<b>7,693.7</b>	<b>8,597.8</b>	<b>9,462.1</b>	<b>47,291.7</b>

Source: Estimation by the Study Team

Consequently, as described in Table 12-2 and Table 12-3, NOHA will face a shortage of its recurrent budget totaling 47,291.7 million soums for the next ten years. Figure 12-4 shows that the additional costs will increase sharply from 2012. MOH is suggested to increase the NOHA's recurrent budget by at least 14% after the inauguration of OGMC and ODC.

It can be done if the Uzbek Government restores its expenditure on public health, as a percentage of its GDP, to the level of the year 1994. According to WHO and the World Bank, government expenditure on health was 4.6% of GDP in 1994 but has fallen down to around 2.5% since 2000. If MOH can return to the level of 1994, its budget can be increased by 50% and then it can easily finance the 14% growth of NOHA's budget. The Uzbek Government is advised to offer the proper financial support in order to realize its commitment to pay special attention to health services.



Source: Estimation by the Study Team

**Figure 12-4: Prospects of NOHA's Budget and Additional Costs in 2008-2017**

Health expenditure will sharply increase in any country if the health care system fails to respond to the epidemiological transition, and every country needs a sort of mechanism to control the increasing health expenditure. MOH and NOHA are requested to allocate their budget for building and maintaining the mechanism.

In response to the new Presidential Decree, MOH plans to cover the whole investment cost for construction of OGMC and ODC in Navoi Oblast (Component 3). For the procurement of medical equipment for these facilities (Component 4), MOH expects some sort of donation from private companies or foreign aid, either loan or grant. NOHA considers saving the operational cost of these facilities, taking advantage of putting most oblast-level facilities together in the premises of Medical Complex. For example, laboratory tests are currently offered at each hospital and such an arrangement is not the best choice from the viewpoint of efficiency. Centralizing laboratory tests in ODC will decrease the total cost for operating the laboratories independently at each facilities. Moreover, it will increase the fee collection from users which Navoi oblast has shown poorer performance compared to the other oblasts. In this context, OGMC and ODC should offer the quality services to which users are willing to pay the fees.

In order to make the entire oblast health system to be effective and efficient, it is important to select target diseases properly, to make a reasonable demarcation between health facilities at different levels and give the clear practice guideline to each level facility. Therefore, the top priority to be given to Component 2 is highly recommended, together with the execution of Component 3 and 4.