Afghanistan:

1-General information¹:

Geographical situation: The Islamic Republic of Afghanistan, commonly known as Afghanistan, is a landlocked country in south-central Asia. Afghanistan is administratively divided into 34 provinces, with each province having a capital and a governor in office.

Capital: Kabul

Official language(s): Dari (Persian) and Pashto

Area in square kilometers²: 652,225

2-Health profile³:

Total population: 28,150,000

Gross national income per capita (PPP international $): 1100

Life expectancy at birth m/f (years): 47/50

Probability of dying under five (per 1,000 live births): 199

Probability of dying between 15 and 60 years m/f (per 1,000 populations): 440/352

Total expenditure on health per capita (Intl $, 2009): 69

Total expenditure on health as % of GDP (2009): 7.4

3-History of blood banking

A central blood bank (CBB) was set up in Kabul (Afghanistan) during the 1980s. From 1992 onwards, its activities were curtailed due to the political turmoil, lack of funds and the fact that no blood collection policy was being implemented. A partnership between a development aid agency (Avicen), French public institutions and the local authorities has resulted in the rebirth of this CBB by the injection of financial resources and technical and scientific expertise. An independent committee of blood transfusion specialists was responsible for assessing the scientific validity and ethical acceptability of the project. In 1996, the objectives of the project, which had been in operation for one year, were achieved as far as the renovation of the laboratories was concerned. Work has focused mostly on setting up a proper cold chain and on training laboratory technicians in standard biological methods for testing blood from donors (blood group, HIV screening (Ag Abs), HCV and syphilis). However, due to the shortage of blood donors, it has been difficult to set up a minimum blood bank stock.  

4-Blood Transfusion System:

In theory, there was a unified government-operated nationalized blood banking system in Afghanistan. As of 2004, the system included the Central Blood Bank of Kabul (CBBK), seven branches in Kabul, and 11 other branches throughout Afghanistan but not any military hospitals. However, because of the impact of more than 20 years of war, the CBBK had been damaged heavily and its system disrupted. The director of the CBBK had some involvement with the other seven branches in Kabul, but almost none with the 11 branches outside of Kabul. There was no standardization of procedures, sharing of materials, or joint activities. Many of the branches of CBBK, especially those located outside of Kabul, were out of reach of CBBK due to transportation and communication difficulties. There were other transfusion systems reportedly operating independently in the country. The CBBK and its branches had the responsibility to meet the nation’s need for transfusion activities such as blood provision, training of staff, and other transfusion related issues. This system had never achieved total supply. The International Committee of the Red Cross (ICRC) and Red Crescent had not been involved with the CBBK apparently because the activities of ICRC are mainly focused on the war issues and not on blood donor recruitment.⁵

Blood transfusion is an important aspect of the Ministry of Health’s projects for rehabilitating Afghan health system. The provision of blood products of unimpeachable quality and insufficient quantities to meet the needs of patients’ treatment are a Ministry of Health priority achieving this objective calls for the implementation of a national blood transfusion policy intended to rehabilitate the entire sector. Given the current situation in the country, blood transfusion policy in Afghanistan prioritizes following tasks:

- Boosting transfusion safety

---

• Staff training
• Setting up a national network of transfusion services
• Promoting the development of transfusion to meet the needs of public health priorities.

The organization of the Afghan Blood Transfusion System (ABTS) is based on a network of blood transfusion centers in the 34 provinces of the country. The work of collecting and supplying blood products must remain as close as possible to the donors and the hospitals, in order to promote the development of blood collection and the supply of high-quality blood products. This proximity is particularly important in the case of health-care facilities involved in obstetric care.

Each “regional” blood transfusion center is technically responsible for the entire transfusion chain throughout its geographical area. It is responsible for the enforcement of Good Transfusion Practice Standards, and for the quality of the products prepared.

Training will be provided on the basis of Good Transfusion Practice Standards. It is intended to provide all the existing staff with the qualifications they require for carrying out their transfusion duties, and developing the skills required for the regular assessment and updating of the skills of the staff. The training of the prescribing physicians is also essential, so that blood transfusion becomes.  

5- Structure:

Implementation of the blood transfusion policy is based on a specific structure organized around the Ministry of Health, which exercises administrative and political oversight over the entire system. This structure, detailed in a strategic plan for blood transfusion in Afghanistan, which is made of:

• The Ministry of Health itself

---

• Afghanistan National Blood Safety and Transfusion Services:

At National level blood bank activity comes under the control of the Afghanistan Blood Safety and Transfusion Service (ANBSTS). The ANBSTS was established by the Ministry of Public Health (MoPH), as part of the Agence Française de Développement (AFD) funded and EPOS managed ‘Rehabilitation of the Blood Transfusion System in Afghanistan’ project. Logistically supported by the MoPH, the project started in March 2007 and established the first ever mass mobile blood donation units in Kabul.  

There are Five regional transfusions’ centers (the existing Central Blood Bank “CBBK” in Kabul, and four other centers to be created in Jalal-Abad, Mazar-e-Shareef, Herat and Kandahar).

To carry out its activities, the CBBK had a director, who was a physician surgeon and was organized into departments, some more active than others. The staffs were divided into administrative and technical with most of the technical staff being pharmacists or technicians by training. There was no physician with training in blood banking or transfusion medicine on the staff.

Central Blood Bank renamed as Imam Hussein Blood Bank. All over the country, there are Imam Hussein Blood Bank in Kabul and its 8 branches in 8 hospitals in Kabul. The staffs are:

• Manager of Imam Hussein Blood Bank:

• Technical Manager.

• Head of departments (Serology, Hematology, Immunohematology, Blood Collection and Blood Distribution) and administration head departments are admin responsible, Service responsible and Account Responsible.

• There are 5 members at each department.

In province each hospital has one blood service facility to provide all blood service. Organization of this blood service is as following:

[Note: Additional information about the website link is not relevant to the content of the text and is not included in the response.]
• Head of facility with 5 Technicians.  

6- Blood Supply and Types of blood donation:

The CBBK collected approximately 6000 to 12,000 units of whole blood annually.

<table>
<thead>
<tr>
<th>Year</th>
<th>CBBK</th>
<th>Hospital 1</th>
<th>Hospital 2</th>
<th>Hospital 3</th>
<th>Hospital 4</th>
<th>Hospital 5</th>
<th>Hospital 6</th>
<th>Hospital 7</th>
<th>Total number of units</th>
<th>Number of blood typing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>17,947</td>
<td>17,947</td>
</tr>
<tr>
<td>1998</td>
<td>6,914</td>
<td>5,064</td>
<td>8,041</td>
<td>91</td>
<td>60</td>
<td>Unknown</td>
<td>166</td>
<td>559</td>
<td>20,815</td>
<td>21,029</td>
</tr>
<tr>
<td>1999</td>
<td>8,858</td>
<td>4,038</td>
<td>4,836</td>
<td>261</td>
<td>273</td>
<td>8,544</td>
<td>294</td>
<td>430</td>
<td>25,371</td>
<td>30,888</td>
</tr>
<tr>
<td>2000</td>
<td>7,830</td>
<td>2,764</td>
<td>8,158</td>
<td>325</td>
<td>0</td>
<td>8,100</td>
<td>0</td>
<td>903</td>
<td>25,880</td>
<td>25,880</td>
</tr>
<tr>
<td>2001</td>
<td>4,705</td>
<td>1,936</td>
<td>3,380</td>
<td>254</td>
<td>236</td>
<td>1,180</td>
<td>220</td>
<td>1,800</td>
<td>13,751</td>
<td>21,813</td>
</tr>
<tr>
<td>2002</td>
<td>11,710</td>
<td>9,185</td>
<td>9,185</td>
<td>369</td>
<td>357</td>
<td>1,279</td>
<td>260</td>
<td>1,000</td>
<td>24,789</td>
<td>40,345</td>
</tr>
</tbody>
</table>

The CBBK staff estimated that the sources of blood donors were family replacement 95% and voluntary less than 5%. Occasionally, but rarely, public blood campaigns were held to collect blood from volunteers, but there was not a culture of regular volunteer blood donation. World Health Organization recommended that Afghanistan should have 300,000 units of blood annually but Whole blood donation is estimated as 60,000 per year in Afghanistan.  

Numbers of volunteer blood donors are estimated as 6,000 donors per year in Afghanistan.  

Paid blood donors are estimated as 1,000 per year in Afghanistan.

---

8 Email sent from Dr. Ahmad Masoud Rahmani, Director, Central Blood Bank, Ministry of Public Health  
10 Email sent from Dr. Ahmad Masoud Rahmani, Director, Central Blood Bank, Ministry of Public Health
7- Blood Safety

A standard health history and physical examination was not used to assess potential donors. The donor health history was taken orally; however, the donor evaluation lacked health history questions such as exposure to hepatitis or malaria that are important for the safety of blood. The department was equipped with two donor chairs and staffed by pharmacists. Blood was collected by technicians and pharmacists. The collection site on the donor’s arm was prepared with an antiseptic solution, but the composition of this solution varied. Blood was collected into plastic bags; however, the supply of collection bags was intermittent. During the assessment a blood collection bag supply of approximately 2 more weeks was available but future supplies were uncertain. Blood samples were also taken for donor tests. After donation, there were no refreshments for donors because of a lack of funds.

Rapid strep test systematic for HIV, HBs, HCV & VDRL are being used as routine screening test in Afghanistan and rate of Transfusion Transmitted Infections among blood donors is not available in Afghanistan. The MOH has decided to introduce good transfusion practice standards for all the steps in the transfusion chain. The Afghan blood transfusion system must be able to supply blood products that meet the quality and safety criteria stipulated by the Good Transfusion Practice Standards compiled by the MOH.

---

11 Email sent from Dr. Ahmad Masoud Rahmani, Director, Central Blood Bank, Ministry of Public Health
Screening tests were performed intermittently depending on whether reagents were available. The tests that were attempted consistently were hepatitis B surface antigen (HBsAg), hepatitis C virus (HCV) antibody, syphilis, and human immunodeficiency virus (HIV) antibody (Table 2).

Tests were performed for anti-HCV, and HBsAg using spot tests or a hemagglutination-based test. Reagents were acquired from WHO, the International Stabilization and Assistance Force, and the ICRC. Negative controls were routinely performed but positive controls were performed only in doubtful cases. If the screening test was positive, it was repeated two or three times, but confirmatory tests were not available. In the first few months of 2003, only one case was HIV-positive. The subject was not a donor, had come from out of the country, and was referred by a physician. There were no cases identified by blood donor screening until 2000 (Table 2).

Malaria screening was done on a peripheral blood smear for donors if a history was obtained suggestive of malaria. If the reagents were available, occasionally screening was done for leishmaniasis, salmonella because typhoid fever is common during the summer and brucella because brucellosis is also common. This is unique in Afghanistan because testing for these diseases is not done in developed countries.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% Positive</td>
<td>Total</td>
<td>% Positive</td>
<td>Total</td>
<td>% Positive</td>
<td>Total</td>
</tr>
<tr>
<td>HBsAg</td>
<td>5,039</td>
<td>1.3</td>
<td>1,440</td>
<td>Unknown</td>
<td>4,221</td>
<td>12.3</td>
<td>4,893</td>
</tr>
<tr>
<td>Anti-HIV</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>3,822</td>
<td>0</td>
<td>7,964</td>
<td>0</td>
</tr>
<tr>
<td>VDRL</td>
<td>1,398</td>
<td>0.69</td>
<td>1,767</td>
<td>0.46</td>
<td>0</td>
<td>NA</td>
<td>0.649</td>
</tr>
<tr>
<td>Anti-GY</td>
<td>1,398</td>
<td>0.61</td>
<td>1,440</td>
<td>0.70</td>
<td>1,670</td>
<td>0.56</td>
<td>1,901</td>
</tr>
<tr>
<td>Brucellosis</td>
<td>900</td>
<td>2.4</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Leishmaniasis</td>
<td>1,555</td>
<td>7.6</td>
<td>1,747</td>
<td>1.7</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Antiglobulin test</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

8- Blood usage:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% Positive</td>
<td>Total</td>
<td>% Positive</td>
<td>Total</td>
<td>% Positive</td>
<td>Total</td>
</tr>
<tr>
<td>HBsAg</td>
<td>5,039</td>
<td>1.3</td>
<td>1,440</td>
<td>Unknown</td>
<td>4,221</td>
<td>12.3</td>
<td>4,893</td>
</tr>
<tr>
<td>Anti-HIV</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
<td>3,822</td>
<td>0</td>
<td>7,964</td>
<td>0</td>
</tr>
<tr>
<td>VDRL</td>
<td>1,398</td>
<td>0.69</td>
<td>1,767</td>
<td>0.46</td>
<td>0</td>
<td>NA</td>
<td>0.649</td>
</tr>
<tr>
<td>Anti-GY</td>
<td>1,398</td>
<td>0.61</td>
<td>1,440</td>
<td>0.70</td>
<td>1,670</td>
<td>0.56</td>
<td>1,901</td>
</tr>
<tr>
<td>Brucellosis</td>
<td>900</td>
<td>2.4</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Leishmaniasis</td>
<td>1,555</td>
<td>7.6</td>
<td>1,747</td>
<td>1.7</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Antiglobulin test</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

NA = not available.

Blood is prescribed by the Blood Transfusion Committee in each hospital and each committee has 6 members; one is second call surgeon, two is the on-call surgeon and three routine Surgeons.  

8- Other activities:

The CBBK did not have a quality assurance/QC program, and concepts of quality were not generally established within the CBBK.

SOPs

There were no SOPs available in any of the departments. There had been SOPs in years past, but these were no longer being used. During the assessment, based on our recommendations, some SOPs were written and these were hung on the walls of the CBBK laboratories.

Transportation

The transportation system was not dependable and there was no organized process for moving blood from the CBBK to different hospitals. The blood was transported to the hospitals by the patient’s family. There were no insulated containers to maintain proper temperatures during blood transport.

Hematology department

This department performed hemoglobin, hematocrit, white blood cell, and RBC counts; thick and thin smears for malaria parasites; prothrombin and partial thromboplastin times; and peripheral blood morphology on patients from hospitals and clinics. The staff was two pharmacists and one technologist. The blood samples were being aspirated from the test tube through glass pipettes by mouth and patients’ blood was handled without gloves thus potentially exposing the staff to infectious diseases.

Cross match department (blood distribution department)

A request form and patient blood samples from recipients were submitted when RBCs were needed. The recipients’ ABO and Rh type were determined and their blood samples were kept

13 Email sent from Dr. Ahmad Masoud Rahmani, Director, Central Blood Bank, Ministry of Public Health
for 1 month. An RBC unit of the appropriate ABO and Rh type was selected from the stored blood inventory, cross matched, and distributed to the hospital for transfusion. There was no written SOP for cross match and at times the blood was sent to the hospital for transfusion without a cross match. If stored blood was not available to match the patient’s blood type, the patients or their family was asked to provide multiple donors so that a compatible donor unit could be identified.

In this situation the patient received fresh blood, which was usually transfused before the results of screening tests were known.

Hemophilia department

The hemophilia department maintained a registry of hemophilia patients and administered FFP when needed.

Cryoprecipitate and Factor VIII preparations were not available. At the time of this assessment, 87 hemophilia patients had been registered. During the assessment, a 10-to 12-year-old known boy with hemophilia presented to the hemophilia center of CBBK with hemothrosis of his knee joint. FFP was not available and so plasma was removed from a unit of stored whole blood in which the RBCs had sedimented. Although coagulation factor activity declines in stored blood, approximately 200 mL was administered to the patient since no other treatment was available. There was no protocol regarding the dosage of FFP in different clinical situations. The major problem areas in the hemophilia department include the following: 1) plasma separation was not done because of a broken centrifuge or was done from stored blood, which would usually have decreased levels of coagulation factor activity; 2) freezers were unavailable for storing FFP; 3) medical specialists were not involved in the treatment; and 4) standard protocols for treatment of patients were absent.

Thalassemia department

The department was established at the same time as the hemophilia department and was staffed by two pharmacists. The goal was to provide a registry and free blood for thalassemia patients. It was equipped with five beds shared with the hemophilia department. At that time, 50% of the blood needs of thalassemic patients were provided free by the CBBK and the other
50% were replaced by the patients’ families. The number of registered thalassemic patients was 52. Usually due to an inadequate supply of stored blood, fresh blood from relatives was administered (often before the results of screening tests or without performing the screening tests before release) which increased the chance of transfusion-transmitted diseases in these patients requiring multiple transfusions. In addition, repeated transfusions from relatives in this multiply transfused population could lead to RBC alloimmunization or graft-versus-host disease. There were no processes to detect such problems if they occurred.

Department of research

The activities of this department were data collection and arranging conferences. Data were collected regarding transfusion-transmitted disease (based on screening tests), hemoglobinopathies, thalassemias, number of blood donations, and tests performed. Through the efforts of this department a “Blood Transfusion Committee for Safe Transfusion Services” was established. This transfusion committee consisted of surgery and internal medicine specialists, representatives of six nongovernmental organizations (NGOs), and CBBK staff. Two meetings had been held. Topics discussed were standardization of blood tests, preparation of blood components, use of blood bags of different sizes, standard forms for blood donation and distribution, adoption of the cross match, and supervision of these activities by CBBK.

Biochemistry department

This laboratory performed basic tests such as blood glucose on patients’ blood samples sent from hospitals and clinics.

Antisera development

This laboratory was inactive at the time of this assessment. Antisera being used had been provided by the WHO and some other NGOs. The department could produce antisera from blood obtained from donors or patients.\textsuperscript{14}
